

*original for cover used on
unbound copies filed - N.P. Transactions*

TRANSACTIONS

1120
70

**34th NATIONAL
SAFETY CONGRESS**

**CHICAGO
October 7-11, 1946**



VOLUME II

**Traffic, Commercial Vehicle, Transit, School and College, Home, Farm and
Women's Activities Sessions**

VOLUME I contains the General Subject and Industrial Sessions

National Safety Council, Inc.

20 North Wacker Drive, Chicago 6

Copyright 1947, National Safety Council, Inc.

Printed in U.S.A.

PLAINTIFF'S EXHIBIT

NSC-93

Contents

VOLUME II

Using the Transactions.....	iii
Council Officers	iv
Commercial Vehicle Section.....	1
Farm Safety Sessions.....	29
Home Safety Sessions.....	47
School and College Sessions.....	71
Traffic Section	189
Transit Section	287
Women's Activities Sessions.....	337
Safety Exposition Exhibitors.....	343
Index	349

The Transactions of the 34th National Safety Congress and Exposition of the National Safety Council are published in two volumes. Volume I contains the General Subject and Industrial Section sessions, Volume II the Public Safety, School and College Safety, Home Safety, Farm Safety and Women's Activities sessions.

The Transactions are a record of the proceedings of the Congress, condensed and edited for reference purposes. They are therefore an abridged version of the papers and discussions. The original manuscripts, some of which have drawings and charts not reproduced here, are available in the files of the National Safety Council.

The National Safety Council, at its Congresses, seeks to eliminate from discussion matters which are not pertinent to the aims of the Congress, or which are contrary to the Council's policies. However, it cannot accept responsibility for views expressed, either in the papers presented or in this record of them.

Extra copies of Volume I may be obtained by Council members at \$2.50 each. The price to non-members is \$5.00 each. Extra copies of Volume II are \$1.25 each.

THE NATIONAL SAFETY COUNCIL
20 N. Wacker Drive, Chicago 6, Ill.

Using the Transactions

The two volumes of Transactions published each year are a source of supply for safety ideas, for safety methods, and for safety material. Used effectively, the Transactions volumes can become the safety man's "Five-Foot Shelf"—an encyclopedia of established methods as well as of the most successful experiment.

The safety engineer, the progressive industrialist, and students of safety will find these volumes valuable for reference. They contain the best knowledge and the long experience of the men and women who appeared before the 34th Annual Safety Congress.

For easy use the material has been arranged and identified; first, by the major headings of the *Table of Contents* on page ii, and by the comprehensive *Index* at the back of the book. In the body of the book each group of meetings is printed in the same order in which they appeared in the daily time schedule of the original program.

The detailed alphabetical *Index* quickly locates specific safety material. It lists items in three ways: (a) by subjects discussed, i. e., cyclists, household appliances, military convoys, traffic "dim outs"; (b) by speakers, in the case of formal papers. Speakers' names are printed in italics; (c) by the division or group, as School and College Safety, Home Safety, Farm Safety.

Solve accident problems. Traffic officers, judges, highway construction men are faced with unprecedented problems caused by the mushrooming of war plants and the attendant traffic congestion. Not the least of their troubles is the control and discipline of war

worker-drivers and drivers in service uniform.

Arousing interest in safety in the schools and in homes and farms becomes easier after reading the experiences of the speakers at the School and College Safety, Farm Safety, Home Safety and Women's Activities sessions. Several meetings concern curriculum problems; others farm machinery hazards; and still others household equipment, and off-the-job accidents.

Speech-making materials are abundant for the traffic engineer or the school or city official who is scheduled to talk on accident prevention, either in his own community or at conventions of his own profession. The Transactions contain excellent examples of safety talks as well as authorities and quotations for local press releases, poster and bulletin boards.

Safety promotion plans always profit by new and novel ideas. Speakers at the Congresses offer rich source material for the promotion of safety on highways, in homes and in schools.

Outstanding safety leaders are powerful influences in the promotion of the national safety movement. As officers or members of the Council's sections or as public officials they can be helpful in organizing individual safety programs.

National Safety Council services and the national safety program will be better understood through frequent use of the Transactions. A survey of the material contained in this volume will give a better comprehension of the growing power of the safety movement and a better understanding of the ways in which this power is made effective.

National Safety Council, Inc.

OFFICERS

President: NED H. DEARBORN, Chicago, Ill.
Vice-President for Farms: GUY L. NOBLE, Managing Director, National Committee on Boys and Girls Club Work, Chicago, Ill.
Vice-President for Finance and Treasurer: I. W. MILLARD, President, Industrial Gloves Company, Danville, Ill.
Vice-President for Homes: DR. D. B. ARMSTRONG, 2nd Vice-President, Metropolitan Life Insurance Company, New York, N. Y.
Vice-President for Industry: C. E. WOOLIEVER, Director of Personnel, A. O. Smith Corporation, Milwaukee, Wis.
Vice-President for Local Safety Organizations: JUDGE LEE E. SKEEL, Appellate Court, Cleveland, Ohio.
Vice-President for Membership: R. T. SOLENSTEN, Vice-President, Elliott Service Company, New York, N. Y.
Vice-President for Public Information: W. EARL HALL, Managing Editor, Mason City Globe-Gazette, Mason City, Iowa.
Vice-President for Schools and Colleges: DR. H. T. HEALD, President, Illinois Institute of Technology, Chicago, Ill.
Vice-President for Traffic and Transportation: LESLIE J. SORRENSEN, City Traffic Engineer, City of Chicago, Chicago, Ill.
Vice-President for Women's Activities: MISS PAULINE E. MANNING, Public Relations Counsel, New York, N. Y.
Secretary: R. L. FORNEY, General Secretary, National Safety Council, Chicago, Ill.
Assistant Treasurers: B. B. McCULLOCH, President, Bureau of Safety, Inc., Chicago, Ill.; H. H. GREENWALD, Director, Accounting Division, National Safety Council, Chicago, Ill.

TRUSTEES

Chairman of the Trustees: WILLIAM A. IRVIN, Member, Executive Committee, United States Steel Corp., New York, N. Y.
Vice-Chairman of the Trustees: ROBERT C. STANLEY, President, International Nickel Company of Canada, Ltd., New York, N. Y.
Secretary of the Trustees: NED H. DEARBORN, President, National Safety Council, Chicago, Ill.
Treasurer of the Trustees: THOMAS W. LAMONT, Chairman of the Board, J. P. Morgan and Company, New York, N. Y.

Members

WINTEROP W. ALDRICH, Chairman, Board of Directors, The Chase National Bank, New York, N. Y.
 MELVIN H. BAKER, President, National Gypsum Company, Buffalo, N. Y.
 LAWRENCE D. BELL, President, Bell Aircraft Corporation, Buffalo, N. Y.

(Note: The lists here printed of Officers, Trustees, Board of Directors, and Executive Board, include those elected at the 1946 National Safety Congress and, in the case of the Trustees, certain members previously elected for a two or three year term.)

National Safety Council, Inc.

JAMES B. BLACK, President, Pacific Gas and Electric Company, San Francisco, Calif.
 S. BRUCE BLACK, President, Liberty Mutual Insurance Company, Boston, Mass.
 MORGAN B. BRAINARD, President, Aetna Life Insurance Company, Hartford, Conn.
 CASON J. CALLAWAY, Blue Spring Farms, Hamilton, Ga.
 JOHN W. CARPENTER, President, Texas Power and Light Company, Dallas, Tex.
 THOMAS I. CASREN, Chairman, Railway Labor Executives' Association, Washington, D. C.
 WILLIAM G. CHANDLER, President, Scripps-Howard Supply Company, New York, N. Y.
 KENNETH B. COLMAN, President, J. M. Colman Company, Seattle, Wash.
 HOWARD COONLEY, Chairman of the Executive Committee, American Standards Association, New York, N. Y.
 FREDERICK C. CRAWFORD, President, Thompson Products, Inc., Cleveland, Ohio.
 WALTER J. CUMMINGS, Chairman of the Board, Continental Illinois National Bank and Trust Company, Chicago, Ill.
 NED H. DEARBORN, President, National Safety Council, Chicago, Ill.
 RICHARD R. DEUPREE, President, Procter and Gamble Company, Cincinnati, Ohio.
 BENJAMIN F. FAIRLESS, President, United States Steel Corporation, Pittsburgh, Pa.
 FRANCIS J. GAVIN, President, Great Northern Railway Company, St. Paul, Minn.
 WALTER S. GIFFORD, President, American Telephone and Telegraph Co., New York, N. Y.
 WILLIAM GREEN, President, American Federation of Labor, Washington, D. C.
 E. ROLAND HARRIMAN, Brown Brothers Harriman and Company, New York, N. Y.
 WILLIAM A. IRVIN, Member, Executive Committee, United States Steel Corporation, New York, N. Y.
 WILLIAM M. JEFFERS, Vice Chairman of the Board, Union Pacific Railroad Company, North Hollywood, Calif.
 HORACE P. LIVERSIDGE, President, Philadelphia Electric Company, Philadelphia, Pa.
 GUSTAV METZMAN, President, New York Central System, New York, N. Y.
 THOMAS A. MORGAN, Chairman, The Sperry Corporation, New York, N. Y.
 PHILIP MURRAY, President, Congress of Industrial Organizations, Washington, D. C.

National Safety Council, Inc.

BENJAMIN O'SHEA, Member, Board of Directors, Union Carbide and Carbon Corp., New York, N. Y.
 THOMAS I. PARKINSON, President, Equitable Life Assurance Society of the United States, New York, N. Y.
 W. S. S. RODGERS, Chairman, The Texas Company, New York, N. Y.
 WILLIAM A. SIMPSON, President, William Simpson Construction Company, Los Angeles, Calif.
 HERBERT E. SMITH, President, United States Rubber Company, New York, N. Y.
 ROBERT C. STANLEY, President, International Nickel Company of Canada, Ltd., New York, N. Y.
 JOHN STILWELL, Vice-President, Consolidated Edison Company of New York, Inc., New York, N. Y.
 JUAN T. TRIFFE, President, Pan-American Airways System, New York, N. Y.
 HARRY C. WIESS, President, Humble Oil and Refining Company, Houston, Texas
 C. E. WILSON, President, General Electric Company, New York, N. Y.
 CHARLES E. WILSON, President, General Motors Corporation, Detroit, Mich.
 CHARLES DEYER WIMAN, President, Deere and Company, Moline, Ill.

BOARD OF DIRECTORS

Chairman of the Board of Directors: JOHN STILWELL, Vice-President, Consolidated Edison Co. of New York, New York, N. Y.

Members

H. W. ANDERSON, Vice-President in Charge of Industrial Relations General Motors Corp., Detroit, Mich.
 D. B. ARMSTRONG, Second Vice-President, Metropolitan Life Insurance Co., New York, N. Y.
 WALLACE N. BARKER, Executive Vice-President, Pullman Standard Car Manufacturing Co., Chicago, Ill.
 THOMAS E. BRANTIFF, President, Braniff Airways, Inc., Dallas, Texas
 JAMES B. CAREY, Secretary-Treasurer, Congress of Industrial Organizations, Washington, D. C.
 CLARENCE C. CARLTON, Vice-President, Motor Wheel Corporation, Lansing, Mich.
 RAY CARR, Advertising Counsel, Portland, Ore.
 CLEO F. CRAIG, Vice-President, American Telephone and Telegraph Co., New York, N. Y.
 NED H. DEARBORN, President, National Safety Council, Chicago, Ill.
 MRS. LAFFEL DICKINSON, President, General Federation of Women's Clubs, Washington, D. C.

National Safety Council, Inc.

WALLACE J. FALVEY, Vice-President, Massachusetts Bonding and Insurance Co., New York, N. Y.
 W. EARL HALL, Managing Editor, Mason City Globe-Gazette, Mason City, Iowa
 D. P. HARTSON, Vice-President, Equitable Gas Company, Pittsburgh, Pa.
 DR. H. T. HEALD, President, Illinois Institute of Technology, Chicago, Ill.
 G. A. HEUSER, President, Henry Vogt Machine Co., Louisville, Ky.
 C. A. KIRK, Executive Vice-President, International Business Machines Corp., New York, N. Y.
 H. P. LABBS, President, National Screw and Manufacturing Co., Cleveland, Ohio
 GEORGE H. LOWE, Lowe and Hoggins, Ogden, Utah
 ALFRED J. LUNDENBERG, Oakland, Calif.
 A. E. LYON, Executive Secretary, Railway Labor Executives Association, Washington, D. C.
 MISS PAULINE E. MANDIGO, Public Relations Counsel, New York, N. Y.
 I. W. MELLARD, President, Industrial Gloves Co., Danville, Ill.
 GUY L. NOBLE, Managing Director, National Committee on Boys and Girls Club Work, Chicago, Ill.
 HENRY E. NORTH, Vice-President, Metropolitan Life Insurance Co., San Francisco, Calif.
 WALTER S. PAINE, Manager, Engineering and Inspection Department, Aetna Life Affiliated Companies, Hartford, Conn.
 C. E. PETTIBONE, Vice-President and Manager, Engineering Department, American Mutual Liability Insurance Co., Boston, Mass.
 R. J. REISELUTH, Treasurer, New Haven Trap Rock Co., New Haven, Conn.
 JUDGE LEE E. SKEEL, Appellate Court, Cleveland, Ohio
 THEODORE F. SMITH, President, Oliver Iron and Steel Corp., Pittsburgh, Pa.
 R. T. SOLENSTEN, Vice-President, Elliott Service Co., New York, N. Y.
 LESLIE J. SORENSON, City Traffic Engineer, Chicago, Ill.
 JOHN STILWELL, Vice-President, Consolidated Edison Co. of New York, New York, N. Y.
 ROBERT J. WATT, International Representative, American Federation of Labor, Washington, D. C.
 C. E. WOOLIEVER, Director of Personnel, A. O. Smith Corp., Milwaukee, Wis.

EXECUTIVE BOARD

Chairman of the Executive Board: WALTER S. PAINE, Manager, Engineering and Inspection Department, Aetna Life Affiliated Companies, Hartford, Conn.

National Safety Council, Inc.

Members-at-Large

DR. D. B. ARMSTRONG, Second Vice-President, Metropolitan Life Insurance Co., New York, N. Y.
 J. I. BANASH, Consulting Engineer, Chicago, Ill.
 C. W. BERGQUIST, Hinsdale, Ill.
 W. F. BROWN, Safety Director, Consolidated Edison Co. of New York, Inc., New York, N. Y.
 A. J. R. CURTIS, Assistant to General Manager, Portland Cement Association, Chicago, Ill.
 NED H. DEARBORN, President, National Safety Council, Chicago, Ill.
 R. H. FERGUSON, Manager of Safety, Republic Steel Corp., Cleveland, Ohio
 KIRK FOX, Editor, Successful Farming, Meredith Publications, Des Moines, Iowa
 EARL FYLER, Superintendent of Industrial Relations, Carnegie-Illinois Steel Corp., South Works, Chicago, Ill.
 W. EARL HALL, Managing Editor, Mason City Globe-Gazette, Mason City, Iowa
 JULIEN H. HARVEY, Managing Director, National Conservation Bureau, New York, N. Y.
 T. LYLE HAZLETT, Medical Director, Westinghouse Electric Corp., East Pittsburgh, Pa.
 DR. H. T. HEALD, President, Illinois Institute of Technology, Chicago, Ill.
 JAMES W. HOBSON, Assistant Western Counsel, Northern Pacific Railway Co., Seattle, Wash.
 MRS. HERAM C. HOUGHTON, Second Vice-President, General Federation of Women's Clubs, Red Oak, Iowa
 WALTER G. KING, Safety Director, American Optical Co., New York, N. Y.
 JOHN E. LONG, Superintendent of Safety, The Delaware and Hudson Railroad Corp., Albany, N. Y.
 THOMAS H. MACDONALD, Commissioner, Public Roads Administration, Washington, D. C.
 MISS PAULINE E. MANNING, Public Relations Counsel, New York, N. Y.
 PAUL A. MCGHEE, Dean of The School of General Education, New York University, New York, N. Y.
 HAROLD L. MINER, Manager, Safety and Fire Prevention Division, E. I. du Pont de Nemours and Co., Inc., Wilmington, Del.
 GUY L. NOBLE, Managing Director, National Committee on Boys and Girls Club Work, Chicago, Ill.
 WALTER S. PAINE, Manager, Engineering and Inspection Department, Aetna Life Affiliated Companies, Hartford, Conn.

National Safety Council, Inc.

C. E. PETTIBONE, Vice-President and Manager, Engineering Department, American Mutual Liability Insurance Co., Boston, Mass.
 R. J. REIGELUTH, New Haven Trap Rock Co., New Haven, Conn.
 BRIG. GEN. HARRY A. RENINGER, Director of Safety and Welfare, Lehigh Portland Cement Co., Allentown, Pa.
 THEODORE S. REPFELTER, President, The Advertising Council, Inc., Washington, D. C.
 J. L. RISTINGER, Safety Supervisor, Socony-Vacuum Oil Co., Inc., New York, N. Y.
 A. V. ROHWERER, Superintendent of Safety and Welfare, Duluth, Missabe and Iron Range Railway Co., Duluth, Minn.
 JUDGE LEE E. SWEET, Appellate Court, Cleveland, Ohio
 DEWITT SMITH, Vice-Chairman in Charge of Domestic Services, The American National Red Cross, Washington, D. C.
 R. T. SOLENSTEN, Vice-President, Elliott Service Co., New York, N. Y.
 LESLIE J. SORENSON, City Traffic Engineer, Chicago, Ill.
 R. C. STRATTON, Supervising Chemical Engineer, Travelers Insurance Companies, Hartford, Conn.
 C. E. WOOLFEVER, Director of Personnel, A. O. Smith Corp., Milwaukee, Wis.
 DR. WILLIAM P. YANT, Director of Research and Development, Mine Safety Appliances Co., Pittsburgh, Pa.

Representatives of the Conference of Local Safety Organizations

HARRY H. BRAINERD, Executive Manager, Western Pennsylvania Safety Council, Inc., Pittsburgh, Pa.
 DR. B. L. CORBETT, Manager, Milwaukee Safety Commission, Milwaukee, Wis.
 CLYTON W. DREYER, Manager, East Bay Chapter, National Safety Council, Oakland, Calif.
 REYBURN HOFFMANN, Manager, The Safety Council of Greater St. Louis, St. Louis, Mo.
 HAROLD F. LILLIE, Manager, Lansing Safety Council, Lansing, Mich.
 R. E. PIERSON, Superintendent of Safety, Latin American Division, Pan-American World Airways, Miami, Fla.
 FRED M. ROSSELAND, Manager, Newark Safety Council, Newark, N. J.

Representatives of the Conference of Sections

JOHN C. ASKAM, Safety Director, The Ohio Oil Co., Findlay, Ohio
 L. A. BLANCHARD, Chief, Safety and Accident Prevention Division, Corps of Engineers, Washington, D. C.

National Safety Council, Inc.

W. GRAHAM COLE, Assistant Secretary, Metropolitan Life Insurance Co., New York, N. Y.
 JAMES J. DUGGAN, Supervisor, Equipment Safety and Fire Control Div., Carbide and Carbon Chemicals Corp., South Charleston, W. Va.
 MISS JOANNA JOHNSON, R.N., Employers Mutual Liability Insurance Co., Milwaukee, Wis.
 W. DEAN KEEFER, Second Vice-President, Lumbermens Mutual Casualty Co., Chicago, Ill.
 J. E. LOVAS, Safety Supervisor, United States Rubber Co., Passaic, N. J.

HONORARY MEMBERS

ASSOCIATION OF IRON AND STEEL ENGINEERS
 ROBERT W. CAMPBELL
 LEW R. PALMER*
 W. H. CAMERON
 JOHN STILLWELL
 I. W. MILLARD

*Deceased

PAST PRESIDENTS

ROBERT W. CAMPBELL*
 ARTHUR T. MOREY*
 LEW R. PALMER*
 DAVID VAN SCHAAKE*
 RALPH C. RICHARDS*
 C. P. TOLMAN
 ARTHUR H. YOUNG
 MARCUS A. DOW
 LEWIS A. DEBLOIS
 C. B. AUER*
 CHARLES B. SCOTT*
 WALTER G. KING
 HOMER E. NIESZ*
 BRIG. GEN. HENRY A. RENINGER
 C. E. PETTIBONE
 C. W. BERGQUIST
 J. I. BANASH
 JOHN E. LONG
 DR. C. H. WATSON
 D. D. FENNELL
 JOHN STILLWELL

*Deceased

Commercial Vehicle Section

Executive Committee 1946-1947

General Chairman—E. J. EMOND, Director of Automotive Safety, Armour & Co.

Regional Chairmen—

Central—W. C. B. MERRITT, Safety Director, Trucking Inc.

Eastern—J. M. SHANAPHY, Executive Representative, Railway Express Agency, Inc.

Southern—H. M. CLAYTON, Standardization Engineer, Memphis Light, Gas & Water Div.

Western—C. D. CALKINS, Director of Safety, Pacific Motor Trucking Co.

Committees—

Program Committee

Chairman—J. A. ERELING, Director of Safety & Personnel, Olson Transportation Co.

Central Region—K. E. KETZEL, Safety Director, Fred Olson & Son Motor Service Co.

Eastern Region—B. A. RENNOLDS, Safety Director, Virginia Stage Lines, Inc.

Southern Region—I. E. JOHNSON, Director, Safety & Claims, Carolina Coach Co.

Western Region—J. L. S. SNEAD, JR., Manager, Operations & Maintenance, Consolidated Freightways, Inc.

Contest Committee

Chairman—A. N. BRION, General Safety Director, Greyhound Corp.

Central Region—JOSEPH GRUMME, JR., Safety Director, Silver Fleet Motor Express, Inc.

Eastern Region—J. P. HIGHTOWER, Director of Safety, Atlantic Greyhound Corp.

Southern Region—F. W. WALKER, Traffic Manager, Crescent Operations, Inc.

Western Region—H. B. LYON, Partner, Lyon Storage & Moving Co.

Award Committee

Chairman—H. D. SCHEFFER, Director, Motor Vehicle Safety, Auto Owners Insurance Co.

Central Region—R. S. EUDY, Safety Director, Dixie-Sunshine Trailways.

Eastern Region—B. A. MYERS, Assistant Treasurer, Braum Baking Co.

Southern Region—A. EWING GREENE, Vice President & Director of Safety, The Mason & Dixon Lines, Inc.

Western Region—L. A. STRAIN, Vice President, Petroleum Transportation Co.

so-called safety engineer, who came over from the insurance company and told our drivers how much their accidents were costing the insurance company and how much money the insurance company was losing. In addition, to this, if he was a very thorough safety man, he would snoop around the garage, the night before and find out whether any tail lights were broken and bring this up at the same time at the meeting. His reception was usually not very good and his speech was punctuated by Bronx cheers, cat calls, and other well-known vocal forms of dissension. When this was reported to the management, the management would say — no cooperation from the foreman. When asked, the foreman would reply—they sure had cooperated. They had told the cat-callers to shut up and had kept four or five men from prematurely leaving the meeting and if that wasn't cooperation, what the — was?

Of course, aggressive insurance companies of today work from a different angle.

The program of selection was as follows: Selection of drivers operated in the same slip shod manner. There were printed application forms and references to check ourselves and so on, but, these were used only for "legacy" type relatives, people sent over by the local ward heeler and other personnel that we did not intend to hire anyway. The application of the above prospective employees were thoroughly checked to find out how we could turn them down. The actual hiring was down "at the door," and in the following manner. A large crowd of drivers would cluster around the window where the orders were given out in the morning. After the regular drivers were given their regular orders, if there were orders left over, the superintendent would pick the likeliest looking man from the group left standing there and say "Hey, can you drive?" The man upon answering in the affirmative would be given a handful of papers and told "take truck A100 and go to the 'Q' or the 'Nickel Plate'."

I am going to show you a few examples of the results obtained by the above type of accident prevention program. The examples will be of two types.

1. What happens to the equipment.

2. What happens to the cost.

(Slide showing bridge accident, Hillside, Ohio involving a new 6600 gallon, diesel-powered, double bottom gasoline transport.) The bridge, as you will note, was entirely demolished. You will also note a large sign on the right of the road which says "Load Limit—3 tons."

The second slide shows another double bottom gasoline transport which incidentally, was one day old, at the time of the accident, and the driver involved had an excellent record as a bus driver, but, his ability as a transport driver is open to question, as this slide so critically shows.

The third slide, results of which have some relation to the recent Atom Bomb blast test at Bikini was a case where some welding was attempted on an empty gasoline unit, without scumming or properly ventilating the tank first. This type of "physical results" was produced by the "necessary evil" type of accident prevention program.

The cost for the insurance department, plus compensation insurance, plus fire and theft, plus PL and PD was at this time, a little over three per cent of the gross revenue.

Now we will turn to the opposite type of Safety Department—Management looks at the total insurance of all kinds paid out and checks the department to see what the influence of the department is on public relations and whether their company is a good safe place to work or not. Next, management checks some over-all figures to see what the potential savings or what potential profit can be made in the department as to these three criteria. This can be done, in the trucking business, by checking the last year's accident figures, against the average for this type accident of operation. Such figures are readily accessible through the National Safety Council's annual edition of accident facts. If you are not well below the average, you can bet your "bottom dollar" that an intelligent safety program properly administered with some money spent on it, will provide a high rate of return per dollar invested. The over-all accident frequency rate for the "For Hire" city trucking classification for the years 1942 to 1945 was 13.99 accidents per 100,000 miles of operation. In the year 1938, our rate was approximately 10.0

accidents per 100,000 miles and our cost of insurance to gross revenue was over 3 per cent. At that time, we operated approximately 451 units and the annual mileage was 3,365,000.

For the last three years our accident frequency rate has been approximately 4.5 accidents per 100,000 miles of operation as compared with the national average of 13.99. Our average ratio of insurance cost to gross revenue during this period has been 2.6, affecting the saving of $\frac{1}{2}$ per cent of gross revenue. It must be remembered, at this point, we were operating 800 vehicles and the annual mileage was 8,000,000 miles. This was during the period of acute man power and equipment shortages. With the gross revenue of around \$4,000,000.00, this amounts to about \$20,000.00 annually. "That ain't hay."

All right, how do we go about making this \$20,000.00? Here is one way to do it. 1. Top management must view the safety department as a profit making opportunity and not as an "necessary evil." The General must tilt his cap over his "right" eyebrow and then all the privates in the lowest rank will be soon tilting their caps in the same manner. Every foreman, supervisor and driver will start to view the Safety Department with respect. The Safety Department must then establish a thorough going program, starting with a—selection and training of drivers and personnel. Proper selection would have prevented our hiring the rascal that drove through the bridge in the first picture. Proper training would have prevented the second one.

We must realize that in any program of accident prevention we are dealing with the human element. In spite of everything that we do, in the way of scientific selection in training and in spite of every precaution we take, the human element sometimes completely takes over.

It is true in the accident we had down in Ohio, the human element factor was certainly very much in evidence. However, if this driver had been properly selected as to intelligence, attitude and properly inculcated with the basic fundamentals of safe driving, he certainly would not have driven a unit of this type directly through a sign that stated in as plain English as this, that the load limit was 6,000 lbs, and he had on 66,000 pounds, or literally 11 times as much.

In the case of the second picture shown, this involved a driver who was, for all the usual selection tools available at that time (1938), thoroughly qualified. References had been checked. The man had a seven year award from a prominent national bus operator, and to all intents and purposes was a high type driver with considerable experience. However, the fatal error in judgment was that he had had considerable bus driving experience but no double-bottom transport experience. When he made the sharp turn that you saw in the slide, he made it as he would have made it with a single unit and the result was that the four-wheeler turned over. If this man had had a week's training on a double bottom unit, with an experienced driver trainer and had been broken into this type of equipment gradually, this certainly would not have happened. You can pick the man for the job, but, he also must be properly trained for the job. The selection and training of the men to be placed on various production jobs is more and more accepted as an essential part of filling the job satisfactorily. When it comes to driving, it is so easy for fleet operators to stumble into that old pitfall of assuming that a driver who has 10 years driving experience is surely qualified. Therefore, selection and training is the first and paramount part of the safety program.

The next important part of the safety program is a proper record system. This record system enables the director of the Safety department to judge how well his tools of selection in training are working.

EXAMPLE. If the men trained by driver trainer (a) frequently becomes involved in accidents and the men trained by driver trainer (b) do not become involved in accidents, it is easy to see that driver trainer (a) is doing something wrong. The other purpose of records is to give proper rewards to deserving employees. A thorough going reward system should be set up to add an incentive to the safe driver.

The other step in the safety prevention program is the corrective training of the present employees who have not been screened by the modern selection and training program. Again, here the individual drivers record card will be of great assistance in convincing the driver that he needs corrective training. So often, we all

call the driver in and state—"Tom, this is your sixth 'At Fault' accident" and have him say to you—"I have only had one accident in the last five years and that wasn't my fault." A review of his accident record with him, definitely places him in a frame of mind that possibly there is something wrong and it will also greatly assist the driver trainer on what points he should place special stress. Our record file shows the operator accidents such as backing accidents, intersection accidents, rear-end collisions or whatever it may be.

In addition, to the reward offered to the individual, there should be an incentive system, which may consist of cards, badges, plaques, cash bonuses, or what have you. It is a fundamental American trait to enjoy being a member of the "Team." This probably dates back to our school days where we played football, baseball, as a member of the Team and learned teamwork, and comes up to the present stage, where we are members of teams in the sense that we are a Notre Dame fan, or a Cub fan or a Blackhawk fan or a member of the National Safety Council or the S.A.E. or any other group wherein team work is of paramount importance. With this fundamental psychological background in mind, an incentive of being on the winning team, the battle against accidents should not be neglected. It is because of this basic psychological belief that our drivers are all organized into teams, such as tractor teams, truck teams, steel driver teams, gasoline transport teams, etc. These teams, if they operate for a 30 day period without chargeable accidents against any member of the team, are invited to a banquet, as a reward for their collective efforts in avoiding accidents for the month. This is a continuous program and as it operates on a month to month basis, interest does not lag as it often does when an individual safety award is still 11 months

away. Also, drivers sometimes have their own individual methods for handling the accident prone driver who has cost them 3 monthly parties in a row. These groups have the advantage over the old time safety meeting, referred to earlier in this paper, in that the meetings are held after hours, it is not mandatory, the drivers work for the day is done and he is in a correspondingly receptive mood and the group is small, consisting of not more than 30 men, which is held in comfortable quarters and a safety message or picture would certainly be absorbed more readily after a nice dinner in congenial surroundings, than it will be, standing up in the middle of the garage in the early hours of the morning, when the man is anxious to start with, at having to get up 15 minutes earlier to listen to something he thinks he knows about anyway. From the labor relations standpoint, management participation in such meetings is most valuable because both driver and management meet and get to know each other better in the accepted democratic way, which can be most aptly termed under the auspices of good fellowship. In this type of meeting, both the good will and safety consciousness can be definitely created and maintained.

To summarize, the value of accident prevention to good operation must be further defined as an accident prevention program. This accident prevention program can be tested to see whether it helps the company to be a good influence in the community and to make better public relations. It can be tested to see what it does to help make the company a good and safe place to work and it may be further tested to see what profits the management can make by investing money in the accident prevention program.

Our experience has been that the more money we spend on accident prevention the more money we make.

The Effect of Incentives on Safe Driving Attitude

(Panel Discussion)

Participants:

Discussion Leader: J. P. HIGHTOWER,
Safety Dir., Atlantic Greyhound Corp.
A. EWING GREENE, Dir. of Safety, The
Mason & Dixon Lines, Inc.

KARL A. SCHWETZER, Sales Mngt., Slicks
Family Washing.
H. J. ERICSSON, Dir. of Safety and Personnel,
Refiners Transport & Terminal Corp.

MR. HIGHTOWER: The subject given to us this morning is one that I feel is probably the most important that we have to contend with. We select drivers, we screen them thoroughly, and we train them. I don't believe you can train a driver in one, two, or five days. I think it takes a minimum of two weeks.

After you have trained that driver, you send him out and put him to work. From the time you begin to select and screen, you are creating an attitude in that driver's mind. His attitude towards your company, to begin with.

Afterwards, or during your course of training, you attempt to create in him the proper attitude towards safe driving, and further, toward your company.

Frankly, in hearing discussions here this morning, particularly the references made of unions, and union troubles, I am convinced that one of your biggest problems is the fact that you do not put as much importance or as much time into the formation of a driver's attitude as you should.

I am convinced that if you had in the past, you wouldn't be burdened with all the union troubles that I understand you have today.

Therefore, the subject which we are going to discuss, the value of incentives on accident prevention, is good. The effect of incentives on safe driving attitudes is one that we should all be interested in.

Any subject brought before this session that will tend to improve a driver's attitude, to the extent that he is not going to have accidents, is something that is worth our time and thought.

A good many companies have incentive programs. Some of you don't. We are interested in knowing just what companies have successful incentive programs. We are interested in knowing what companies do not have an incentive program, and we certainly hope you will be interested in the programs which some of the companies have.

We hope you will get some ideas and plans that you can take home with you and put into practice. We feel that if you do this, if you create an incentive program in your own property, you are going to improve your driver.

To begin with, I am going to ask these gentlemen, each of whom have successful

incentive programs in their own companies, to outline very briefly their company's program.

MR. GREENE: Our incentive program is designed to keep the driver's interest on safe driving, not so much to reward them for having driven safely over a period of time, as to keep a continuing interest in driving safety.

We have the usual drivers' meetings, and pep meetings and have tried to encourage the thought of safety in their minds, but as an incentive plan, we use emblems. We give National Safety Council Safe Driver Awards to those drivers who have earned it by the proper number of years of driving without an accident, and we adhere strictly to the National Safety Council rules. I am afraid some people don't, but we do use that plan purely for the purpose of promoting safe driving.

A fellow is a good driver, but sometimes loses out on a National Safety Council Award. Then we have an award that the insurance company gives. It is a card, and we also have our own company Safe Driving Button, which may be given the driver.

There is a little difference in the decisions on the accidents. As far as the National Safety Council is concerned, if the fellow has an accident, he is just about out. In our own company plan and the insurance company plan, if it has been proven beyond a shadow of a doubt he was not responsible for the accident, even though he did contribute to it, and every driver does when he has an accident, he may still have the company award, and the insurance award.

We have two drivers coming up for their 11th year on the National Safety Council Safe Driver Award. We have several coming up for eight, nine, and ten year awards. We also have several drivers due for ten, 11 and 12-year company awards. A driver may have a five or a six year company award, and still not have qualified beyond two or three years for the National Safety Council Award.

We find that the boys are very proud of all of their safety awards, and they are especially proud of the National Safety Council Award. We feel that the program gives the man an incentive to keep driving safely. Even though he might lose out on

the top prize, he can still come in for a lower prize.

We always give the boys quite a bit of publicity through the house organ. We give them dinners, and a good deal of newspaper publicity when they win awards. So, in the final analysis, they don't get anything but a button, and a grand hand, and a lot of praise for doing a good job. But they like it.

Our safety record, insofar as over-the-road operations are concerned, is well below the national average. During the war years, out experience in terminals hasn't been so good—like the rest of you. We have had to put men on as drivers that we ordinarily wouldn't let push a two-wheeled truck on a platform. We are remedying that situation.

We have three safety supervisors who stay in constant touch with the drivers, one a resident supervisor in Kingsport, which is our main office, and two field men, one in the South and one in the East. We find that they can do as much as anybody in the world to keep the boys on their toes. They don't go out with the attitude of a policeman. They start with the attitude of being a friend of the driver.

If they catch a driver in the wrong, they stop him right then and tell him what is wrong. They have no power to discipline that driver in any respect, but make a report to the superintendent of drivers, who handles all disciplinary action.

But, we find that much is corrected just through the effort of the supervisor stopping the man and talking to him right after he has done something he should not have done.

Otherwise, the report might come into the office, and several hours or days go by before somebody talks to the driver. His conscience is already salved, so it doesn't have the same effect as when you stop him right at the time of the incident.

Thus, we have no elaborate plan. It is very simple. There is no great reward except a lot of personal satisfaction to the driver that makes the grade. We think it works.

MR. SCHWEITZER: Our company is quite small in number of trucks. We operate 15 trucks. However, the Chamber of Commerce at Fort Wayne has a safety program for over a hundred fleets and

better than a thousand drivers. My company participates in that program.

However, in my particular company, safety starts with the boss—the top man. That is where it should start—with the owner, the manager, or the superintendent, or whatever the top operating man is.

You have to have safety in your heart first. You have to believe it before you can get your drivers to believe it and push it, or you are not going to have a successful plan.

We have it in our company, and we went through 1944 without an accident. We have gone through 1945 with only one accident—a new fellow backed into the garage door. We are going to call it a chargeable accident, which is according to the rules of the National Safety Council Safe Driver Award. We use this Award and are proud of the fact that we stick to the rules.

We use all the materials that the National Safety Council provides. We have all our drivers punching in for another year on that Award of theirs. Some have three years and are going into their fourth.

We also use an award provided by our insurance company. These are cards. Some of the boys have eight, ten—and I think one man has 12 years without an accident on this record.

We pat him on the back. You have to do that. We have banquets, and I guess all the rest have those too. We let them know that we are proud of the records that they have made, and we keep that up in front of them all the time.

In fact, we keep all the National Safety Council literature on a big bulletin board in their room. We keep trying to hammer safety at them. Show them its advantages, and what it means to them.

We also have a cash bonus plan. The company offers \$25 to the driver who goes a year without an accident. We have discussion meetings every three months. We give banquets. We keep them in touch with the national picture.

Once a year, we attend the annual banquet of the Fort Wayne Chamber of Commerce. From 500 to 700 drivers attend that. We have safety talks there, and make a presentation of the awards.

That is the way we keep hammering home to them the importance of safety. You

can't expect the driver to be interested unless the manager, the supervisor, or whoever he might be, is active in the program.

MR. ERICSSON: We are petroleum haulers and operate out of four states, Illinois, Michigan, Ohio, and Indiana, and are hauling heat gasoline, and fuel oil, etc., in addition to liquid petroleum gases, propane, butane, and so on. Our units in some states are 60 feet in length.

Consequently, it is a considerable investment that the drivers are required to transport around the state. We have put in intensive programs, which we have found to be very beneficial in every respect.

Damage to our property is very, very slight, compared to potential damage to others on the highway.

We have monetary awards, which we call a three, six, nine, and twelve award, and is based on quarters of the year. In other words, if a man operates the first three months without a chargeable accident he wins three dollars. If he operates safely the next quarter, he has \$6 coming, and the next, \$9, and the last quarter, \$12, or a total of \$30 for the first year.

For every month thereafter, he gets \$5 a month. That is the highest the award goes—\$60 a year.

In the event he has a chargeable accident, he would collect what he had already earned, but he has to start all over again in the three, six, nine, and twelve bracket.

We have found that has proven very, very beneficial, because the—as the truck driver calls it—"cabbage" makes the driver very interested.

I can further state that our severity has been reduced in 1945 and 1944, by better than 60 per cent.

I don't like to mention actual dollars and cents, but it is a sizable amount, and our severity for the first ten months of this year is 78 per cent under that. So the bonus does apparently have a lot of effect.

In addition, we have our own gold pin. It looks like airplane wings, and represents one year of driving without a chargeable accident. Every year following that the driver operates accordingly, we put a diamond in it. The tenth year we put a large diamond in the center of the wheel.

Perhaps you might think that is rather elaborate. My president contends I am try-

ing to give the company away, but I find it really pays off. We also have safety banquets in the fall, at every one of our terminals.

We have 19 terminals, and we make the presentations of the monetary awards at these banquets. Also, it is very important that at least two other executives of the company attend all of these meetings. That's a grind—going from one to another, trying to cover four banquets in one week, in order to get through as quickly as possible. We have found them extremely beneficial, though.

I find you have to get the respect of your truck drivers. They have to believe in you, and when we make promises, we had better keep them.

MR. HIGHTOWER: You have a little bit of the information as to what these three gentlemen are doing. I would like to plant this thought in everybody's mind. I don't believe in babying drivers. I think if you treat them like men, fairly and squarely, you are going to get along with them, as these gentlemen have stated in different words.

The primary incentive, for any driver, is his job. The first incentive that any driver has to operate his vehicle safely is his job. He has a good job, a steady, dependable, job, and a good paying job, whether he be a truck driver or a bus driver.

Therefore, that is his first incentive. It is your duty to impress that in his mind, from the time you have your first interview, until you complete your training. In other words, you are selling the company to him—that is his first incentive.

Following that, we have a multitude of other incentives that we dangle in front of his eyes in an effort to make him desire to do his job safely. The value of those incentives will depend on how much value you attach to them. If that driver does not feel that the incentive you are dangling in front of his eyes is something valuable—something that should be striven for, something desired—then it has no value.

Furthermore, any incentive that you offer a driver should be one that he has to actually strive for, to earn. When you get away from that, you have lost any value of incentive, in my opinion.

MR. BALMON (Manufacturers Casualty): Mr. Ericsson. During any time prior

to your establishment of three, six, nine and twelve bonus program, have you used the annual award system? If you have, how in your opinion does it compare?

MR. ERICSSON: Prior to the entry of the company into this three, six, nine, and twelve program—I believe they did have a fund of \$25,000 to split if there were no accidents. Deductions would be made from that for accidents. Whatever was left at the end of the year was divided.

The drivers didn't like it, because the good drivers suffered for the poor ones.

They are very, very much elated over our present program, believe me. So we have had no repercussions on that score whatsoever.

MR. LOVESTORN (Standard Oil of California): We never had an incentive program for drivers, but we are especially interested. We are considering it, but there is one objection we have always had. Does an award system lead drivers to cover up on minor accidents?

MR. SCHWEITZER: It would have a tendency to do that. However, you have to set your program up in such a way that you can get to the man. Here is one thing I might mention in connection with that.

One company I know of, divides the fleet into two teams with captains. The captain on each team is voted in by the drivers themselves. The rival teams watch each other's performance. In other words, if one man has a scratched fender, someone is going to step up to him, pat him on the back, and say, "What about the fender?"

MR. ERICSSON: Your head mechanics can check the equipment in before the next driver takes it out, and if there is any mark or scratch, the driver has to account for it. That's the best way to overcome any inclination to fail to report accidents.

MR. THARMS: Mr. Hightower, what are the "things" that are dangled before the driver's eyes, and how do you dangle them?

MR. HIGHTOWER: I will give you a personal example of what is dangled around, and then I will tell you what the effect is.

In my company we have quite an extensive safety program. We are a pretty large company. We operate around 500 coaches, and have around 800 drivers. We operate the second highest mileage of any Greyhound Company.

First of all, we dangle the job. The job is one they can be proud of. It is one in which they can hold their head up and be proud of in any community. We sell them that.

We give them their training. We tell them how we want to operate the business, and how they should conduct our business. Then they begin to participate in our safety program. Each operating division competes against each other, in an interdivisional contest, the rules of which are practically identical to the rules of the National Safety Council's Fleet Safety Contest.

As a reward for a division winning the contest (we have two, six months contests each year), each driver who goes through the six months contest in the division without a chargeable accident is given \$15.

We issue monthly bulletins and hold meetings to keep the drivers keyed up about the contest. We don't put too much importance on the contest, because we don't want the drivers to overlook the entire picture in favor of the contest.

We have awards starting with a bronze button for six months. Up through nine years, we give a button of some kind. For six years, we award a stick pin set with a ruby instead of a button.

The seventh, eighth, and ninth years, each one of the awards is accompanied by a pocket award—a certificate, and we give the driver \$37.50 in cash.

The tenth year, we give him a very expensive 14 Karat gold 21-jewel Hamilton watch, suitably inscribed.

The 11th, 12th, 13th, and 14th year, we do not give buttons or jewelry. We give him a pocket certificate and \$50.

For the 15th year, we give a handsome ring.

In addition to those things, we run an individual contest. If a driver goes through that year without a chargeable accident, we give him a credit on his account, equal to the cost of a basic uniform.

For the past three years that has amounted to \$35.90. That is pretty costly. This year, we had 600 drivers who earned their uniform award, out of a total of some 750.

Those are some of the incentives that we dangle in front of them. It is human nature

(you and I and anybody else that is human) for us to desire recognition.

Safe driving awards give recognition. Even in the presentation of them, drivers get recognition, do they not? They are singled out and told they have done an outstanding job. That is an incentive. We pin a button on them, and they wear it, and display it to fellow drivers and to the public.

Surely you would strive for that incentive, because you have enough pride in yourself to desire to want to stand out. You want people to recognize that you have done an excellent job of safe driving.

Those are some of the incentives you have to keep plugging. You have to educate, remind people, keep them believing that those tokens are valuable; something to really work hard for.

It is up to you as to how you are going to do it.

Do you want to know the effect of this program that I have just outlined to you? Let me say to you sincerely, we have the least trouble with our 800 drivers of any company that I know of in this United States.

We do not have a union, and our average, even through this year, which is the worst any of us, I guess, have experienced since the beginning of the war, is sticking up to around 80,000 to 90,000 miles per accident.

MR. R. A. WALKER (Motor Tows): Will the National Safety Council act as a clearing house for the filing of such plans of action? It seems to me that an organization which wants a program should appeal to the National Safety Council for one, two, or three adaptable types of programs of incentive plans.

May I also say in rebuttal to your remark—we operate with the A. F. of L. Union, but we first filed with them our incentive plan and driver control plan whereby we remove drivers for a certain number of demerits, and we have the full sanction of the A. F. of L. on our program.

I feel that, if you will file your program with the union, they will not only go along with it, but will endorse it. We have thought it better to work with them than to work in opposition with the union.

MR. HIGHTOWER: I thank you for mentioning the clearing house idea. All of

us assembled here in this room can never remember who is here, and sit down when we get home and write somebody a letter and ask them for their plan. One of the prime purposes of the Council is to act as a clearing house on all matters of safety, and incentive plans are included.

MISS CECIL KENNEDY (Treasure Island Naval Base): There is one incentive that I have used to very good advantage which hasn't been mentioned, and that is in connection with the road check. We write a personal letter to the driver and a copy goes in our personnel file. It's a letter of commendation.

I follow the road check with a letter saying, "You were followed on such and such a day, on such and such a route, and you did the following things for which I am very pleased," and so on. We try to put a check on the driver every few months.

Only a few will get the commendation letter, and they will show the letter around to the other drivers. They are mighty proud of it. This also helps overcome the drivers' antagonism to a road check. Each time they are out there they think, "Maybe I'm getting checked this time," and will follow it up by doing a good job.

MR. HIGHTOWER: Your letter of commendation is another incentive for doing the job right without supervision. If you are going to put something bad on your drivers' records, I think you should put the good on there too.

CHAIRMAN TILNER: I would like to ask the panel if they believe that the monetary value of the award makes very much difference as far as creating the incentive.

In other words, do the drivers place a lot of value on an award other than the cash value? You mentioned putting diamonds on a gold emblem, et cetera. Do you believe those diamonds actually help, or would that little pin that you give them be just as effective without them?

MR. GREENE: I think that the satisfaction of winning the award is the major thing. Of course all of us appreciate monetary values, and they add something to it, but I don't think that is the main incentive. I think the main incentive is the personal satisfaction the driver gets in winning the award.

MR. KARL A. SCHWEITZER: I think that is right. Of course everybody wants dollars and cents, but I believe as the others: Personal recognition has more of an incentive value, and they work harder to get it.

MR. HIGHTOWER: I have found our drivers value their little bronze six months pin, and value their one year pin, which is entirely plain. Their two year pin then picks up the stones. And they value each one of them and work hard for each one.

However, I am convinced that when you get up into something of value like diamonds—a man can be proud of wearing it on his street clothes.

For instance, it will be a dressy piece of jewelry that he is wearing, and he is going to attach more value to it than he would to a plain pin, with no diamonds in it. Maybe not because of its cash value, but because of its appearance and the impression it is going to make on other people.

MEMBER: I have noticed that you have been talking entirely about positive incentives. I think one of the most important positive incentives is the training program, getting the people interested in the idea of how to do a job correctly, getting that idea across to the men doing the work in the training program. If a man is correctly taught how to do a job, he gets a lot of satisfaction in doing the job correctly. When he knows how to do it well, that in itself is reward.

But there is the other side, the negative side about which I want to ask questions. You haven't mentioned much of the negative side. The fear of pain is a negative incentive. Getting this idea of fear of pain across to the men will make them more

careful. We don't do the job right if we don't remind them of that.

Another negative incentive is the fear of hurting other people, and the fear of the hardship to the family of the victim—such as running into and hurting the breadwinner in such a way that he couldn't support his family, and all of the effects that an accident might have on the family. Most men have some feeling in that respect and are governed by it.

Another negative incentive would be a first aid training program. If men understood more of the injury that would come to them as a result of an accident, and what happens to the bones and muscles, et cetera, in the body as a result of a crushed leg or a crushed arm, perhaps they might be a little more careful.

MR. HIGHTOWER: I think your remarks are well put. I believe that every safety director has at one time or another used the fear of pain, the hardship, the discomforts that arise out of an accident.

But I believe that almost every safety director has finally concluded that the average driver is not so terribly impressed with that particular approach. I myself have used it. Most of the outstanding thinkers in this field that I have had the pleasure of hearing have very frankly stated that they felt that the horror angle should be held to a minimum.

A good many of the companies do give first aid training, particularly trucking companies.

I would say off hand, the majority of the companies do not engage in teaching first aid to their operators. I can see where it would have a lot of good effect, certainly from a public relations standpoint, if nothing else.

WEDNESDAY AFTERNOON SESSION October 9, 1946

Presiding: H. O. TILNER, Safety Director, United Pacific Insurance Company.

The Organization and Operation of an Accident Review Board

By E. J. EMOND

Dir. of Automotive Safety, Armour & Co.

The procedures and suggestions contained in this paper, beginning with the second paragraph, represents the "Review Board Plan" as outlined to the branch

houses and operating units of Armour & Co. The definitions and rules were taken from Fleet Safety Memo. Nos. 14 and 15, compiled by the Commercial Vehicle Sec-

tion of the National Safety Council, of which Armour & Co. is a member. I should like to recommend that you carefully study these two Memos pursuant to establishing your Accident Review Committee, and that you use them as operating guides. This practice will result in the standardization of terminology and help level and consolidate our thinking in regard to driver responsibility.

In companies where the drivers do not all have the same headquarters, it may be desirable to have local Review Boards at the different offices, and the General Accident Review Board at the main office of the company.

There should be at least three—and preferably more—members of the Review Board. Management should be represented by one of the members. The drivers should elect one of their number to represent them. The supervising road mechanic, if any, or the local mechanic, should be one of the Board members, if this can be arranged. Where there are many drivers, it may be desirable to have more than one driver on the Board.

Every Review Board should have a permanent secretary whose duty it is to arrange for the meetings, to keep the minutes of the meetings, to preserve drivers' accident records, and to assemble the information, reports, and any other material that may be necessary to the proper conduct of the business of the Board, as well as to see that all the witnesses to be called are given proper notice to appear.

For each accident to be reviewed, the following should be assembled: Copy of the accident report; Driver's daily cards for the day previous to and the day of the accident; Mechanic's inspection report of vehicle; The involved employee's service record; And, if possible, the results of the insurance company's claim investigation and a street plat.

It is also desirable to have miniature trucks, automobiles, bicycles, pedestrians, and so forth, so the events leading up to the accident may be re-enacted. If these are not available, a set of rubber stamps is on the market which will prove very useful in reconstructing automotive accidents.

Every accident should be promptly brought to the attention of the Board. Each day's delay means that the accident

is further in the past, and who of us can remember, in detail, occurrences of even a month ago! Furthermore, the decisions of the Review Board are more apt to be acceptable to all concerned when evidence, in the form of injuries, damaged equipment and product, is still to be seen. It has therefore been found advisable to hold meetings of the Board at regular intervals, usually every two weeks, at which meetings all accidents reported since the previous meeting are reviewed. When a month or more has passed without untoward incidents, it is recommended that a meeting be arranged for all personnel operating company automotive equipment to bring to notice such achievement, and to discuss ways and means of maintaining the improved experience.

An accident, to be reportable to the Accident Review Board, shall be any accident in which a company vehicle is involved, unless properly parked, where such accident results in death, personal injury, or property damage. Such an accident is reportable regardless of who was hurt, what property was damaged or to what extent, where it occurred, or who was responsible.

Various items are to be considered by the Board. It has the responsibility of analyzing the details of all automotive accidents and of determining beyond a reasonable doubt whether our driver's actions were the primary cause of the accident, whether he was guilty of contributory negligence, or whether he was blameless.

Each accident must be classified by the Board as preventable or non-preventable. This is done according to the definitions of these terms given later in this article.

If the accident is termed preventable, it is then necessary to determine whether it is chargeable against the driver's record. If there are penalties provided against the unit employing the driver having a preventable accident, or against the driver himself, or both, a decision must be made as to whether such penalty or penalties are to be invoked.

The knowledge gained from the analysis of these accidents and the contributory causes should be used in educating all driver employees in the prevention of accidents.

Each accident, including non-traffic accidents, should be carefully reviewed with the driver present. He should, of course, be given ample opportunity to give his version of where, when and how the accident happened. The decision of the Board should be reached with the driver absent. After the decision is reached, the accident is again carefully reviewed with the driver, at which time defensive driving practices which might have prevented the accident are discussed. The Board should try to be impersonal during such discussion to that individual animosities between the drivers and the members of the Board are avoided.

All employees who were involved in accidents to be reviewed should be present for the meetings. Employees are called individually before the Board. If an employee has not previously appeared before the Board, its purpose should be explained to him. The report of the accident is then read, and the employee requested to explain in detail what he knows about the circumstances surrounding the accident, using the street plat. After the involved employee has explained the accident, and the members of the Board have obtained all other information required of him, he should be retired from the room. The Board should then analyze the information that has been developed, and come to an agreement as to the responsibility of our driver, that is, whether he was guilty of negligence or contributory negligence, and whether the accident is to be classed as preventable or non-preventable.

Each driver involved in an accident contributed to it in greater or lesser degree—usually each failed to employ defensive driving tactics. If the other driver is frank enough to admit he was at fault, it usually means only that he sees how he contributed to the situation. This does not mean that our driver is blameless. It is probable that he, too, was partly at fault. The mere fact that he was implicated in an accident means that an inquiry should be made to find out how the driver was involved. The results of such analyses, when properly used, will help both drivers and management prevent similar accidents in the future.

The rules for determining whether an accident should be charged against the

driver's record are based upon the principles of defensive driving. A defensive driver is one who is careful to commit no driving errors himself, who makes allowance for lack of skill or improper attitudes on the part of the other fellow, and who does not allow hazards of weather and road conditions or the actions of pedestrians and other drivers to involve him in an accident. Such a driver is continually on the alert, recognizes an accident-producing situation far enough in advance to apply the necessary preventive action, and concedes the right-of-way when necessary. Defensive drivers themselves agree that nearly every accident is preventable. Many chauffeurs have driven 500,000 miles and more without an accident. Such records cannot be ascribed to good luck. They indicate that most accidents can be prevented when the chauffeurs exercise the attitude and caution of good defensive drivers.

There are, of course, rare occasions on which the accident could not have been prevented by our driver through any action, caution or forethought. The rules governing the Review Board recognize this possibility, and in such instances the accident is not charged against the driver as a preventable accident.

For the purpose of the Review Board, a preventable accident is any reportable accident in which the driver in question failed to exercise every possible precaution to prevent the accident. Responsibility to prevent accidents goes beyond careful observance of traffic rules and regulations. Chauffeurs must drive in a manner to prevent accidents, regardless of the other fellow's faulty driving or non-observance of traffic regulations.

It must be remembered that responsibility for accidents is based on whether the accident was preventable, and not on who was primarily responsible or at fault. Therefore, the following types of accidents will be considered preventable, unless investigation reveals extenuating circumstances quite beyond the control of the driver:

1. Grade crossing collisions: Trains always have the right of way.

2. Backing accidents: The care with which a vehicle is backed depends entirely on the driver. He is in no way relieved of his responsibility to operate his vehicle

safely when someone guides him. The guide has no control over the vehicle.

3. Collision with the vehicle ahead: Having the vehicle ahead stop suddenly is a common hazard, so the defensive driver will follow at a safe distance.

4. Our vehicle struck in rear by another: This type of accident will be considered preventable when: Our driver was passing traffic close to an intersection, then stopped suddenly; Our vehicle was improperly parked; Our vehicle rolled back in preparation for starting ahead; Our driver made sudden stop to park, to load or to unload merchandise, for a grade crossing, or for similar reasons.

5. Accidents at intersections: These accidents are regarded as preventable when our vehicle: Driving straight through intersection and collides with vehicles coming from either side, regardless of the presence or absence of stop signs, traffic signals, or whether the light was green or changing; Driving straight through intersection, has collision with an approaching vehicle making left turn in front of the driver; Starting through intersection when light changes, collides with cross traffic which has not cleared the intersection; Making right or left turn, collides with approaching or cross traffic, adjacent traffic, or with a vehicle which is leaving curb as our driver makes a right turn; Making a U turn.

6. Accidents while passing or being passed: Our drivers are required to overtake and pass safely, and not speed up when being passed.

7. Weaving right or left: Some accidents may seem unavoidable if it appears that the other vehicle tried to pass through a space too narrow, whereas the space was made too narrow by the weaving of our driver.

8. Squeeze plays and shutouts: These are usually due to leading driver forcing the other driver to the left of the center line into viaduct columns or other obstructions, or off the roadway. Drivers should not get into a position where they may be forced into trouble, nor should they swerve so as to force others into trouble.

9. Accidents in pulling away from the curb or other parking space.

10. Accidents occurring when entering traffic from a driveway, alley, or side street.

11. Accidents when other driver enters the main road from driveway, alley, or side street.

12. Collisions with streetcars: Head-on, angle, and sideswipe collisions and all rear-end collisions of types covered in paragraphs 14 and 15. Included are all accidents occurring when passing streetcars.

13. Collisions with vehicles from opposite direction: This includes both head-on and sideswipe collisions.

14. Pedestrian accidents.

15. Non-collision and collision with fixed objects. This includes overturning in roadway, running off roadway, and collision with culvert, traffic signal, parked vehicle, or other object.

16. Skidding accidents in which our vehicle skids.

17. Accidents due to poor visibility: The burden of responsibility is placed on the driver to operate his vehicle within the limits of his ability to see ahead.

18. Accidents due to faulty brakes: Drivers should report faulty brakes. Also, it is the driver's responsibility to drive within the limits of the mechanical condition of the vehicle. This classification includes accidents caused by trucks rolling away from parked position due to failure to block the vehicle, to properly set hand brake, air leak, stop engine and put transmission in gear, etc.

19. Mechanical failure: When the investigation of a mechanical failure accident shows that the mechanical failure which caused the accident was due to rough and abusive handling on the part of the driver, the accident should be charged against the driver.

20. Yard or dock accidents.

After the Board has decided whether the accident was preventable or non-preventable, and thus whether it is chargeable against the driver and the unit employing him, the driver should be recalled, informed of the decision that has been reached, and given the results of the analysis in detail. If the accident is of the preventable chargeable type, sufficient time should be allotted so the driver may be shown how the accident could have been avoided. The Board should be sure that he understands, and should obtain his assurance that he will be

"defensive" driver so that accidents will be avoided in the future.

When it has been agreed that the accident is of the non-preventable type, the driver should be told that while the Board is classed this accident as non-preventable, at possibly, depending on circumstances, the driver had been more alert, had given better hand signals, or anticipated what the

other driver might do, the accident would have been avoided.

It must always be borne in mind that though the Board reviews accidents that have already occurred, its most important function is to use the information obtained in such reviews to encourage safe driving habits and so make the roads less hazardous for all.

How to Handle Accident Repeaters (Panel Discussion)

Participants:

Discussion Leader: A. N. BRION, General Safety Director, The Greyhound Corporation.

W. C. B. MERRITT, Safety Dir., Trucking Inc.

J. J. SCOTT, Safety Dir., Arnold Lines.

M. R. YOUNGMAN, Safety Dir., Super-Service Motor Freight Co.

MR. BRION: This panel is intended to ring out some valuable information in the matter of handling accident repeaters among your drivers.

When talking to, or when dealing with a subject of this kind and a group of this kind, I think there are some things that the panel members would like to know about to audience, and if I may, I would like to ask two or three questions that will help us now to whom we are talking, and what size and character of operations we are discussing.

I wonder if we can have a raising of the hands here as to how many truck operators are in the room? About 50 per cent.

How many bus operators are in the room? I would say that is about 25 per cent.

How many insurance men in the room? That's a pretty good representation, about 25 per cent, I would say.

For the further information of our panel as to the size of fleets, how many of the operators, whether bus or truck, have 300 or less drivers?

... Ten hands were raised ...

How many have 300 or over?

... About 25 hands were raised ...

A preponderance of larger operators then.

Gentlemen, in dealing with the subject, "How to Handle Accident Repeaters," I think it should be said at the beginning that we know a few things about accident repeaters from the experience and analysis of accidents in the past.

I have here before me a few figures that will introduce that subject accurately, I believe. I picked them up from a couple of fleets, and I think they are in line with most of the records of fleet accidents, particularly if we are confining our analysis to the larger fleets where we have a broader basis of study.

One fleet's safety director points out that in a past years' analysis, 50 per cent of his drivers had no accidents, 19 per cent of his drivers had 50 per cent of the accidents of the fleet, and the other 31 per cent of the drivers, had the other 50 per cent of the accidents. So, boiling it down, 19 per cent of your drivers would undoubtedly come in the category of repeaters. The 31 per cent, who had accidents, might be considered to be on the border line. They are the people to watch—people whose records should be regularly gone over. That is one fleet.

Here's another, where 20 per cent of the men had 39 per cent of the accidents. That certainly represents the repeaters' class. The next 11 per cent of the men had 18 per cent of the accidents.

Certainly, in those two groups would be most of the repeaters. So for the benefit of those in small operations who don't have a cross section of experience like this to study, I would just point out these are big operations where they can and do study

the records of every man, and put together a great many statistics that emphasize these important facts with regard to accident experience of individual drivers.

Who has the first question?

MR. J. P. HIGHTOWER: Just what type of record is used in order to keep up with the repeaters? As the first step, just how do you keep track of your repeaters?

MR. W. C. B. MERRITT: There are two distinct types of accident repeaters. There is the one that goes from company to company for the reason that he can't stay where he is, because he is constantly involved in accidents.

Then you have the driver who goes along over a period of time and is accident free. Then, all of a sudden, he develops into an accident repeater.

MR. HIGHTOWER: How quickly are you able to determine that you are having a lot of repeaters?

MR. YOUNGMAN: Of course, you are interested first in the individual. We have a card index system, and we record all accidents on his card, and once each month we go down the entire list, and if we find he has had several accidents, we have a discussion with the man, and re-train him.

Sometimes little bad habits are responsible, or his attitude, or maybe some other things. We can comment about those later.

We also keep a record of the different types of accidents, to see what is building them up. In other words, we don't wait until the end of a quarter to find a situation that is getting beyond control. The only way you can know, to begin doing something about it, is to keep the two separate lists. That has been my experience.

MR. HIGHTOWER: Insofar as repeaters are concerned, you keep a frequency record, and an additional set of records?

MR. YOUNGMAN: No, the card index shows how frequently he is having them.

MR. HIGHTOWER: How long does it take you to run down the list and determine how many repeaters you have?

MR. YOUNGMAN: With the card index system, I don't believe it takes more than a few minutes. We have 90 highway drivers, and 40 city drivers.

MR. BRION: Mr. Scott, is there anything you could add to the answer?

MR. SCOTT: I don't use a card index system. I have a tab system—small colored tabs which go on each driver's card. We pull the reds, yellows, or whatever color used designating repeater drivers.

MR. HIGHTOWER: Different tabs represent different accidents?

MR. SCOTT: Right, we use yellow for one accident, and from two to three, we use red. Over one, would place him in the accident repeater class.

MR. HIGHTOWER: How long does it take you to determine that?

MR. SCOTT: We look in the drawer and pick every one of the colored tabs out at one time—five minutes.

MR. BRION: Mr. Youngman, do you code your accidents on your index cards, or whatever you use, for these records? Do you actually code them so you can put your finger on the type of accident this individual might be having?

MR. YOUNGMAN: Yes.

MR. BRION: Are there any other comments from you gentlemen on the coding of the accidents?

MR. SEELIG: What is the time limitation? If a driver has had two accidents in a period of two years is he a repeater or what limitation do you consider?

MR. J. J. SCOTT: Well, I would say any man who had more than one accident in any year was a repeater.

MR. BRION: Do you allow the degree of chargeability to that man's negligence to enter into the coding?

MR. SCOTT: No, I don't. That doesn't make any difference. Two or three are chargeable, and maybe two or three are unavoidable. If you go into that man's case history and analyze the man as well as your accident, there may be a reason for the unavoidable accident.

MR. CALKINS: How can the small operator devise a system for recording accidents for the individual like that on a card index system, but relatively simple, so that the smaller operator is able to keep a little better track of the accidents that his people have.

MR. SCOTT: You are talking about the card itself, and how it is maintained. When you get one, get a good one. Don't depend on the limited amount of information fur-

nished you by insurance company reports. I am not attempting to step on the insurance fraternity at this point, but their object is claim work, and they are not as much interested in the correction of the operator as you are. You can get a card index to carry on where the insurance report leaves off. There is a card index, the type I spoke of a minute ago, that carries a history of the driver, his attendance, and all the information necessary with a code on the back of the card with which you can identify each type of accident.

That will give you all of your information at a glance, including the breakdown of each and every accident.

MR. BRION: Are you referring to a National Safety Council card? That is available to small operators.

MR. SCOTT: No, I want to go one step further than the National Safety Council card, because if he is going to do correction work with his operators, he wants to know whether the man is married, whether he has children, whether he rents a house, whether he is buying a house. Does he get along with his wife? Does he run around on the side? Does he drink when he is off?

Every one of those things, gentlemen, are reasons for having accidents—they contribute to accidents—and you have to have that information on a card that you can get to and don't have to go to the personnel department or some thing else, and get the disinterested report on the man. You have to know the man if you are going to correct him.

MR. YOUNGMAN: We find there is no card that has ever been presented to us that covers all the subject. You have to have more information for the I.C.C. than for anybody else. As we never know what an accident is going to develop into, we automatically use a report that is the same as the I.C.C. report, but we do not use their forms.

There is some additional information that we want, and we are not in a position to really make out an I.C.C. report from any of the standard forms that I have seen.

MR. BRION: All right, is there another question? Bear in mind that you have explored only the matter of identifying the man up to now. There are a lot of things you will want to do with him after you have identified him.

MR. S. D. WIRENIUS: What do you do with the men after you find them to be repeaters?

MR. MERRITT: Before you can make him correct his actions, you have to first diagnose the accident and the driver, and determine his mental condition at the time of the accident.

You must be pretty close to the driver in order to know what is on his mind. Maybe that is where we are lame in the first place—the fact that we don't give the driver enough consideration.

We are not interested in him any more than the fact he is working for us and earning his money, but I think you will find in a majority of cases of accident repeaters, we know that physically he is okay. But we don't know what he is mentally.

Maybe we don't bother to determine whether the man is getting along all right financially, or if there is family trouble, or whether his equipment is not in the proper condition. So, let me put the question back, what do we do about those things?

MR. WIRENIUS: What I was interested in is what form of discipline do you take, or what action do you take to straighten the man out? Say you find the man has had two, three, or four accidents in the last year, do you call him in and talk to him and point out his weaknesses, etc.?

MR. W. C. B. MERRITT: The thing I am trying to get at, is that you have to find out the cause first, before you can effect a cure. A proper way to do that is to work close enough with your drivers so that when you call them in to talk to them, they don't feel as though you are trying to high pressure them.

MR. BRION: Mr. Scott, can you give us anything further about what you do with the man after he is identified?

MR. J. J. SCOTT: I would like to correct one thing. You said punishment or discipline—well, I would like to forget discipline and punishment. The minute you start thinking discipline you lose the effect of the work on the individual. We have him in there to help him and to correct him.

I think if I go over a few case histories, it will answer your question. I have

a man who has been involved in numerous minor accidents, and they were chargeable. The man is a good operator other than that. We got him in the office and talked to him, and went over his home life. We found that he is heavily in debt, that his wife expects a lot more than he can give her, and is spending more than he is earning.

Consequently, bill collectors are always knocking on the door, and she is dissatisfied, unhappy, and continually on him. Instead of operating over the road and thinking about his cargo and his equipment, he is wondering about the bills. I got this man in and had a talk with his wife, set up a budget, and notified his creditors. We made a satisfactory plan of payments. That man's troubles stopped, he didn't have any more accidents. He is on the road to getting cleared up financially, and when he is—he won't have any more trouble.

I have one fellow that was involved in a lot of door accidents. They also are chargeable.

This boy had an inferiority complex. He felt that he had to attract attention to himself. He was very unhappy, and didn't get along with the men, for no particular reason. But in talking with the man, and appointing a committee of the other operators to get the man interested in bowling and various lecture courses and things we had going on at the company at that time, so that he would meet the fellows and get to know them, he came out of the shell he was in, and he didn't have little minor accidents to attract attention.

In each and every case, if you will dig far enough, you will find some reason back of it which can be corrected.

MR. YOUNGMAN: All of ten years ago, I used to have the idea that the driver was always at fault, and my experience has been that that isn't true. Really, I think that most of our problems are created within our own organization, where the mechanics maybe have not taken a fair attitude toward the drivers' reports on the equipment, or it might be that a terminal manager has been discourteous, and in some cases, the man has imaginary grievances, which by all means, we should listen to.

I spend a lot of time as long as I can keep a man talking about himself.

We can't overlook the fact too, that some of our drivers are getting a little bit older. After the driver reaches the age of 40 or 45, he is a changed man, and maybe he hasn't had a recent physical examination, or visual acuity test. I don't see how a man can drive safely if he can't see, and it is necessary to determine that.

You will probably find that his reaction time is delayed. That probably is causing him to get into accidents. And as Mr. Scott mentioned, of course there are a lot of distractions due to personal matters at home, or financial troubles.

In some cases it is just a case of a toothache or an earache, which might distract a man.

Then too, we must not overlook the fact that many drivers drive automatically. I think we are all inclined to do that. That means that we just drift into some careless habits. I guess you all know that about three-fourths of everything we do daily, we do from habit. A driver can get into the habit of ignoring first that slow sign. He doesn't have to pass very many of those signs before he not only ignores that sign, but others just like it.

He gets so that he doesn't even observe a stop sign, and eventually he gets into the habit of driving without being conscious of the conditions surrounding him in traffic. Maybe he hasn't noticed the pavement is wet. Maybe he pays no attention as night creeps up on him. Those are just the little careless habits that you can usually discover, if you get on the truck and ride with him just a little while.

Then it becomes a matter of training him out of the bad habits—substituting good habits for bad. The man isn't necessarily bad, and I would much rather work with him than fire him and get an unknown quantity.

I think that we ought to keep in mind too, that we are not born with any habits. They aren't standard equipment. Every habit you have, you acquire, and people can improve their mental facilities 1,000 per cent if they just attempt to.

If the driver has confidence in the personnel and safety men, he will come in and lay a lot of things on the table which will be helpful to him and to you. But of course, it goes without saying that those things must be kept in strict confidence.

MR. EBELING: Mr. Brion, I would like to ask the gentlemen on the panel their opinion relative to handling the repeater case, taking into consideration not only the mental attitude of the man, but his physical characteristics in relationship to the physical characteristics of the vehicle regularly assigned to him.

We have frequently found cases where a driver has been a repeater, and in examining a man's physical characteristics, or the characteristics of the vehicle he is driving, we have found men who seemed nervous and ill at ease in cab-over-engine equipment particularly with wide axles on narrow 16-foot highways.

Those same men were put into conventional tractors and they were quite at ease. We also found men in city delivery work, assigned to congested areas who were of a nervous character. They had a high accident rate. Then when we put them into another territory where they had less traffic, they did a pretty nice job.

On the other hand, we have a repeater out in the industrial territory. When we brought him down into the loop, he did okay down there.

In other words, I would like the panel's opinion in going beyond just what goes inside the man, but analyzing him physically, as well as the equipment and the routes of travel.

MR. YOUNGMAN: One fellow might have a grain of sand in his shoe who creates more disturbance than the fellow with a walnut in his shoe. You just have to weigh things and take them into consideration.

Then another thing, some of you are bound down by certain agreements whereby you can't change people to different routes. Then it becomes a matter of working the man over.

Certainly I would not ignore the fact that the equipment might contribute to his mental attitude. It even might create mental fatigue, and I want to distinguish the difference between mental and physical fatigue.

I believe that the figures in manufacturing plants show that spoilage and breakage does not occur near the late end of the shift. Now, if monotony was the cause of breakage and spoilage, then most of the

spoilage should occur near the end of the shift, and I think if you will analyze your accidents on the highway you will find that most of them occur during the first half of a man's driving period.

So maybe we are putting too much stress on fatigue. I think there is plenty of evidence to show fatigue did not cause it. I might state it this way, you start a man out on a 100 yard race, and if he runs at the limit of his capacity during the early part of the course, he has soon exhausted his endurance. But if he runs at the rate of energy-supplied-to-his muscles, and removal of waste from those muscles, he just finishes the race with the endurance he started it.

I think that we should remove the thing that might annoy the man, but I don't just know that in our case it would be practical to get a man the type of equipment he likes. He might not like a cab-over-the-engine, and that's the only kind we have.

MR. HIGHTOWER: Suppose you failed in the corrective measures, then what is done?

MR. YOUNGMAN: It is difficult to say a man hasn't the ability to drive. He may be a member of the union. He may have been driving for other companies for a long while, and never been dismissed. I worry along with him and try to sell him on the idea that maybe a change of climate would help.

MR. HIGHTOWER: Get down into the human element and correct certain faults in the man, contributing to his accident record. Should you fail in that direction, you still have before you a very bad picture of frequency.

Now then, are you just going to ignore the cause? You have certain organizational handicaps that you are afraid to combat—are you going to get rid of the man and get rid of your accident records?

MR. SCOTT: The only thing I would like to say is that you are going to exhaust first, every possibility of correcting an operator in whom you have invested a large sum of money to train, before you let him go.

If you have tried everything possible and worked with the man, if it is a case where the man will not cooperate or is a case where you cannot correct the condi-

tion in the man, then of course, the only thing to do is dismiss the man. No matter what your contracts or anything else may be I have never seen a board of arbitration ever require any company to keep a man that you could prove you have done everything for, and was still an unsafe driver. I have never had it come back at all.

MR. BRION: In other words, you unhesitatingly take it as far as arbitration if necessary, in your organization to rid yourself of a man after you have determined that is the only way out?

MR. SCOTT: That is right. I run a bus operation and have two or three types of buses, but I have run into conditions where after trying every possible method to correct him, transferred him to maintenance or schedule, or some other branch—some other department. A lot of men can be corrected on the road by your supervisors before they ever get up to the safety department. If he is a good supervisor, he won't lay a man up as long as he can correct him. But so far as your point there on transferring a man from job to job, I could see where it would have to be done.

We have had experience with some servicemen coming back home, with respect to following orders. If you told the man exactly what to do, he could take orders, and carry them out.

The minute an unusual condition would arise, he couldn't make a decision, and those men had to be filtered through the shop, and worked into driving before we could make good operators out of them, because every time they would run into a difficult situation, with no one to give an order, they didn't know exactly what to do. It wasn't in the book.

But by funneling the men through the gas pumps and the shops, back up to operators, with special classes at night, we have developed good operators out of them.

MR. EBELING: I would like to bring out a point that I think has been missed. We have had drivers on local city trucks that have become repeaters in backing up accidents, the same driver on the same trucks in each accident. We found in one case that due to the man's stature, his height, it was impossible for him to see into his mirrors properly the way the mirrors had been placed on that particular

vehicle, where as a taller man could see very easily on that vehicle.

MR. BRION: Not adjustable?

MR. EBELING: Right, there is no way. The body was a little wider than it should have been, or he sat a little further back from the cab.

In other words, that driver could do nothing else over a given period of time, but produce back-up accidents on the vehicle. We put him on another vehicle, and he got along fine. Another driver was put on the vehicle he had been having trouble with, and he got along okay.

MR. YOUNGMAN: Was there anything to keep him from going out of the truck and surveying the conditions?

MR. EBELING: Yes, but on getting back into the truck the conditions sometimes change.

MR. SCOTT: Let me ask you a question on that. What are your requirements as to height, weight, and physical conditions in comparison to the equipment the men must operate? Would that man have been hired if he is too short, what are your height requirements?

MR. EBELING: We don't have height or weight requirements. We have an age requirement. But we don't hire a man that appears to be a midget, nor, on the other hand, do we hire a man that appears to be excessively overweight, but we have no definite requirements in that we have never found a need for them.

MR. SCOTT: Don't you think that incident shows a need for it, if you developed a plan, that could have been avoided, but if you don't, those men are going to disrupt your organization?

MR. EBELING: The fault didn't lie with the man as much as with the equipment. The equipment was improperly laid out to start with.

MR. SCOTT: How about the taller man that could drive?

MR. EBELING: That was just one of God's pleasures that he made some one unusually tall, I presume.

MR. YOUNGMAN: I think you should have standard requirements, and adhere as to weight and height—not too closely, but pretty closely.

MR. SCOTT: On any one of your accident repeater cases, if you are going to do

a good job, you should have a physical examination, a reaction and a glare resistance test. If they are night accidents—all of those things are necessary.

Goodness knows, every repeater should get a physical examination. By a good physical, I mean one by a good physician that will help you work with the man. If you just tell the man to go to a doctor and get a physical examination, you are going to run into some of the things we ran into back sometime ago. The doctor asks the man, "Ever have trouble with your back?" "No." Checks it. He goes down the list that way. But if you will appoint a doctor and work with him, and tell him what you are trying to find out, then you will find a physician can be of great help, and particularly, gentlemen, if you have to go to arbitration at any time. You can take a good doctor with you. It doesn't hurt anything.

MEMBER: In many types of accidents, we consider cause and effect. It may be interesting for the group here if they give a little thought to that feature of education,

and its relation to group morale and driver attitude.

That was brought home to us very forcefully recently when he were shown a sound slide-film produced by the National Safety Council, which emphasized the fact that accidents can be avoided and favorable results produced. I recommend you give that picture consideration.

MR. YOUNGMAN: I think that the film, Defensive Driving, produced by the National Safety Council is certainly one of the best, and gets the men thinking along that line.

Even if you take five minutes out on the dock after they clock in—it certainly ought to be on company time—and spend five minutes talking about safety, if nothing else you should impress them with your interest. Then let a driver explain how he avoided an accident, just so you have them safety conscious. Maybe the foreman—every time they leave the platform, should say, "Don't have accidents today," if he doesn't do anything else but that, it will be helpful.

THURSDAY AFTERNOON SESSION October 10, 1946

Presiding: H. O. THURMAN, Safety Dir., United Pacific Insurance Company.

Evaluation of the Driver Testing and Training Program to Date

(Panel Discussion)

Participants:

Discussion Leader: A. N. BRION, General Safety Dir., The Greyhound Corp.
C. D. CALKINS, Dir. of Safety, Pacific Motor Trucking Co.
S. D. WHELAN, Safety Dir., Central Greyhound Lines.
BERT FLORA, Vice-President, Executive Council, Inc.
R. L. MORRIS, Safety Dir., John LaBatt Co., Ltd., Canada.
M. A. KRAFT, Dir., Dept. of Personnel and Accident Prevention, American Transit Association.

MR. BRION: First, we have Mr. Kraft who was the power behind the throne when it came to writing the American Transit

Association Manual on selection and training of drivers. Mr. Kraft.

MR. KRAFT: I am a substitute for Glen Cleeton. I've been working for the Association nearly eight years now, in a development of selection and training materials, and in conducting research pertaining thereto.

Within the last few months, we have crystallized a good deal of this research and thinking into working manuals for our industry. We have made use of three tests, developed largely by Glen Cleeton and checked for reliability and validity by application within the industry. These tests are incorporated as a part of a complete procedure. I think that is a very important

thing to bring out, that tests in themselves, do not do the selecting job. They are merely instruments used in the entire procedure, and you have to supplement them with a good many other things.

The three tests which we have incorporated are psychological tests. In addition to visual and skills tests, there is one for mental ability referred to as the standard examination for transit employees. It's distinction lies in the fact that it is couched in transit terminology, they talk about street cars, buses, traffic, rather than some other less applicable items.

The second one is the motor ability test, which was developed after a good many years of research and study, and in which we find later evidence to indicate that it will, when combined with other tests, offer a very high degree of accuracy in predicting accident susceptibility, and ability to qualify by training.

The third test, a pencil and paper test, deals with attitude-temperament, and is referred to as a personal reaction test. It is this test that we haven't finished our research on. But the results are very encouraging, and we know that it will measure attitude, that it has some relation to accident susceptibility and to the public relations job of transit operator. And, when used in conjunction with other material, it will help improve the efficiency of the selection process.

In explaining our attitudes on some of these matters, it might be well to clarify the distinction in our industry between selection and training. The training process is completely separate, and it is a rather extensive process. We attempt to find men who can absorb training rather than attempt to find men already developed in high skills. In that, perhaps, we differ a little bit from most other commercial vehicle operators. We are not so concerned with skills at the time of employment as we are with the man who can absorb the training that we will give him, which will extend to perhaps four weeks or more before he goes out on his own.

Incidentally, Professor Cleeton prepared a short article on the use of tests, and I brought several copies of that reprint with me, and for those interested in those aspects, we would be glad to have you pick them up at the end of the meeting.

MR. A. N. BRION: Next, I would like to call upon Mr. Calkins.

MR. CALKINS: We have a different problem than Mr. Kraft does, because we are definitely concerned with the ability of the man when he comes to work for us. We have an adverse labor situation at this particular time. Our schooling covers a three day period. We don't expect to make truck drivers out of people in three days, but we expect to reduce mistake potential.

Furthermore, we ascertain if they have the qualifications of a driver. The first day's work is confined to physical examination, interview, and indoctrination. Indoctrination is followed by psycho-physical testing, and field testing within a closed area.

As a result, we wash out a few on the first day. The second and third days are confined largely to instruction on ways and methods of transacting our company's business. We, perhaps, place more emphasis than a lot of organizations of our particular type do, on getting people who are at least good public contact people. Realizing that our organization is a public service organization, we are interested in that particular phase of it.

As a result of our program—its first ten months, as opposed to the previous ten months we reduced our accidents in the Los Angeles area approximately 18.6 per cent.

MR. BRION: May I ask if you have an age limitation on drivers?

MR. CALKINS: Yes, 40 years old.

MR. BRION: A minimum?

MR. CALKINS: Twenty-one years of age. We operate under the I.C.C. and we have to follow along that.

To return to the three day testing program: In our first day's testing, if a man passes the six tests that we have, and if, despite the passing grade, it is quite obvious he is going to be weaker in one department of driving than another, we give them driving time throughout the next two days. They go out on the trucks as students with the older men, who are, of course, selected for that purpose, because they have received some training as to how they shall follow through on this program. On the last two days, there are times when we will send these men out on a driver

training field, which has a fence around it, and they can't hurt anybody. We put them out there and let them practice the various maneuvers which we found them to be weak in.

MR. HIGHTOWER: That's still within the three day period. Do you have any idea how much under-the-wheel time the men spend in those three days?

MR. CALKINS: Approximately four hours. But as I mentioned first, we are primarily concerned with the man who has had experience when he came in to our employ. We do not intend to make drivers, and we couldn't within three days. That is why we require previous experience.

MR. BRION: Next, I am going to ask Mr. Morris to give us his remarks on the subject.

MR. MORRIS: In the first place, in our particular operation, we are mainly interested in getting people whom we can eventually send up to our sales staff, and we start off from that angle.

The future employee first files an application. We ask him to come in for an interview, and it takes place in the personnel department, with which I have no connection myself. They go over his past record thoroughly with him to find out if he had a past criminal record, and the possibilities of his future.

If he stands up to their standards, they take him in and give him a medical examination. If he passes that, he is taken back to us in the traffic department, and we check with him to determine the possibilities of his becoming a driver.

When he is taken into our organization, if he does pass the medical, we in turn take him to the loading plant or the docks as we call them, and leave him there for three or four months. If he lives up to the standards there, we know that he understands the loading problem as far as the trucks are concerned.

We then take him back to the transportation department and put him on as helper in one of the several double hook-up units we have in operation. He runs there three or four months, providing the older driver sees fit to keep him on.

Before that, however, he must take our driver testing program, which is the psycho-physical test, for skilled driving. If he

is okay, we then put him on the double hook-up as a helper. If he's all right after three months, we bring him back into the organization, and put him out on the road as a driver by himself.

Before these things are done, we check his record with the insurance company. I am not familiar with the set-up you have here, but we have to check in Toronto with the Department of Highways. We check with our own department in Ontario to see if there were any crimes against the man, and if there are, he doesn't go out as a driver, nor does he get on the payroll.

Regarding these psycho-physical tests we have found that the mental qualities of a man show up, and in his skill tests, his driving ability shows up. We keep a record of that and give him a copy himself. We give him a copy of his medical examination, too, if he desires it.

The driver testing and training standards of employment are improved by showing him some of his faults. We find that after he has had these tests, and by giving them a copy of their findings, the driver tries to improve his driving.

MR. RAY WALTER (Dir. of Safety, Tours): I would like to ask a member of the panel, his opinion on the relative cooperation between directors of personnel and directors of safety. In our own case, we found they objected, and we had little success until those two positions were combined. I would like to hear some of the members of the panel discuss that.

MR. MORRIS: I have no connection with the personnel department, but they do coordinate with us very closely. They select a person whom they think might possibly be a suitable driver, but before they come to us, they double check before they do pass anyone along to us.

I feel that the personnel department and the director of safety and the supervisor of any transportation department should be very close.

MR. CALKINS: We are the same in our organization.

MR. KRAFT: I certainly feel there has to be at least a common understanding so the personnel man does his job in connection with the safety program of an organization.

On the other hand, I also think that

whether they are one and the same person may depend largely on personalities, and that you have to take personality into account with any given organization. Most of our safety work is with our operating people, who comprise about 60 per cent of our personnel. Consequently, it is the transportation division which is most concerned, and a good many companies have centered the majority of their safety work in that department. Although I feel that it's a staff function, in the service department that ought to be on the level with all other departments so they can competently work through all other departments.

MR. GOODWILLIE (Wilmet Transportation): I wanted to ask Mr. Morris a question. He made the statement that after the basic interview and basic test is given, they put the man on the dock for two or three months. Do you pay the man while he is on the dock the same scale that he would be getting if he were a driver in that three or four month period?

MR. MORRIS: He would get the same rate as a driver's helper.

MR. GOODWILLIE: Is your labor problem up in Canada such that you are able to keep a man on that type of work even though he may have initially applied as a driver? The reason I ask the question is that is one of our great problems here in Chicago.

If a man comes in and originally applies for a driver's job, he wants to be a driver practically right away. One of our great problems is how much to pay him so that he will be happy and we have just about come to the conclusion that we have to pay him a driver's scale while going through any period of training.

MR. MORRIS: Every employee other than maintenance must definitely take the dock work. It is understood with our union, and in our organization that the period of time he is there is up to management itself.

MR. BRION: There was an elaborate experiment made by my own company in the East in trying to run down this matter of aptitude testing by having people who specialized in it, come to our property and do an extensive job.

First I am going to ask the man who did the testing himself, to take about five

minutes to tell you about it, and then I am going to ask the operator of the safety department of the company to tell you the results and what they were. Mr. Flora did the aptitude testing. Mr. Flora:

MR. FLORA: On the three steps of selection, training and handling the man after he has been trained on the job, I think we might add another one ahead of selection. In order to improve selection, it seems to me it would be a good idea to advertise widely the advantages and disadvantages, and the facts concerning the job of being a driver. I think the industry could do it as a whole and get away with it, and they would attract a lot more people than are attracted today, and thereby select better people.

On that tour that we took to determine how aptitude tests could be used in selecting drivers, we first made a description of the job. We tried to find out what it was that we wanted to test for. We tried to write specifications. We wrote them and made up a battery of tests for a trial run, and tried that out.

You might be interested in how it was accepted by various groups. Within the organization, there are three groups that you have to consider. First the individual, the union, and then management. Of the individuals we got varying types of acceptability. Some of them seemed to resent it, and some were afraid. Some took it in their stride, others were anxious for it. Some of them refused to take the aptitude tests at first, so we had to talk them into it, so they would see it was not too bad and wouldn't hurt them any.

One particular place we came to, three or four of the men had said they wouldn't take such tests, and the supervisor didn't know what to do with them. We said, "That's all right, let them go, but we will say one thing to you about it, and that is when we get through here, the morale of your men will be much higher than it is now. And you will find some men wishing that they had taken the test, wishing they had the opportunity."

That was our prediction. At the end of the second day, it seemed to be true. He came back and said, "I don't know how you did it, or what happened, but not only the men who took the test, but the others

also seem interested. I wish more could take the tests.

At another place we ran into problems with the union. They were questioning what we were doing, naturally, and were trying to protect the rights of the men. So we showed them what we were doing, and let them look over our shoulders. We talked to them and explained what we were trying to find—a better way of selecting men so there would be fewer accidents. They couldn't find anything to object to about that, so we didn't have any further trouble. In fact, we had no trouble doing that, it helped to get men further on the line to accepting the testing program more readily.

Sometimes the management worried about it because they—the local management—felt it was causing a disturbance among the drivers. So in each case we told them that they needn't worry about the over-all effect—that we had to go through the program, that it was difficult to explain it ahead of time.

Our problem was to convince the drivers. Afterwards they felt good for having taken it, with few exceptions. I don't think more than two out of 150 men felt too badly about it.

Another group that have to accept it are the new applicants. How do they accept a detailed, lengthy examination? Once in a while you will run on to one who will resent it, or refuse to take it, but that is the exceptional case. If a man won't accept the first job you give him to do, it might be better not to deal at great length with him anyway.

Most of them should be told what the test is for, its purpose. I want to say something about the acceptability at one school. The men who took the tests seemed to become better men after taking the tests.

We could see no difference from previous schools in the men, before they took the tests. Yet, after taking the tests, we got better scores, and better final results, after the training program. Apparently, it made them more self-reliant to know they had gone through such a difficult examination.

When it becomes known that you are really giving a complete test, a better class of people will come to you for a job. You will have better people to select from. It seems strange at first, but most people who

have ability and feel really capable, want to go where the capabilities will be recognized.

After lining up the types of tests that we wanted to use, we used the battery of nine paper and pencil tests, and ten physiological tests, which we gave to all these men. After lining that up, we had to decide which men to test. When you are trying to test the test, such as we were doing at this time, we had to find out which men were good drivers, and which were poor drivers. That is a very difficult job, and I want to say something concerning that.

At yesterday's meeting we talked about records and types of records, but I don't think anything was said concerning the standards for accident repeaters. I have started working on a formula for determining who are the worst drivers and who are the best, with reference to driving skill, regardless of the accident repeaters. It is rather complicated, and I haven't time to discuss it. I expect to complete it within the next year.

Something of that nature is necessary in order to determine who were skillful drivers, and who were not. When we got through with the program we discovered something that baffled us to some extent. Some of the people we thought were skillful, we found out later were not. We found we had an entirely new problem resulting from our experience of going through that kind of test. In other words, we can't recognize at first, the difference between some of the skillful and the unskillful. Some are definitely good, and some are definitely poor. There was always an in-between group.

The next step is to administer the tests and score them and find some statistical measures. You must find averages and then compare the averages of one group with the other group to find significant differences. If you can find a significant difference, then you have something which is a real test.

The next step is to repeat the whole process, perhaps on another group, to see if it still holds true, and shows a significant difference between good and poor drivers on the test scores. After you have gone through all of these steps, you are ready to apply it to new applicants. If you want to test the test further, you can accept

applicants, regardless of how they turn out on the test scores and measure their accident proneness as time goes on, and compare it with the test scores at the time of entering the company.

MR. BRION: Maybe we will have some questions for you later on. I should have elaborated on it before I asked Mr. Flora to talk about it. We wanted to find out whether any battery of tests could be gotten together that would put the good drivers on one side of the room and the poor ones in the other. So what happened was we asked Mr. Flora, before he took over his present business. We gave him two groups of men and asked him to work on this.

He knew nothing about which was the bad group and which the good group. We picked them from our own record of performance, and submitted tests to them—a wide battery of tests, as he explained, ten physiological, and nine psychological tests. We wanted to find first of all whether any of these tests or whether all of them could determine which was the good group and which the bad, without looking at the records which we kept to ourselves.

The second purpose was to find which tests brought significant results, so we could boil down the battery itself to the point where we would have, perhaps three or four, no more, psychological tests, and which were significant. In other words, we wanted to get the battery of tests down to the point where it would be practical to use them in the average operation.

We gave him the two groups of men for the purpose of establishing unit "norms"—normal grades, normal scores on the various tests. In order to do that, we put in the men who had been on our own payroll long enough so we knew who they were. Incidentally, we took comparable men in the same age groups, years of service groups, and in the same groups in any comparison you could make, so we were talking about men of the same general type, half who had had a lot of accidents, and half who didn't, and established "norms" among acceptable bus drivers, men working for us for years, and then agree among ourselves upon the specific tests that were significant, so that in the future, we could use them in choosing bus driver candidates from a wide variety of applicants.

Next, I would like to ask Mr. Wirenius, whose fleet was the guinea pig used to determine this question, to elaborate upon the testing and give us anything he wants to do in the way of results.

MR. WIRENIUS: Well, as Mr. Brion explained, they were made in the beginning to find some way to screen out the poor man from the good one and so forth. So we then went to work and applied these certain tests early this last spring to all our applicants hired this year.

Of course we set up a certain per cent of standard qualifications to begin with, height, weight, and size, and so forth, and brought these men in to school where we applied these physiological and psychological tests.

I might just outline the physiological tests that we gave. We placed a lot of importance on eyesight to begin with, and used the Keystone Telesimocular tests, which incidentally were very revealing to us. We used the peripheral, or side vision, test, reaction time test to check a man's physical reactions, and the color-blindness test to determine whether or not a man was colorblind, and incidentally we did find quite a few color blind individuals.

However, we screened out approximately one-third of the driver applicants who already had been pre-selected so to speak—they had had their preliminary driving tests in the past. I might explain that for a moment. When we hire a man we select a group of men from the applications, and then take this whole group out on a bus for five or six days to acquaint them with the bus and its operations, and for driving practice. We teach them how to shift gears, work the brakes, and become thoroughly familiar with the bus.

During this six-day preliminary test, one of the purposes is to learn a little bit about the man, his attitudes, etc., to see whether he is a proper type of man to handle passengers.

After the man passes this preliminary test, he is then brought to our driver school in Cleveland, O., for a strenuous ten-day course.

Before he is brought to school, he takes his physical examination with our company physician, so these men, tested this year, of whom we rejected approximately one-

third, has already been pre-selected by this six day test, and some of them had been rejected through the physical examination. Still, by giving these physiological tests, we screened out one-third. The largest percentage screened out had poor eyesight.

Our requirements: We have set up physical standards on eyesight, which are that we will not take a man unless he has at least 20-20 in the better eye, and 20-30 in the worst eye, to be corrected down to 20-20 with glasses before he is acceptable.

There were 152 drivers enrolled in our drivers school of whom 100 graduated. Forty of that 152 failed because of physiological test results. Altogether 52 were rejected, four were rejected for unfavorable references, and seven were rejected due to road tests.

But it proved to us that even men who have had their physical examinations may not pass in the field. This may be somewhat against our doctors, whom we know are all professional men, but we did find some discrepancy in the doctor's reports, particularly in the visual tests. Of course a doctor doesn't go deeply into variations of visual acuity other than ordinary perception or color-blindness. We found some doctors, who by using the Snellen Chart rated a man 20-20 when we found he was 20-40 or 20-60 in eyesight.

We know that we have found drivers who were one-eyed. Some men have hardly any vision in one eye, but have a good other eye, and these men perhaps lingered a little bit, knew all the letters on the chart by heart, so they could read them off by heart for the doctor.

We think that is probably what happens, so, therefore, we knew that might be the root of some of our trouble. We employed this Keystone Telebinocular test to find out for sure. The color vision test showed something where some of the men had passed the doctor, when our tests showed they were color blind.

We used the Ishihara test and found a good many men that were color blind. Color blindness incidentally is very important in driving. Most people regard it as just ability to distinguish the basic traffic colors, red, green, and yellow, but it goes far deeper than that. Particularly, when you consider the early dawn of the morning or the late evening dusk. A man can not

distinguish a car which might blend in with the background, say the green foliage on the side of the road and perhaps on a cross-road during the fall of the year when the leaves are brown and everything else is brown, if a car happens to be coming at him at right angles. If he can not distinguish contrasts and colors perfectly, he won't see the car until he is on top of it. Even at dusk, he will have trouble if the other car blends with the foliage. He might be on top of the car before he realizes it is there.

He may be driving through traffic on city streets, where there happen to be numerous neon lights burning. Well, it's pretty hard for a color blind individual to distinguish the red, green, or yellow traffic light intermingled with various neon lights. We place a lot of importance on color perception which we feel is a very important matter.

Just to show you some of the results we had from the testing this year, our new men, men who were in service less than one year, had approximately 30 per cent of all the collision-type accidents that we had. And this year, after we had used these screening tests, our average of the collision accidents among our new men dropped down to 11.9 per cent.

Thus, we felt that it really showed some results in that respect. The number of men hired were fairly equal so we hired a few less men this year than we did last year. However, the difference wasn't great enough to throw our averages off very much.

We won't hire a man under 25 years of age and the maximum is 38. However, we prefer a man between 25 and 30, but if the man between 30 and 38 is a sound physical specimen, and measures up to all the requirements, we will hire him.

We have set a minimum height of 5'9", and a maximum of 6'2". A minimum weight of 160 pounds is required, and a maximum weight of 235 pounds. But we consider his weight according to his height.

Of course we live up to the requirements of the Interstate Commerce Commission, but our company's requirements are far tighter than the I.C.C. regulations. A man must be in very good general health, have a good appearance, and have audible speech without any impediments, clear and cheerful. We prefer a married man to a single

man. A married man naturally has responsibility to his home which goes to make a better, more conscientious worker, whereas a single man is apt to have just a little bit of devil-may-care attitude. However, there are plenty of good single men. The single man, particularly the young fellow, is not apt to take the responsibility too seriously. We operate a bus line hauling human lives. Our drivers have a heavy responsibility on their hands, and, certainly, we want to find the best man for the job.

Truck drivers have a responsibility for the load and for the safety of users of the highway, but ours is far greater than that, because we have to consider the safety of our passengers as well as the other users of the highway.

When a man has numerous accidents, we can't afford to keep him, because we can't take that chance with passengers. If they bump over a load of passengers that becomes an expensive proposition, and we certainly can't stand that.

MR. BRION: Is there someone in the back row there who wants to say something?

MR. HAINS: I'm from the Standard Oil Company. While you spoke of a number of physiological tests, you seemed to emphasize two particular items—the visual acuity, and color tests. I think that over a period of years most companies employing drivers have been giving those two tests, and setting certain minimum standards which their applicants must pass in order to be eligible for employment.

But I am wondering if the other tests have been developed to a point where minimum standards have been decided upon by either an association or companies employing large groups of drivers. For instance, the ordinary conception of reaction time is that it approximates three quarters of a second. Now what would you do with a

man who, let's say, passes your visual acuity, and your color tests, but has a reaction time of one second and a half? In addition to that, he may be able to pass the night glare and the side-vision, and the rest of the tests.

Have you, or anybody in this audience who has been giving these tests, arrived at any minimum standards or a combination of standards of the various physiological tests by which you grade men and either employ them or reject them?

MR. WIRENIUS: We made tests of reaction time and used the Verniere chronoscope, which is somewhat different. We haven't gone in to the foot reaction timer at all yet. We intend to though.

This battery of tests was more or less an experiment, and we might change some of the tests as our experience goes along.

We have rejected men on slow reaction time alone. However, most of the men rejected, had a combination of deficiencies, reaction time, eyesight, and various other factors.

One test I failed to mention involved depth perceptions. We placed a lot of dependence on depth perception, which is very important.

On reaction-time tests, we realize that normal reaction runs about three quarters of a second, and we feel that the line we drew on reaction time was about a second. If a man's reaction time was over a second, he was rejected on that basis.

When we come right down to it, reaction time is very important, but the few fractions of a second in reaction time really don't amount to many feet stopping distance. My personal opinion is that reaction time, unless it's real slow or something is wrong with the man, isn't as important as depth perception and visual acuity, and perhaps color perception.

Tomorrow's Traffic

By FRANKLIN M. KREML

Director, Northwestern University Traffic Institute and
Traffic Division, International Association of Chiefs of Police

The work of accident prevention and traffic control has a very real relationship to the whole future of our country because

it is one of those elemental things that extends through the whole social and economic structure of the nation and affects

the whole future of the country. It has a political importance too because to a very large degree people fear in this country about the effectiveness of democracy as a form of government from the common-place, every-day experiences that they have with that government; the kind of roads they drive over, the safety that is built into them, the conduct of police officers who patrol those roads, the efficiency with which their garbage is collected, the effectiveness with which firemen fight a small fire in their basements, the effectiveness with which the health department protects them against epidemic diseases.

These are the more or less common-place functions of government performed on your level that teach people on the one hand that democracy is an effective means by which we can govern ourselves, or that it is an inefficient and expensive type of government which in this case makes them receptive to the preachments of those who would install some other system of government here in America.

What is the present situation? The present situation, as I view it—and this, of course, is strictly the opinion of one man—is this: We have just come out of the most terrible war history has ever known, a war which we very nearly lost. I repeat: A war which we very nearly lost upon half a dozen different occasions. We were lucky, or the Lord intervened, or both, but at various times, at various critical points, we would have, I think, surely been defeated, but we weren't. We fought a magnificent war and we really delivered in terms of men, in terms of fighting ability and very importantly too, in terms of equipment and materials of war. But now that we have won this terrible and perilous war, it seems to me that we have been losing the peace.

If we lose the peace, then we can't ever truly say that we won the war, because that is what the war was all about, to give us the kind of peace that we and other freedom loving people in the world want.

As evidence of the fact that we are losing the peace, I cite these several things to you. First, a very seriously deteriorating international situation. It seems unthinkable to me that here just a year and a half after V-J Day, we have all of us when

we have sat alone or with our families or with close friends seriously thought and talked about the possibility of war with a powerful nation, who just a few months ago was our very close ally, and who fought side by side with us courageously and effectively.

Another evidence is the increasingly difficult industrial situation particularly as regards strikes. This is a symptom of a kind of a basic dissatisfaction that exists in the country, an unwillingness to compromise, a certain basic selfishness on the part of individuals that places self above everything else, and finally, as another one of the many examples that might be cited, our accident situation which in the early part of last year particularly began to skyrocket terrifically, indicating that the individual acceptance of responsibility was gone, and throughout the nation in the operation of an automobile, in the conduct of industrial relations, in the conduct of international relations, selfishness was the order of the day, self placed above everything else.

These, I say, are symptomatic of our losing the peace.

Why have these conditions arisen? Well, in my opinion, they have arisen because of individual failure within our country, and I mean precisely that, the failure of the individual American citizen by and large during this critical period—failure first in the acceptance of a real down-to-earth individual responsibility on the part of all classes of people in all walks of life, on the part of the parents, on the part of the workers, on the part of the leaders, some of them in government, some of them in industry, some of them in business and some of them in professions.

This individual failure extends beyond the failure to accept individual responsibility. It extends to a failure of self-discipline, a failure to require of one's self the kind of conduct that one would expect of others from within his insight; further more, it is a failure to adhere unselfishly to the principles of democracy for which we fought.

Democracy, as I understand it, is predicated upon a society in which men work together for certain common ends. One of those is freedom, freedom of opportunity, freedom of worship, and I might recite the

whole Bill of Rights if I went on, but I am sure that you understand them as well as I do or better than I do.

That unselfishness, the unselfish devotion to those principles which we had during the war and which made us such a great nation in war are largely being disregarded now.

Then again, the order of the day seems to be, "I am out to get all that I can get for myself at the smallest possible cost to me and the devil take the hindmost."

We need, as never before, a genuine cooperative effort in government, in commerce and in industry. America must be a strong working democracy if it is to take its place as a respected leader for world peace. Unfortunately, I am afraid, we are not setting such a very good example today.

The moral fiber of an individual depends upon his holding, in my opinion, to certain basic beliefs. One of these is his determination to stand for the right whether it serves him well or serves him poorly, and we must have safety directors, we must have highway officials, we must have police officers, we must have judges, business men, and union leaders and citizens who stand for the right as they see it in the interest of their country, their state and their community.

Only then will we have people of strong moral fiber as individuals and consequently a strong nation. Certainly the individual must have a recognition of his relationship to government. Today we hear citizens everywhere talking about the government down in the city hall in Chicago or the national government in Washington. That is their government. They put those men there.

If they do not participate fully in government, then they have surrendered their right to criticize the administration of that government by the elected representatives of the people, and we Americans must think in an ever increasing degree of the fact that we are the government. We participate in it fully and actively and insofar as we refuse to so participate, we surrender our rights of citizens; we surrender our birth-right truly.

Certainly the individual needs to hold to the principles, in my opinion, of living

right—not a joyless, monklike existence—certainly, I am not a preacher; but one which is exemplary in the basics of life.

If you doubt the value of this moral strength of the individual transmitted through his nation upon the affairs of the world, then you have adopted an entirely hopeless philosophy because the only alternative is recurring war, each one more terrible than the other until finally none of us shall be here and the world will truly be inherited by the rats who come out of the ground.

I am a firm believer in moral strength, and I think we have seen examples in the last year and a half of its operation.

Well, you may say, what has all this to do with the safety in traffic. Well, I repeat something that I said earlier in these remarks, our failure to control traffic effectively as we might with the techniques at hand, our failure to conserve life and prevent injuries as effectively as we might are an indication of a lack of self discipline, a lack of acceptance of responsibility, and a failure of devotion to the principles of democracy, because the control of accidents is one of the purest demonstrations of democracy and democratic processes in action.

Certainly there is no place where a refusal to recognize the rights of the other is more noted and on the other hand our obligations under the law result in such a chaotic, such an uncivilized situation in terms of loss of life and crippling injury.

The techniques for doing the job, I repeat, are known and they have been proved in practice. They are elemental. They call, on one hand, for a development of the facts as to the basic causes of the difficulty, an analysis of those facts, a separation of the causes and the treatment of those causes so that they may be reduced or eliminated through engineering, through enforcement, and, with the very important direct influence upon human behavior, through public education.

These are the basic reasons, as I see it, why we haven't effected this control — failure to accept responsibility, as I said, a failure of self discipline, and a failure of devotion to the principles of democracy.

There are more important reasons currently why we are going through this

difficult time. One of these is ignorance, for instance, if I may be permitted to say so. I certainly don't pretend to be any expert on international relations or particularly well-informed, but certainly I think a large part of the incipient difficulty that we have been having with Russia during the last year and one-half is because of ignorance on their part and ignorance on our part—and ignorance of each other, an ignorance of our principles and our outlook. This can be a very dangerous thing.

But it isn't only ignorance of other nations and their ignorance of us that produces some of these difficulties, but in some cases, in some areas of our life, both domestic and international, we are going in the wrong direction. This is evidenced, frankly, in some of the traffic control and accident prevention work being carried on in some of our states and communities where they are working hard and spending a lot of money and getting no results because they are moving in the wrong direction. They are trying to build a bridge from the top down, and finally in many instances it is the mis-use of present facilities, and thus in many of our police departments, there is a clamor for more traffic laws, an increasing clamor for more regulations, when, as a matter of fact, we are not doing an adequate job of enforcement of the laws we have in a great many instances.

Now, just by way of summation, I would like to say something about the relationship of the work of the Commercial Vehicle Section to traffic law enforcement. I know that you men, individually and collectively, desire to work in close harmony with traffic law enforcement agencies. I

also know that this desire is mutual, as far as most law enforcement agencies are concerned.

You want traffic officers to enforce the law, as far as your drivers are concerned, because you recognize the possibility of financial suicide if you adopt any other attitude. This attitude affects the well-being of your company and the performance of your drivers. How do you feel about traffic enforcement when you are behind the wheel of your own car, driving for business or pleasure?

The fact is, gentlemen, that according to true democratic principles, you have the responsibility of leading by example.

The Commercial Vehicle Section, therefore, has a great opportunity to give an increasing amount of good leadership to the nation. That opportunity, however, entails a responsibility, a very real responsibility to continue to demonstrate the effectiveness of democracy at work.

In dealing with all of these problems—I happen to be a traffic man. Many of you are too, and that is an important part of the job democracy has to do. As important as I think it is, yet I say it is not all of the job, and we need all of us to be citizens first and traffic men second. The result of the acceptance of this responsibility will mean a lower accident rate. That is one of the good things that comes out of democracy when it works effectively, one of the many good things, and that lower accident rate by virtue of your leadership will extend throughout the nation, increasingly.

I hope the Commercial Vehicle Section will continue, with greater determination, to lead the way to safer motor transportation.

Farm Safety Sessions

TUESDAY MORNING SESSION

October 8, 1946

Presiding: T. A. EMERSON, Consultant, Rural Service, General Mills, Inc., and Chairman, Farm Safety Committee, N. S. C.

Hospitalized Through Farm Accidents Accidents on the Farm

By H. HERMAN YOUNG, M.D.
Mayo Clinic

In Minnesota attention was first directed to the problem of farm accidents in 1934. In that year a safety contest was inaugurated in the state 4-H Club and safety soon became one of the club's most popular activities. Other agricultural organizations and their leaders soon became interested and a section was set up in the Minnesota Safety Council to cope with the problem of developing an educational program for the farmers of the state. The farm safety program in Minnesota has now progressed from the state planning stage to local action.

In the 9 years from 1935 to 1943, 575 accidents on the farm caused the person injured to come to the Mayo Clinic. This makes an average of 64 farm accidents per year which sent patients to this one clinic alone. Several patients were involved in more than one accident in the 9 years. The majority of these patients came from the surrounding four or five counties but the total number is not an index of the total farm accidents that occurred in those four or five counties. Many patients were treated by physicians in their immediate locality and others died before reaching medical care.

The clinic total may be said to represent with fair accuracy the number of serious accidents that occurred in these counties during the period for which treat-

ment was carried out at the clinic. Included in the study were all accident cases encountered at the clinic which were due to falls, farm machinery, livestock, injuries in the home, buzz saws, etc. Omitted were all automobile and highway accident cases.

Falls lead all other causes of accidents in this series and carried a mortality rate of 5 per 100 accidents. The most common accident of this type was that in which a patient fell off some piece of farm equipment. The other sources of falls are listed in Table I. The most common injury sustained was a fracture of one or more bones. Falls caused 168 fractures, 16 patients had transverse myelitis (spinal cord injury), one had a traumatic amputation and 9 had perforating wounds of the perineum (area of rectum).

The last group is of special interest because of the manner in which the accident happened. Each gave a history of impaling himself on the handle of a pitchfork as he fell or jumped from a piece of farm machinery, a haystack or a hay loft. One in this group sustained his injury when he fell from a wagon and became impaled in sharp corn stubble in the field. No one was injured by the tines of the pitchfork.

Farm machinery was associated with 168 accidents, the second largest group in this series. The tractor was involved in the

largest single group of machinery accidents (Table 1). Although there were no hospital deaths in this group (Table 2), the morbidity rate was extremely high. Exactly a third of the patients in this group suffered from traumatic amputation of a part or the whole of one or more extremities. There were 110 fractures, two cases of transverse myelitis and seven cases of avulsion of the skin of the penis and scrotum. The latter type of injury usually happens when a farmer attempts to step across a moving belt, fly-wheel or unguarded power take-off.

Livestock accounted for 104 accidents representing the third largest group in this series. The mortality rate in this group was 5 per cent; 3 of the deaths involved horses and 2 deaths were caused by bulls. Although the bull is generally considered the most dangerous animal on the farm, it may be seen from Table 1 that horses account for a much larger portion of the livestock accidents. Table 2 reveals that fractures were the main injuries received from livestock accidents.

Miscellaneous accidents numbering 77 were caused by the axe, falling trees or by a group of unclassified causes. Again fractures were the most frequent injuries; traumatic amputation occurred in two cases and transverse myelitis in four. There were 15 cases of burns in this series of accidents with two hospital deaths, a mortality rate of 13 per cent. Most of these burns occurred through the ill-advised use of kerosene or gasoline in starting fires or from explosion of a stove or bottled gas.

A Doctor's Reaction

In spite of medical and surgical advances that have been and are being made, the physician cannot help but be impressed with the almost utter hopelessness of many patients who have been injured while at work on the farm. While the Mayo Clinic tabulation indicates that accidents cover almost the entire span of human life, the average person is injured and suffers death or a permanent disability at the age when

he is the most productive. The problem, therefore, is an economic one as well as humanitarian.

Prevention of these accidents is by far the best treatment and the first step in prevention is educating the farmer in methods of safety.

Today some effort is being directed toward reducing farm accidents but much more needs to be done.

Commercial industries are compelled by laws to provide safety devices for their employees and to provide care and compensation for anyone who is injured.

This is not true of the farmer, who, generally, is his own boss or employs only a few men. As a rule he does not carry compensation, hospital or accident insurance. He is handling machinery that is equally as powerful as many industrial machines.

In order to speed up production, the farmer permits the removal of safety devices from his machine or fails to replace them after repairs are made. He also attempts to relieve a clogged machine while it is still in motion or may use a piece of makeshift apparatus that is entirely unguarded. He is required to walk on uncertain footing and in countless other ways exposes himself to danger.

Children have no more right to be near or on a piece of operating farm equipment than around a punch press or on a moving locomotive and yet they are permitted to be there daily. These are but a few of the dangers that lurk on the farm. To these must be added the danger of gas gangrene and tetanus for the farmer's hands and clothes are contaminated with fertilized soil and manure and any wound may permit the entrance of these organisms.

The problem of accidents on the farm is national in scope although in details it varies with different localities. The National Safety Council now has a section which promotes farm safety but the main action in active prevention of farm accidents must be local in nature in order to cope with the varied problems.

TABLE I
ACCIDENT DISTRIBUTION BY TYPE AND AGENCY
(575 Farm Patients, Mayo Clinic 1935-1943)

Machinery	No.	Falls	No.	Livestock	No.	Miscellaneous	No.
Agency		Agency		Agency		Agency	
Tractor	34	Farm equipment	42	Harvest	45	Cut by axe	12
Corn picker	29	Hay mow	30	Runways	21	Falling tree	13
Corn strander	24	Refrigerator	16	Bulls, goats	17	Burns	15
Run over by machine	20	Stairs	16	Cows	12	Unclassified	51
Run over	16	Horses	12	Pigs	5		
Thrashing machine	9	Ice	12	Sheep	1		
Grain elevator	8	Ladders	12				
Food mill	7	Scallops	12				
Cummins	7	Miscellaneous	20				
Corn binder	6						
Grain binder	6						
Mower	6						
Grain and pulley	6						
Miscellaneous	4						
TOTAL	186			193		104	92

TABLE II
ACCIDENT DISTRIBUTION BY TYPE, AGE, INJURY AND FATALITIES
(575 Farm Patients, Mayo Clinic 1935-1943)

Accident	Patient's Age, Yrs.			Nature of Injury					Deaths		
Type	No.	Range	Average	Fracture	Amputation	Spinal Cord	Partial	Complete	Misc.	No.	%
Falls	128	3-64	42	180	1	16	0	0	28	8	3
Machinery	128	3-72	37	110	2	0	0	0	21	0	0
Livestock	104	3-85	46	80	0	2	0	7	31	3	8
Burns	15	4-65	35	15	0	0	0	0	0	2	13
Falling trees	13	11-71	44	0	0	0	0	0	0	1	8
Axe	12	18-42	29	2	2	0	0	0	0	0	0
Unclassified	51	10-84	45	33	2	0	0	0	44	1	2
TOTAL	575	4-85	38	394	45	25	0	7	206	16	3

TABLE III
DEATHS AT MAYO CLINIC FROM FARM ACCIDENTS
1935-1943 INCLUSIVE

Accident	Patient's age, yrs.	Injury	Cause of Death
Fall on pickfork handle	47	Penetrating peritoneal wound	Peritonitis
Fall on ground	33	Lacerated knee	Gas gangrene
Fall against radiator	32	Fractured ribs	Pneumonia
Fall on pickfork handle	42	Penetrating peritoneal wound	Peritonitis
Fall on pickfork handle	17	Penetrating peritoneal wound	Peritonitis
Fall from hayrack	46	Fractured neck, spinal cord	Pneumonia
Fall down stairs	62	Fractured upper arm	Blow clot in lung
Fall down stairs	62	Fractured neck, spinal cord	Paralysis
Run over by horse drawn binder	60	Fractured neck, spinal cord	Shock
Run over by horse	66	Multiple fractures	Shock
Struck by horse	66	Fractured jaw	Pneumonia
Attacked by bull	10	Fractured skull	Shock
Attacked by bull	54	Fractured neck, spinal cord	Paralysis
Lighting stove with kerosene	44	Fractured neck, spinal cord	Paralysis
Children caught fire from lantern	62	Burned 25% of body	Shock
Struck by falling tree	70	Burned 50% of body	Shock
Struck with barbed wire	26	Spinal cord	Shock
	71	Laceration of scrotum	Gangrene and lung blood clot

Fire Prevention and Safety Work in Michigan

(Summary of Remarks)

By A. W. FARRALL

Head, Agr. Eng. Dept., Mich. State College

Michigan has an annual loss from farm fires of approximately three million dollars, as estimated by the State Association of Mutual Fire Insurance Companies. This great loss has aroused the people of Michigan and an active fire prevention program is now under way. Two years ago Kent County organized a county wide fire prevention program and with fires, which it is estimated would, under normal conditions, have resulted in a loss of about \$175,000.00, the loss was held to approximately \$50,000 through efficient fire control methods.

The value of this program was immediately realized and steps taken to set up a state-wide fire prevention program. A full time extension specialist in fire prevention and safety, Mr. Fred Roth, was employed by Michigan State College beginning March 1, 1946, and an active program is now getting under way.

The program at present involves an accurate determination of where farm fires start, their cause, and means for prevention. Educational material has been prepared and is being shown at County Fairs

in Michigan this summer. Steps are being taken to organize counties on a county-wide basis for efficient farm fire protection just as rapidly as possible. Two counties are being prepared for organization at the present time.

Plans are under way to make use of various agencies such as the Farm Bureau, 4-H Club units, and other farm agencies to help the extension specialist reach the individual farmers.

One of the outstanding developments in farm fire fighting is that of the high pressure fog fire fighters, which was developed by one of the industrial concerns at Lansing, Michigan. This unit is especially adapted to fighting farm fires because of its ability to put out fires with a minimum amount of water. Excellent results are being obtained by its use. The Michigan plan for farm fire fighting involves the cooperative efforts of all of the various farm agencies working with the extension specialist through an educational program and a program of organization on a county-wide basis.

WEDNESDAY MORNING SESSION

October 9, 1946

Presiding: KIRK FOX, Editor, "Successful Farming."

Organizing and Conducting a State Committee

By LARRY BRANDON

Indiana Farm Bureau Federation

In 1942 the Indianapolis Safety Council, in co-operation with a representative of the National Safety Council called a meeting in Indianapolis of individuals intimately acquainted with and representative of various segments of rural Indiana. At this meeting statistics and data dealing with farm accidents was called to the attention of the group. All were deeply concerned at the appalling loss of life, limb, and property as the Nation faced the terrific impact of World War II. In this first meeting,

representatives of the Farm Bureau, The Grange, the F.S.A., and Agricultural Extension Department were present.

Subsequent meetings resulted in the organizing of what is now known as the Indiana Farm Safety Committee, which is composed of eight subcommittees as follows: Finance and Membership, Public Information, Accident Facts and Statistics, Legislative, Contests and Awards, Education and Training, and Women's Activities. The chairman, vice-chairman, and secre-

tary-treasurer compose the Executive Committee.

The Program Planning committee includes the chairman of executive committee, and chairmen and vice-chairmen of all committees.

The Finance and Membership committee headed by Mr. Barbre of the Indiana Grange, deals with soliciting of finance and contacting various groups that deal in farm supplies, casualty, and life insurance.

The Public Information committee headed by T. R. Johnston of Purdue University performs the very important function of publicity which involves press and radio channels.

The Accident Facts and Statistics committee whose chairman is Dr. E. H. Shideler formerly of F.S.A. is gathering statistical data on farm accidents in Indiana. No such service has ever been set up in the state heretofore.

The Legislative committee headed by Anson S. Thomas of the Indiana Farm Bureau, Inc., has for its function the study of all legislation pertaining to rural safety. The drunken driver and other driving that results in hazardous accidents in the rural areas is increasing at an appalling rate, making more strict enforcement of laws imperative. Also this committee is developing plans for eventually financing the safety program from public funds.

The Women's Activities' committee with Mrs. T. Eugene Bailey of the Roadside Council is made up of the Home Economics groups numbering some 50,000 women who are mostly in rural areas. Representatives of the Indiana Roadside Council, Women of the Indiana State Grange, the Garden Club, Indiana Farm Bureau Social & Educational Department, Indiana Federation of Clubs, Indiana Rural Life Council, Youth Organizations, and the Indiana Congress of P.T.A. compose this committee.

Education and Training under the able leadership of Wilbur Young, State Department of Public Instruction, involves the public school system whose co-operation has been a vital factor in promoting farm safety as a project through the rural schools of Indiana.

The Contests and Awards' committee with Harry F. Ainsworth of Purdue University as chairman furnishes a fitting cli-

max for the year's activities in farm safety. Without the functioning of this committee in carrying on various contests throughout the year that culminate in the awarding of substantial achievement rewards at each annual meeting, the Farm Safety program would lose much in actual accomplishments in safety projects. This feature clinches tangible results that can be pointed to as the result of the safety campaign and keeps the program from flattening out into only another burst of enthusiasm that ends nowhere and accomplishes nothing.

At the annual meeting of the Indiana Farm Safety Committee, January 14, 1946, at Purdue University, scholarships and awards of merit were handed to three groups for actual achievements in correcting farm-home hazards, etc. The three groups represented were 4-H safety contest winners under the leadership of Miss May Masten of Purdue University, the Future Farmers of America sponsored by Mr. K. W. Klitz, secretary-treasurer of F.F.A. Purdue University, and adult safety contest winners in charge of Mr. Lee Patrick, chairman of Adult Farm Safety Contest.

County Committees

It was apparent soon after the formation of the state committee that if the program were to be effective in correcting hazards and avoiding accidents and casualties, local county committees were imperative. With this in mind, county organizations were brought into being by the County Agricultural Agents together with representatives of the County Farm Bureau, The Grange, the service clubs, Red Cross, Parent Teacher's organization, Superintendent of Schools, etc. At these meetings officers are elected and committees are appointed for the purpose of holding first-aid classes, conducting surveys of farm buildings and homes, checking on projects, and conducting contests in schools and homes, and other safety projects at the county and farm-home level.

In January, 1946, Mr. F. R. Willsey became a full-time director of safety of the Indiana Farm Safety Committee. He is located at Purdue University in the Extension Department. Under the able leadership of Mr. Willsey, rapid progress is being made. Excellent co-operation is enjoyed from every department of the

Indiana state government. The Governor of Indiana issued a proclamation concerning "Farm Safety Week" during July 1-27, 1946, calling attention to the 15,000 farm people who lost their lives in a single year, 1,500,000 injured and the destruction of some \$90,000,000 worth of farm property in a year throughout the U. S.

Farm safety is a problem far different than any other phase of safety, in that it requires a working knowledge of the peculiar conditions surrounding farm hazards. A farmer's safety problem involving new and high speed tillage and harvesting machines operating not in an enclosure under comfortable, even temperature conditions but out of doors subject to hourly changes of climatic or weather conditions are as different from industrial safety problems as night and day.

On an assembly line, a foreman can require the necessary safety precautions. On the farm no one is near to advise caution and chances are taken which result disastrously all too many times.

The Indiana Farm Safety Committee in co-operation with the Farm Division NSC has conducted a six month's survey of farm accidents in Wayne Co., Indiana and some most startling facts are revealed.

TOWNSHIP	% RETURNS	NONFATAL ACCIDENTS	TOTAL DEATHS	MALE	FEMALE	LOST FIDEL
Harrison	100.0	6	6	56	1	
Washington	93.9	14	2	237	5	
Walton	92.1	15	4	74	1	
New Garden	88.6	13	1	52	1	
Perry	87.6	10	2	37	0	
Abington	87.1	5	1	95	1	
Green	79.7	19	3	317	0	

Let's Be Sensible About Farm Safety

By ARTHUR W. TURNER

Asst. Chief of Bureau in Charge of Agricultural Engineering Research, Plant Industry, Soils and Agricultural Engineering, U. S. Dept. of Agriculture

Some of the National Farm Safety Week releases have made this statement: "Farming is our most hazardous industry." Many people speak of farming, however, as a way of life—as a means to longevity with freedom from cares and health-building features. Somebody must be wrong. The two ideas seem to conflict. Who is right?

Jackson	79.4	7	5	102	3
Center	73.5	14	6	456	3
Boston	69.7	5	1	124	1
Jefferson	63.5	6	4	26	2
Franklin	61.3	3	1	32	4
Webster	57.2	6	0	66	1
Clay	52.9	4	2	26	1
Wayne	41.3	11	3	176	4
Total	70.3	140	42	2056	28

Total Returns—1619

Total Farms—2302

First 6 month survey

Green, Center, Washington had one each permanent injury

July Returns—45 accidents

At this rate, \$30,000 in farm labor will have been lost by the end of the year.

Farm fires in the county for the first six months were 28 ranging in losses from \$10 to \$53,000, 1 dairy with 30 head of milk cows was one of the casualties.

Much is yet to be done about farm safety.

If a plague were to wipe out a city of 15,000 people in a single year, the people would rise up and demand something be done about it. The loss of life and limb on country roads due to careless drivers is another terrific loss the nation can ill afford. This one thing will eventually eat the very heart and fiber out of the commonwealth until America, instead of being what she is today, the leading nation of the world can become but a hollow mockery and a byword among the nations of the earth.

America is the best place on earth to live. Let us all strive to keep it that way, whether we be industrialists, laborers or farmers.

Yesterday there were 45 funerals for farm people killed in accidents. But not all of them occurred on farms. Twenty of these deaths happened on highways and in towns and cities. Three were farm people who died in a plane crash, two were killed in bus and railroad accidents, three were drownings at picnics—and none of these

could be attributed directly to farming as a vocation.

Let's be sensible about this dangerous farm business. If I were younger and seeking a life vocation, it would be difficult to interest me in farming in the face of some of the statistics on the hazards to anyone so occupied. I would not want to risk my own life and the happiness of my family in a job in which I was constantly faced with sudden death. Why not view the farm accident situation in its true light and credit agriculture only with those accidents that occur in actual farming operations?

Agriculture is this country's basic industry. In this post-war period a national objective is to produce more food for all people so that they may live together in unity and peace. In fact, it is conceded that more food for people the world over will do more than any other one thing to promote the peace the little people of this world so much desire. Farming is, therefore, highly important business, and it should attract more good operators.

In this light, statistics on farm accidents need to be reviewed critically to see that they are not subject to misinterpretation and that they give an accurate picture. Young people need encouragement to take up farming as a life work. If farming has its shortcomings—and certainly no one will argue otherwise—these should, of course, be presented in true perspective.

Not one of us can afford an accident, be it ever so trivial. Accidents are the result of mistakes. Little mistakes can make big accidents. A mistake "little" or "big" is the result of incorrect performance, mental or physical. Accidents are costly. They may result in injury or death. They may also result in an injured horse, cow, a damaged tractor or machine. They may damage fences, buildings or crops—and always result in loss of time.

It has been common practice for some time to segregate accidents into various classifications, such as farm, home, animal, automobile, industrial, fire, railway, mining, recreational, and so on. Segregation in this way may be desirable in preparing educational and promotional materials, but is it really practical? As a farmer, for example, I would live in a home, handle several types of farm animals, operate my farm, service machinery, drive my automobile or

truck, and perhaps take part in some form of recreation—all in the same day. If I had an accident, it might logically be listed under several of these classifications, yet certainly if statistics are to present an accurate picture a single accident should be listed no more than once.

As a farmer, the possibilities of my having an accident that might fall into any one of these classes are so great, however, that I would want to think, practice, and live safety almost automatically as part of my daily life and work. One needs only to review the results of some of the accident surveys that have been made to be convinced of that statement. One representative survey of 395 accidents in one area showed the following:

Machinery	22.0%
Recreation and Home	18.8%
Falls	18.5%
Animals	13.8%
Hand tools	11.0%
Falling or flying objects	8.0%
Stepping on injurious objects	5.0%
Motor vehicle traffic	4.3%

The question is, how does one live safely day in and day out? Safety on any job, it seems to me, depends on three main factors:

- (1) The physical condition of the worker;
- (2) Good judgment in making work assignments;
- (3) Training given to the worker when assigned to the job.

As workers or employers, do we ourselves work or permit others to work when exhausted mentally or physically? If so, we are asking for accidents to happen, by merely exposing ourselves or our workers to them.

Under the strain of overwork and sheer exhaustion people "let down their guard," so to speak, and leave themselves open for accidents. On the farm that is especially bad, for the farmer lives at his place of work and so is exposed to hazards of his occupation for longer periods than most workers—even in normal times for 12 hours a day and 7 days a week. Moreover, there are no safety inspectors except the farmer himself. So, good physical condition is high among those factors that can prevent farm accidents.

Pictures in local papers, farm magazines, and particularly in manufacturers' house organs often play up the idea of children

driving tractors and operating farm machines, with both animal and tractor power. One in particular that I recall was a story of a South Dakota 11-year-old boy driving a farm tractor "from 5 o'clock in the morning until 9 o'clock at night."

Was that boy's father using good judgment in permitting him to operate equipment of that type? Did the editor of the paper who printed the story use good judgment in advocating such practice? What is the reaction of the general public to a 9-, 11-, or even 15-year-old boy driving a car or truck on the highway? You know the answer as well as I do. The automobile and the truck are, however, both generally operated over smooth hard roads and cushioned by resilient springs. Both automobile and truck have a low center of gravity and synchronized brakes.

Do young boys or girls appreciate tractor construction and operation features, such as high speeds on rubber tires, high center of gravity, use of individual wheel brakes, operating around side hills, attaching and detaching machines, use of clutch on hard pulls, crossing terraces and ditches, pulling onto roads and highways, etc. Why should the law and why should we against our own good judgment permit underage and untrained persons to operate tractors when they are prevented by law from driving cars and trucks on public thoroughfares?

As long as this practice is followed, mounting accident tolls can be expected from tractors and farm equipment. This will be especially true if the farm and local press and manufacturers' printed materials continue to give such practice recognition and encouragement. I want to go on record as definitely opposed to any program or practice of permitting—let alone encouraging—children to operate tractors, tractor-operated and similar equipment. I hope the National Safety Council concurs in that statement.

Young girls also should be banned from operating such power equipment. The older girls and women have done and are doing a good service on the farms. However, the advertising boys are for glamour. Sometimes their enthusiasm over-balances their good judgment in the way they use the gentler sex's paltriness in advertising. It is one thing to admire a pretty figure and another to endanger the lives of many peo-

ple. Let's be sensible, therefore, about sales promotional material.

Manufacturers just cannot afford to let farm accidents increase. It is not good business. As a suggestion, I offer for consideration a practice in the U. S. Department of Agriculture in the handling of printed bulletins. All manuscripts dealing with operations in which there is an element of danger are reviewed by a safety specialist. He not only deletes statements and illustrations that may contribute to hazardous procedures, but may also write in some good safety practices. The system as it operates in the Department is, of course, not infallible, but it is pointed in the right direction. A safety reviewer of commercial manuscripts would seem to be in order.

"Boss" C. F. Kettering of General Motors tells a story that illustrates the third point.

"One of our employees years ago had an accident which obviously could have been avoided," Kettering relates. "So, I said to him, 'Joe, how on earth did this happen?'"

"Well, I'll tell you, Boss," Joe said, "I was physically here but mentally over in Indiana."

Recently in a memorandum on National Farm Safety Week the Secretary of Agriculture said, "Every farmer performs a wide variety of tasks, most of which involve serious accident hazards."

Kettering's story and the Secretary's comment emphasize the necessity for mental alertness on the job—in industry or in farming. On the farm—in the home or field—many tasks nowadays are done by machines. All machines have functional or working parts that are dangerous. In any machine there may be danger in knives and cutters, chains and sprockets, gears, rotating shafts, flywheels, and similar functioning parts. In the home there is danger in using wringers, needles of sewing machines, explosive fuels, heaters or miners, electric cords and connections, and related devices. Functional parts of structures also are ever-present dangers, such as stairs, swinging doors, feed-box covers, and feed and hay chutes.

Three possible methods may be used to insure safety at these danger points. The first of these is to eliminate them. This is, of course, in many cases impossible, for

functional parts are necessary in a machine or even in a barn. The second possibility is to isolate the dangerous parts, to guard them so that people can not come in contact with them. Again, this is sometimes impossible. The third alternative is to educate folks to avoid dangerous parts or actions that may cause accidents.

Mechanical guards and devices around machines, and posters around buildings will never substitute for mental alertness—or for intelligent and diligent precaution and manipulation by the operator. In all of the safety campaigns much emphasis has been given to the need for safety and education for safety by means of written or spoken words. Too often, however, a systematic scheme for training in safety is lacking. It is training which will establish within a new worker on a new job the correct habits of performance and the safety habits which he needs to practice if he is to avoid accidents to himself or a fellow worker or to the machine which he operates.

All of us act through special habits which we have acquired through training and repeated experiences. It is essential in establishing a habit or skill that it be practiced correctly from the very start. It is further essential that the practice be performed under careful supervision and drill without deviation in its correct performance until it has become firmly established as a habit and thus becomes automatic or semi-automatic. When this procedure is followed, the worker knows only one way of doing the job—the correct way.

The right time to train a worker in correct operations and safety actions which he is to observe and perform on the job is when he begins work. Otherwise he may follow unsafe practices that he will have to unlearn later. Once an action or routine has become habit it is very difficult to change that method of doing things; generally when it becomes necessary for a worker to change his habits, he becomes an awkward worker. Awkward actions are always accident breeders.

The J. I. T., or Job Instruction Training Program, used so successfully by industry in training its workers also is the type of program that is needed in agriculture. Farm organizations appreciate the need for safety training of workers and are endeavoring to

establish such a program in agriculture. It seems logical that each manufacturer should develop a training procedure for the use and operation of each of his machines or devices in order to develop more safe farm workers.

The suggestion has been made that I outline briefly the safety program of the Department of Agriculture. Being new in the government—with less than two years in my present position—I cannot speak from too much experience, and so prefer to confine my remarks mainly to the safety program within the Bureau of Plant Industry, Soils, and Agricultural Engineering. May I say this in general, however, that within the Department and in other agencies of the Government there is a keen awareness of the need for a safety program. The recent report of Sidney J. Williams of the National Safety Council showed that total and indirect costs of accidents average \$40,000,000 annually for the Federal Government, or about \$20 an employee annually.

Many Bureaus in the Department of Agriculture and in other Departments are establishing or have established full-time safety engineers. Some of the Bureaus have, of course, been more acutely aware of the need for a safety program, particularly those agencies with large numbers of field personnel engaged in hazardous work, such as fire control and construction operations. As a result, some of these action agencies have well-established safety programs that include safety training for the workers.

In the Bureau of Plant Industry, Soils, and Agricultural Engineering there are approximately 2,000 employees located at 174 different stations throughout the United States and its Territories, both Continental and Insular. These people are engaged in the fields, in greenhouses, test plots, chemical and physical laboratories, machine shops with varied equipment, and in storage and transportation facilities of all types.

The decentralized nature of the organization of the Bureau is representative of agriculture itself, although the Bureau has more people at assembled points than are generally found on a farm. This decentralization of employees makes it necessary to have a safety leader at each point. Obviously, these leaders have to function on

a correspondence basis from headquarters. That necessitates that they be trained to teach the people in their group. The safety program—which it is hoped will be headed by a safety engineer—includes the following:

(1) Housecleaning—which includes removal of hazards, marking of danger areas and their isolation where possible.

(2) Fire prevention—which includes such things as installation of fire escapes, proper installation and care of oil burners and stoves, removal of waste accumulations, no smoking in barns, etc.

(3) Safety measures on motor vehicles and equipment, including such things as a periodic check-up of lights, brakes, and windshield wipers, guards for power take-off shafts, no second riders on tractors and equipment.

(4) Records, including an analysis of causes and report of all details surrounding each accident.

(5) First-aid, including training of personnel and location of medical kits where they may be needed.

(6) Training of workers—both at the time when first employed and afterwards—in correct methods of work and importance of safety measures such as wearing of masks in mixing and handling poisonous dusts and in fumigation, wearing of gloves when working around machinery, etc., and in all phases of the job where dangers occur.

The Safety programs of the Department of Agriculture go far beyond safety for employees. Safety has been a part of the teaching program of the Extension Service, particularly in the labor-utilization program. The Department also has published and distributed in quantity a number of publications dealing with safety, thereby indicating interest and some responsibility for educating the farm public in the importance of safety. Among the Department's publications are Miscellaneous Publication No. 608, "Watch Your Step," and Farmers' Bulletin 1643, "Fire Safeguards for the Farm." A new Farmers' Bulletin,

No. 1978, "Safe Water for the Farm" is now being printed.

All of us have relatives who are farmers. All of us also appreciate the importance of agriculture in our national life and in international relations. The farmer is the customer of practically every industry. All of us therefore are interested in promoting an effective Farm Safety Program.

Here I would like to go on record as favoring an idea that was suggested too late to be included in the National Farm Safety Week plan for 1946. It is to "sell" the service clubs—Rotary, Kiwanis, Lions, Chamber of Commerce, and other civic groups to stimulate the use of safety window displays. A service club in each community might offer prizes for the best displays. With these clubs taking the initiative it would be logical for trade associations and their manufacturer members to assist dealers in planning displays. Safety displays on clothing, drugs, furniture and kitchen devices as well as on tractors and farm machines are another means that should be used to make the people of the country safety conscious. They might be used to stimulate discussions on safety by school children and teachers. The children, in turn, might carry the safety message into many households.

Enthusiasm so developed might do much to motivate a National Farm Safety program placing emphasis on (1) appreciation that workers should be in good physical condition, (2) use of good judgment in sales promotion and assignment of qualified persons to jobs, and (3) development of worker-training programs to make safety an integral part of performance. When safety becomes inculcated as a habit in the worker it is incidental to good workmanship.

Successful farm accident programs and safety materials should picture the worker not as an automation safeguarded by safety devices, rules and regulations alone, but rather as a safety unit in himself with habits that insure his own safety as well as the safety of others and of his equipment.

WEDNESDAY AFTERNOON SESSION

October 9, 1946

Presiding: T. A. ERICKSON, Consultant, Rural Service, General Mills, Inc.

Farm Safety and the Farm Equipment Manufacturer

By MARTIN RONNING

Chief Engineer, Power Machinery Div., Minneapolis-Moline Power Implement Co.

The farm equipment industry, along with industry in general, has for many years striven to make their factories and plants as safe as possible for the people who are employed in them.

The results achieved by the safety program in factories and manufacturing plants, no doubt, are greatly influenced by the fact that the employees there are almost invariably under the direct supervision of someone who knows the rules for safety in his particular department and has the authority to enforce compliance to them.

Safety work on the farm, on the other hand, is much more difficult to control. The work is done by the farmer himself and his family, perhaps with the aid of a hired man. During the course of an average day, this little group is subjected to the hazards of handling livestock, operating various more-or-less complicated machines, and also must perform a great variety of odd jobs around the farm, the farmstead, and the home itself. This work is done with the various individuals working alone in many cases, and effective supervision is very difficult, to say the least.

More than 15,000 farm people are accidentally killed, and a great many more suffer permanent impairment each year; and the sad part of this is that most of these accidents could have been avoided by ordinary safe practices.

It seems unbelievable, but statistics prove that the most hazardous place on the farm is the farm home itself and the immediate surroundings, the yard and the barnyard. Six thousand of the 15,000 fatalities occur here, and the greater percentage of these are caused by falls through the use of unsafe ladders, substituting chairs and boxes for step ladders, falls down stairways, and even falls caused by scatter rugs on slippery floors.

Burns are second in importance in producing fatal and non-fatal accidents. These may be caused by use of flammable cleaning fluids in closed rooms where the gases may be ignited by the kitchen stove fire or other flames or sparks. Improperly installed stoves and heaters often start fires, which are particularly dangerous when they occur at night. The use of kerosene, and even gasoline, to start fires results in many fatal burns. Matches left where children can get hold of them, obviously, is hazardous.

Cuts by knives and other sharp instruments are frequent around the farm home and account for an enormous number of non-fatal injuries. Even though accidents of this type are seldom fatal, they result in a great loss of productive time, which is always serious on the farm.

The phenomenal growth of Rural Electrification Associations has added a new hazard to farm life. Electricity has done a great deal to eliminate drudgery, to make life more pleasant on the farm, and is perfectly safe when properly handled; but the spread of electrification has been so rapid that safety education has not kept pace with the expansion of the systems. Many farmers do not realize what a destructive force electricity can be if misdirected and often undertake to install and wire water-tank heaters, water pumps, brooder houses, etc. The farmer, like the average city dweller, is seldom a qualified electrician. When he tries to do such work, he endangers not only himself and his family, but also the farm livestock.

Farm animals are responsible for many injuries. Horses, otherwise gentle, may kick when approached suddenly; dairy herd sires may seem harmless but may suddenly attack when the victim is at a disadvantage. Experienced livestock men strongly urge

that all hogs be ringed when young, be handled at all times with a staff, and that their stalls and exercising pens be strongly built. Swine sometimes injure people by biting and slashing with their tusks. Swine breeders recommend clipping or removing the tusks from boars.

Farm machinery is responsible for a large percentage of farm accidents. Modern farming involves the use of a great variety of machines and implements, some of which are fairly complicated. The farmer is generally pressed for time to get his work done and very often neglects to take certain precautions that are necessary for safety in the operation of these machines. The functional requirements of most farm machines make it impossible to effectively guard certain potentially dangerous mechanisms, and it is therefore imperative that the machine be stopped before the operator tries to unclog, adjust, or oil any of these parts.

Safety shields or guards are provided on farm machines where practical, but these are often removed when making adjustments and repairs and are frequently not replaced. This is especially dangerous when the shield designed for protection over the shaft transmitting power from the tractor to a cornpicker or combine harvester, for instance, is not replaced.

Of the farm machines, the tractor is involved in the greatest number of accidents. There are more than 2,000,000 tractors in use on the nation's farms—a far greater number than any other single kind of major farm machine. The greater percentage of fatal tractor accidents is caused by the tractor's overturning when driving too close to ditch banks, driving too fast on corners, etc. In many instances, operators are run over by pulled implements after falling off the tractor; also, the operator and bystanders are often hurt when the tractor is accidentally started while in gear. The operation of tractors by children and very old people is inviting accidents. Refueling with the engine running is dangerous practice and has resulted in fatal burns and loss of property by fire.

The Farm Machinery Industry is making a determined cooperative effort to reduce accidents that occur with farm machines. In 1938, through the medium of the Farm Equipment Institute, representative engineers from the major farm machinery com-

panies were appointed to serve on a Safety Committee to study means to this end.

Since the committee was formed, they have met at approximately six-week intervals, except for a period during the war. Although the companies which the members represent are aggressive competitors for the farm machinery business, they have worked in perfect harmony. It is also significant that the members of this committee have invariably brought to the committee's attention safety developments of their respective companies and have not attempted to retain the feature for their exclusive use.

Realizing that the safety of the farm machine operator depends almost entirely on how well he observes ordinary rules of safety, one of the first acts of the committee was to develop a standard set of safety signs, which they recommended be placed on specific points on all power machinery. They also incorporated a safety statement, furnished by the National Safety Council, in the instruction books covering such equipment.

The Safety Committee next began work on a standardized shielding of power take-off shaft on the tractor and the connecting power line to the implement. Up to that time, although the power-line shield was furnished by the manufacturer of the implement, some fitting was necessary when coupling to a tractor of another make. In many cases the farmer, rather than do this, would leave the shield off entirely with the result that many serious accidents occurred.

The object of this standardized project was to make it possible to couple a tractor of one make to a power-shaft-driven machine or implement of another with ease and safety. Another stipulation was that the shield should furnish adequate protection and be strong enough to support the weight of a man.

In order to standardize the power shaft shield, it was found necessary to standardize the hitching point between the tractor and implement in its relation to the end of the power shaft of the tractor. Certain dimensions of the power shaft, also, had to be standardized. It was necessary to do all these things to make certain all makes of tractors could be coupled together quickly and easily so that the operator would have no excuse whatever for operating without this important shield in place.

After a great deal of preliminary work the final standard was agreed upon. The various companies then, at a considerable expense, revised their current model tractors to agree with the new standards. Then came the more difficult job of designing change-over parts for non-current tractors and making these available for those who wished to modernize their tractors in this respect so that a new standard implement could be readily connected to them.

This standard has now been adopted by the American Society of Agricultural Engineers, and specifications and also information on change-over parts for non-current tractors may be had on application.

This Safety Committee, through the organizations of their members, is collecting reports on farm machinery accidents and

analyzing them to better understand the problems; also, members have safety consideration continually before them in their individual design work.

This Committee, through the Farm Equipment Institute, cooperates wholeheartedly with the Farm Safety Division of the National Safety Council in producing safety posters and literature as they feel that safety education is, after all, of first importance.

The Farm Equipment Industry is deeply interested in the work that the Farm Division of the National Safety Council is doing, appreciates the tremendous task of organizing safety work on a National scale, and wants to cooperate with the Farm Division in making the farm a safer place in which to live.

Home Safety Sessions

WEDNESDAY MORNING SESSION

October 9, 1946

Safety in Planning and Construction

Presiding: PROF. W. H. SHECK, Small Homes Council, Univ. of Illinois.

The Mortgage Lender and Home Safety

By DENNIS J. ORGAN

Pres., Oak Park Federal Savings and Loan Assn.

As far as I can learn, little has been done by mortgage lenders with respect to checking a plan with the idea of making recommendations which will make that home safer from an accident standpoint.

I have made a brief study of this subject, however. The subject was first brought to my attention by the U.S.S. & L. League, who has as its membership 3,500 financial institutions throughout the United States who loan money to build homes. I happen to be president of one of these institutions and I am also a loan officer who looks over the plans and specifications. We are in a position to make suggestions to the future home owners that may be of help to them. I am limiting my remarks merely on new homes to be built. I don't believe I can cover the matter of preventing accidents in already existing homes.

In quick figures I will give you a picture of the toll accidents are taking in the home: 32,000 killed each year, 1,200,000 permanently injured and 4,750,000 maimed, disfigured or disabled.

What happens when we loan a man money and he has an accident? First, accidents cost money. We have a great interest in our home owner. He's our customer, we want him to live and we want him to pay us back. If anything happens along the way of life, we still have to have the money

returned to us. It is not our money, it belongs to our shareholders. How can we be sure that he will return it? If death takes him, we can overcome this by insuring him under a mortgage redemption policy which will pay off his indebtedness. If an accident incapacitates him, we can cover him under the same policy (for an extra fee), which will insure his monthly payments being made. So, as far as covering the "him," we can do this for a very small sum added to his monthly payments. But we must go a step further. Everybody cannot and will not let us protect "him" this way. So the gamble continues and, with it, the losses continue. Where there is no protection, these home accidents result in unforeseen expenses and sometimes paralyze the entire program of continued earnings of the "him." When such things happen, you will find, in looking through the records, that John Jones has missed several payments and he is in trouble.

Now--what can we as mortgage lenders do to help this later situation. Well, briefly let's go over a few items that I can find on many plans submitted to me.

1. Stairs. Stairs bother me. I wear bifocals. I am very cautious. I like to hold onto something going up or down. This plan has no hand rail. So I say to Mr. Home-Owner, "Let's include a

hand rail on these stairs." He says "That's a good idea." Small item—good protection.

1. I look at the stairway—top and bottom—no lights. I say "Let's put in a three-way switch, one light at the top and one at the bottom." "Good," he says, "that gives me a light going up and down." Then how about putting a window in this stairway for daylight. "Good," he says, "I never thought of that."

"How big is the stair tread? Can you get your whole foot on it? No, too narrow, let's make this out of 2x10—9½ actual—good."

3. How about the entrance to the home? Nineteen per cent of all home accidents occur on outside steps and porches. Let's install a good light that will illuminate properly. Right outside of your entrance door let's have a platform not less than three feet out from the door and at least 18 inches on either side. This makes for good architecture, and you feel safe standing there. Now, instead of dropping down from that point, let's break it up and make another landing. The architect should change this, he will know just what we want, and he'll put the right architectural touch to it. And don't forget the hand railing for both sides. When you do this, many of the 19 per cent of falls will be eliminated. If possible, architecturally, put a canopy over the landing and steps.

4. How many bathrooms have a good substantial grab rail to hold on to when getting in and out of the tub. I was remodeling contractor for over 20 years, and I have been in over 10,000 homes. I can tell you there are very few. Why? Nobody said "let's put one in." So we say to "him" "you might have trouble here—slippery tub, etc. Why don't you put in a grab rail here? It will cost only about \$12.00 chromium plated. O.K."

I appreciate this because I slipped backwards out of my own tub and bumped my head on a china wash stand one Christmas Eve.

5. Twenty per cent of all home accidents happen around the yard. Children are knocked down and are in danger of being

run over in their own driveways by their own parents. If there is a front drive, don't have any blind corners created by buildings, hedges or shrubs. If you have the room to make a turn-around, do it, don't back out of a driveway.

6. If we can convince some of these owners of new homes to provide proper storage places in the garage as well as in the home, we will eliminate some accidents which usually occur from tripping over articles that are left out in the open which should be in a storage closet.
7. All electrical installations should meet the requirements of the National Electrical Code of Underwriters' Laboratories and most electrical contractors in metropolitan areas, like Chicago, follow these standards. The usual objection of course, is not enough outlets, so that long cords stretch across the floor.

During the past few years, there was a trend towards irregular floor levels in homes such as sunken living rooms and sun porches. I am glad to say that this trend is not as popular as it was because the two or three level house was responsible for a large number of home falls, especially in homes where elderly people resided. My own personal opinion is that the future house of America should be a one level house with no second floor.

At the commencement of the National Safety Council's efforts to interest the industrialists of this country in the correction of these hazards of accidents, it was necessary to start at the small items first to get people interested and conscious of these things. That is how we are commencing in the Home Safety Division. I, as a lending officer, and there are many thousands like me in the United States, by bringing these matters to the attention of the home owner before he builds, will have done a wonderful job for the owners, themselves. Incidentally, it is good for our business because it is good advertising any time you can give the customer something for nothing and have him satisfied.

We are going to ask the architect, the builder, the home owner and the mortgage lenders to all help in this program. It works wonders because I personally have had the thrill of customers saying to me, "Thanks Mr. Organ for those suggestions—we never thought of them."

Building Out Hazards

By D. KENNETH SARGENT

Sargent-Webster-Crenshaw & Polley

In this period of house building the tremendous demand for housing has resulted in constantly diminishing standards of house construction and an attempt at mass construction by many builders and technicians inexperienced in construction methods, design and details.

Many so-called craftsmen are now attempting to construct permanent buildings of better quality—not the temporary, poorly constructed buildings of the war period. But these men do not know proper or safe methods of construction. Few, if any of them, have any knowledge of proper design of details.

The Standards demanded in the past by the financiers and government agencies have now been relaxed because of the various shortages of materials. Standards have also been reduced in a seemingly futile attempt to stimulate the industry to speed the construction of housing.

With this background of a painful lack of trained craftsmen, a lack of material that now demands changes in design and standards of construction, we are launching one of the greatest programs of housing this country has ever known. Judging from some examples that I have examined, I believe we are embarking on a program of substandard, unsafe, housing which in many cases will be the shame of tomorrow. My observation will not apply to all projects in every community, but generally speaking this will be the final result.

This is the problem that confronts those of us who desire to give a hazard-free home to the general public. Such conditions demand that we today publicize more than ever, proper details of construction. We must try to educate the buying public as to how a house should be designed and constructed so that the investor will purchase only safe buildings that will be reasonably free of maintenance. We must try to teach these new unappreciated mechanics how to properly construct safe housing. We must reconvert the financier to demand that these homes be constructed with proper and safe details for there will be many foreclosures in the future due to

today's high prices and poor construction. Such homes stay in time be a liability as a discerning public avoids their future repurchase.

Designs must be simple in character so that undue costs are not added to the construction. Such safety features must be presented so as to be easy to sell to the public and builders.

The essentials of good construction as we must present them must be in such form as to indicate the principle involved, for method of construction and equipment will be always subject to change.

The details of safe design are well known. You have probably heard every one many times, yet perhaps have disregarded them in your own home. It is too easy to substitute the inferior dangerous design especially when a saving of several dollars is at stake.

As accidents so frequently result from the poor design of the simple features of the house it is my opinion that we should emphasize the ordinary and commonplace of good construction. However, I do not wish to emphasize the importance of good construction methods to such an extent as to indicate that a house can be constructed "accident-proof." Always the personal element of housekeeping and care will be a contributing cause. I do believe that design can many times eliminate the chance of accident even though the occupant is careless.

Of all the accident types, falls are the most frequent cause of injury and death. Stairs of all types seem to be the greatest contributing cause.

Stair treads should be of equal widths and risers of equal height. The slope should be easy, not over 36°. A long run of stairs should be broken by a landing. The curved stair of yesterday should be eliminated.

A stair tread or nosing of different color from the floor is desirable. When less than three steps are used, frequent falls result. A stair carpet well maintained is a most desirable covering.

All stairs should be protected by rails 31" high above the tread measured at the

riser. Headroom should be adequate, with a minimum of 6'-6".

The first riser should not be less than the width of a door from the nearest opening. Where children or somnambulists are occupants of the house, provisions should be made for gates at the head of the stair. Adequate lighting is essential in all stairs. Outside stairs take their toll—in the dark the stranger does not see the step. Night illumination maintained for years is far cheaper than one broken leg. Outside entrances in northern states should be protected from sliding snow and ice.

Bathtubs are a common setting of falls and scalds, or a combination of both. A grab bar so located as to be useable to the person standing in the shower is ideal. Don't forget a thermostatic mixing valve with non-scalding feature.

A word about plan. Doors too close to furniture groups are a menace to the normal traffic passing through the rooms.

Too many falls have resulted because a chair was used in place of a ladder. Storage of the family step ladder in a convenient cupboard in the kitchen would facilitate its use. You will also note that a safe house has storage shelves located not over six feet above the floor just to discourage climbing.

Children and window washers seem the principal victims of falls from windows. Windows which open should be so designed as to facilitate washing from the inside. Storm sash is set in such a window from the interior of the building. The children are not likely to fall from this window for the screens fit into the opening from the inside and are held in place by bolts.

Modern design, I hope, will soon banish second floors from housing. The one story plan eliminates a great number of hazards.

Next for frequency of cause of accidental death in the home is fire. Defective chimneys are a major source of fire. The careless construction methods that cause these fires are almost unbelievable. All owners are most interested in the construction of their homes. If they knew simple details such as these, fewer fires would result:

Chimneys supported only on foundations on the ground.

No framing closer than 2" to the chimney.

Firestops placed at the floor openings. All beams supported by other means than the chimney masonry.

Smoke pipe not less than 18" from the ceiling.

Tight fitting cleanout doors.

The chimney top should be carried 2 ft. above the ridge or any ridge within a radius of 10 ft.

The fireplace is a frequent cause of fire. Sparks thrown from the burning logs have burned carpets and thus started a larger fire. A screen hung from the opening eliminates this hazard. The hearth is important. A slab, supported by incombustible material, at least 18" wide should insure safety.

In the safe-designed kitchen, the range is located on an inside wall. Well insulated ranges may be built into the counter cabinets, but cheaper ranges should be kept 6" away from cupboards. A kitchen fan is highly desirable.

For the house with basement heater, certain precautions should be taken. The heating apparatus should be located in a basement room, completely closed. A rough plastered or plasterboard ceiling should close the joist spaces. The door to this room should be metal covered with a self closing device.

The stair from the basement is likely to be stacked under the stair to the second floor. When a fire does originate in the basement it is most likely to spread to the stair above, so frequently the only means of escape from the second floor of the small house.

Plaster on this stair soffit and the walls of the stair hall will protect this area for about an hour. A sprinkler head in this danger area is also an added safeguard.

Shocks are common and undoubtedly you have experienced several without bad effects—but perhaps you were not in perfect contact with a ground, so the effects were limited to a muscular reflex.

Bathroom shocks may be much more dangerous, for not only are we in contact with conductors from the ground, such as faucets and drains, but frequently we handle these fixtures with wet hands. We should keep electric switch controls and outlets out of reach of the plumbing fixtures.

Many a death has been recorded because a bather handled a portable electric heater which was in bad repair. Such a heater built in the wall away from tub and fixtures eliminates that danger.

Many times convenience outlets have been the cause of painful and serious burns to infant investigators or death to some where a convenience outlet was adjacent a floor register. New homes should be designed with convenience outlets from 36" to 42" above the floor—with sufficient number to avoid the necessity of too many appliances attached to one outlet.

Another major classification should be mentioned, the hazard of poisoning, such as carbon monoxide, medicine, gas and refrigerants. Death from carbon monoxide

is not limited to automobiles in garages. It is also the fatal gas from your furnace that enters the rooms of your home when the door or smoke pipe is blown open by an explosion of coal gas. Home owners should realize that appliances do wear out. They become dangerous when misused or allowed to go uninspected for long periods.

I have mentioned only the elementary causes. It is the simple hazard which is most commonly found. It is the simple hazard which is most easily and economically corrected or eliminated. It is this group of commonplace errors of construction, design and detail that we should attempt to publicize now and continuously if we would eliminate many of the contributing causes of these home accidents.

THURSDAY MORNING SESSION

October 10, 1946

Joint Session—Home Safety and Women's Programs

Presiding: DR. DONALD B. ARMSTRONG, 2d Vice-Pres., Metropolitan Life Ins. Co. and Vice Pres. for Homes, N. S. C.

A Safety Program for Safer Home Living

By KATHERINE M. OLMSTEAD

Field Instructor, New York State Dept. of Health

Safety, as an organized movement to improve man's lot by eliminating wanton waste of life and reducing human suffering, is so ideal that most people fail to recognize its practical application.

Analysis has shown there are really only three kinds of incidents which cause accidents resulting in injury or damage.

- (1) An operation that went wrong: For example, the kickback of an electric appliance or the explosion of a stove.
- (2) An accident where the occurrence was quite unforeseen, such as the collapse of a chair or stage.
- (3) The incident without any serious accident which, however, causes accidental injury, such as: pounding one's thumb or burning a finger.

The proximate cause of the personal injury is not always the proximate cause of the accident or accidental happening. Oil spilled on a kitchen floor caused a woman to fall, but how did the oil get on the floor? A family was burned to death by a fire started by the explosion of kerosene, but the real cause was carelessly spilling kerosene on the floor.

The point is that in accident prevention it is necessary to know something about the underlying causes, not just about injuries or damages. Nearly every accident, whether an operation gone wrong, an unforeseen event, or an accidental injury, is caused by some person who failed to do something properly, did something wrong, or omitted to do something.

A personal factor may be close or so remote that it cannot be identified, but some person or group of persons is usu-

ally responsible—and a study of, or knowledge of causes makes the control of conditions possible.

The control of conditions which cause accidents is accident prevention. The constant application of accident prevention constitutes a safety program.

The approach to accident prevention must be all inclusive and must aim to make the greatest number of people recognize their responsibilities in controlling accident-causing conditions.

Whether we call the program "safety education" or "accident prevention," we must train leaders who will teach people to do things safely, easily and with skill. We should promote an educational safety program to influence conditions such as faulty housing designs, and influence practices; for no matter how well your home is built or maintained, careless practices or bad housekeeping can cause accidents.

Home economists can appraise the training or skill of a housewife or a student by watching her for just one minute and observing the way she handles her knives or kitchen tools. Most of us have learned the hard way; some of us have survived home accidents for so many years, in spite of terrific chances constantly taken, that we feel "it can't happen to us."

Safety engineers in large industries have discovered that women present a very different problem from men in an accident prevention program. A woman worker is physically physiologically and psychologically different than a man. It has been said that women workers display greater extremes in temperaments; do not adapt to continuous routine as well; are shorter in stature with a shorter reach. Women's feet and legs have lower fatigue limits; their manual strength is usually less, skin more sensitive to primary irritants and long hair more of a hazard. A woman's finger dexterity is good, but to most women machinery is bewildering.

Safety engineers however, have found that women have greater receptivity to safety instruction and a greater willingness to abide by safety rules than men. The excellent supervision of factory workers and the development of a safety consciousness in the hundreds of women workers who are now leaving our factories to marry, do housework and raise families,

may contribute toward decreasing home accident rates.

The girl who has had a factory job has learned the wisdom of wearing suitable work clothing free from the ties, ruffles and patch pockets that are so dangerous around machinery or fire; her hair will be closely held back; she will wear lower heels and summon immediate first aid for even minor injuries. Undoubtedly, she has developed an accident prevention-mindedness which will make her a more careful housewife, averse to horseplay and chance taking.

Industries with good safety programs have reduced their accident rates 50 per cent as the result of intensive educational programs over a period of 15 years. This achievement offers a challenge to all women interested in the social and economic welfare of America.

Obviously the problem is so enormous that no one organization, no matter how large the budget, can do the job by itself. However, if all organized groups pull together in behalf of accident prevention, real results can be accomplished.

To a very considerable extent, we are allowing tens of thousands of people to die yearly from preventable accidents and 10,000,000 to suffer temporary and permanent disabilities. Next year 20,000 children will die needlessly at play, in homes or on streets. Last year there was a fatal home accident every 17 minutes and one injury every seven seconds. There were three deaths every hour and 525 injured. *How Safe is Your Home?*

Walter Winchell recently said that "The Chicago Fire of 1871, the Johnstown Flood of 1889, the Galveston Tidal Wave of 1900, the San Francisco Earthquake of 1906, the sinking of the Titanic in 1912, the Boston night club fire in 1942, and all other major disasters since 1865 have killed less than 25,000 Americans" (and yet day-by-day accidents killed 94,000 in 1944 alone).

The vital task for American women today is to save lives and prevent untold tragedy and economic loss due to accidents. Women have the power of life and death because they are leaders in their communities and homes, with a recognized skill to sell ideas and stimulate action.

Education in the principles of safer home living is the essence of the plan for

greater safety. If every organized group of women—P.T.A., granges, women's clubs, church associations, etc., would enter seriously and actively into the campaign to stop accidents, we could do for Home Safety what safety engineers have done for factories.

There are 35,000,000 homes to be reached. Today more people are killed in homes than in all industries combined. There is no one cause and no one remedy for accidents. We lack accurate factual data as to the causes of accidents, but the mechanical, personal, physical and psychological factors are being studied by doctors, nurses, architects, and economists. Teachers and educators are working out methods which may influence conditions and practices.

When we have an organized attack comparable to industrial and traffic safety programs, we can eliminate the general apathy of individuals and make safety as acceptable as three meals a day.

There is no single area of more interest to the average woman than her kitchen. We have tried to give simple demonstrations of safer, easier ways to do the daily tasks. Women take an interest in accident prevention, when they see how they can apply it to their own daily lives. Application of safe methods to small household duties creates habits which may prevent more serious accidents. After all, every fire is small at the start and some simple act, such as opening a fruit jar with a pointed knife, has caused blindness, or a milk bottle left on a dark step has caused a broken leg or hip.

In New York State, these demonstrations have been given club leaders, grange lecturers, home demonstration agents, teachers and public health nurses, who in turn demonstrate before groups. Audience participation is particularly good with this type of safety talk and each person is urged to check her own habits, her family for persons prone to accident and her home for accident hazards.

Attached is a list of home safety demonstration suggestions which can be easily given by any club leader following a short talk on the need for accident prevention and its practical application.

Practice safe habits every day and whatever your own work, incorporate into it some home safety education to help reduce the tragic waste caused by home accidents.

Home Safety Demonstration List

APRON: Select aprons which have flat pockets that will not catch on handles. Choose an apron for the purpose of illustrating a safe tying arrangement (the long straps can be tied in a small safe flat bow in the front or they can be cut off the right length for fastening with a snap in the back). Many burns and fires occur because housekeepers insist upon wearing fluffy, frilly aprons and dresses in the kitchen. A large bow in the back might easily cause fire when the wearer turns around, near the stove, as the bow is quite apt to be caught in an open flame.

HIGH HEELED SHOES: Low heeled, comfortable shoes are the only safe or sane type to wear while doing housework. A heel like this causes falls and enhances fatigue.

BOTTLE OPENER: When opening a bottle top, be sure to hold it away from you, not up close to your body, as the top may fly into your face.

NUT CRACKER: For opening small-sized bottle tops such as ketchup bottles, fingernail polish bottles, and other types of bottles which are too small to use the average bottle-top opener on them. This device will save wrenching, strain, hurry and worry.

SAND PAPER: Gives the hand a purchase on a glass or smooth metal top jar. By using sand paper, you can easily get a good grip.

MODERN-TYPE CAN OPENER: One which makes a clean, smooth edge. The wall type which has a wide spread is excellent. However, be sure to use the kind that folds back against the wall when not in use, as otherwise it may be the cause of serious bumps on the head.

PLIERS: For removing rubber rings on fruit jars. Hold up a broken vegetable knife saying—"This is what happens when you try to pry open a jar top with the point of a knife. Unfortunately, this knife was used for such a purpose. The tip broke off and injured the user's eye to such a degree that sight is now permanently impaired."

VEGETABLE KNIFE (Small size): Question to audience: "Is a sharp or a dull knife better?" Answer: "A sharp one, because it cuts more efficiently and quickly

without waste or strain. Being sharp, it should be handled carefully though. When washing the dishes, never put the knife in the dish pan or mix it with the silver. Instead, wipe the knife with a clean cloth." (When demonstrating this point, have the edge of the knife away from, and not toward you.)

CARBORUNDUM STONE FOR SHARPENING KNIVES: Use a large sized stone for this demonstration, preferably one which is rough on one side and smooth on the other. Sharpen the knife on the rough side first, and then turn it over and sharpen it on the smooth side.

The angle at which blades are held is extremely important when sharpening knives on a stone. Tilt blade so there is a 20 degree angle between the blade and the stone; a greater angle will dull the edge; a smaller angle will not sharpen. Keep a firm grip on the handle, and move blade along the stone as though shaving the surface. Short strokes are better than long ones, and a very few strokes will reset the edge of fine cutlery. Excessive pressure tends to make an uneven edge.

After sharpening one side, reverse knife and sharpen the other side. Always move knife toward the sharpener for best sharpening results. Use a medium to fine grain sharpening stone for fine household knives. Keep sharpener free of dirt, dust or grit, and bathe occasionally in kerosene or clean, soapy water.

Also show an old-fashioned knife sharpener. (The kind that has two sets of discs of about four each.) Ask the audience why this type is unsafe. The answer: "This type of sharpener makes an edge which is only temporarily sharp. Furthermore, if you put it under a microscope lens you will see that the thinned edge is broken and ready to crumble further when used. The little pieces of steel will then get into your food as you cut. A temporary precaution is to wipe the knife after sharpening, but the safer way is to use the stone."

POT HOLDER: If possible, use the nonflammable type of pot holder. Potholders should have a short loop and should not be too stiff. If you make crocheted ones, be sure that the stitches are close together and are made of double thread. All of

these precautions will prevent burns and fires.

TONGS: For lifting asparagus, corn, eggs, etc., out of hot water, or potatoes, etc., out of the oven. The use of tongs will minimize the hazard of steam burns or burns from the hot oven. They will even hold at match for lighting the oven the safe way.

RAZOR BANK: Small cardboard box, sealed and slit at top, to receive discarded razor blades where they can cause no cuts. Another suggestion: Thumb tack a paper drinking cup on the wall.

BROKEN GLASS BAG (for disposing of broken glass): Paper bag stuffed with paper. Bags to be marked "Broken Glass" in red letters. (We suggest wrapping up imaginary pieces of glass in pieces of stiff paper and placing it in the marked bag. Seeing this done fixes the idea in mind.)

MEDICINE BOTTLE: Place adhesive tape around the back of the bottle before the audience as you talk. Some like the adhesive on top; therefore, both types of bottles are included in the demonstration. The first is preferable, however, as the top can be opened quicker in an emergency. The whole idea of this part of the demonstration is to draw out the point that poison bottles should be strongly indicated in some way so that in emergency, the wrong bottle of medicine will not be taken.

FLAT IRON STAND: Pic pou turned right side up with a nail run through either side to steady it. This is a substitute for the metal type of holder which has been off the market.

An asbestos cloth is advisable also to demonstrate if you can get one. Both of these suggestions will prevent fires if the iron is left on the board too long. (It is always advisable to suggest disconnecting the iron when not in use.)

SAFETY PIN HOLDER: A pin cushion made of a powder puff with a loop attached, to be hung near the bathinette. This creates safe practice on part of the mother and keeps pins out of reach of the baby. Cake of ivory soap is another suggestion too.

THIN BREAD SLICE: Two cigar box tops with $\frac{1}{4}$ " stick between the pieces at the bottom. Purpose: To protect fingers from being cut in trying to slice a thick

"Store cut" piece of bread. (In some areas bread is now being sold already cut in both thin and thick sizes, however. Suggest inquiring first at the store, and if only the thick slice is available, use above method of slicing.)

CORN COB HOLDER: A board approximately 8 inches by 12 inches with a nail run through the center, point extending upward, on which the corn cob may be placed for safe and easy cutting for succotash, etc. A head of cabbage can be cut easily this way also. (A cardboard holder has been devised for demonstration purposes instead of a wooden one in order to facilitate packing and shipping.)

OIL CLOTH: If underpads for scatter rugs are unobtainable, place a piece of oil cloth under your rug WITH THE SHINY SIDE DOWN to keep the rug from slipping. In some cases fruit jar rings attached all over the back will hold the rug in place. If scatter rugs must be used, they should be held in place in some such way, in order to prevent falls. (Falls cause nearly one half of all the accidents occurring in the home each year.)

POTASSIUM CHLORATE—and other pills of this type: Strike one of these pills on the sand paper on your match holder and watch the sparks fly. We are often tempted to put a few pills of this type (and there undoubtedly are many other examples) in a compartment in our pocket-books or pockets. Next to them might be a match case. Friction occurs with a resulting fire. Caution the audience not to remove pills from bottle until they are to be used.

TWO TYPES OF ELECTRICAL PLUGS: 1. The type without a handle for removing from the wall. 2. The one with a handle for removing from the wall.

A frayed and broken electrical wire is useful to demonstrate the possibility of causing a fire because it is frequently placed under a rug over which the members of the household traverse daily. The covering of the wire wears away, the wires are exposed, rub together, and ignite. Caution: See that ample outlets are provided in your home and that there are no trailing cords. Use coiled plastic cover for cords to keep them in good condition. Buy elec-

tric cords with the Underwriter Laboratories' seal when possible.

GIMLET: For making a hole in the wood before driving nail saves strain and conserves energy. A carpenter's tool chest containing new tools, not old, bent tools, should be in every kitchen.

CANVAS LOG CARRIER: Convenient and safe way for carrying loads as well as logs. Carry the load at the side, never in front. In this way the steps ahead are clear to view.

If you have several fruit jars to carry down cellar, for instance, or something else that could not be conveyed in one of these log carriers, place them in fruit baskets, one for each hand and carry them at either side.

ICE PICKS: Nearly every home has one with the points broken off. Be sure to use a cork or leather case to protect the point when not in use.

ASBESTOS MITT: To protect hands and arms from burns. (Safer than a holder.)

FINGERS FROM OLD GLOVES: Save cuts and infections.

SEWING EQUIPMENT: Shears are to be put in cover when not in use. Keep spools of thread off the floor as they might cause a fall. See that needles are in their proper places to avoid pricks.

DUST CLOTH: Place in a covered fruit jar when not in use, especially if it has oily furniture polish on it.

INSECTICIDES, ETC.: Should be out of reach of children, never stored under the sink, where they can easily reach them.

TIN MATCH CONTAINERS: For safe storage of matches.

FIRE EXTINGUISHERS: Be sure every member of the family knows how to use.

PREVENTION OF BURNS: (Burns account for about one-fourth of the fatalities in the home.) Show a pan with loose handles; show one with handle turned out where it could be knocked off or pulled off of the stove by a child; show how a length of garden hose can be used to fill tubs instead of carrying hot water in pails; discuss burns by steam, wet dish cloth or sloppy towel; burns from irons; danger of removing canned goods from cooker.

The Flammability of Textile Fabrics

By DR. F. BONNET
American Viscose Corporation

The fact that cotton and other cellulosic materials like linen, ramie, regenerated cellulose types of rayon will burn is too well understood and accepted to need comment, but the rate at which various kinds of fabric will burn is perhaps not so well understood. If, for example, the fabric is tightly woven with a rather smooth surface like broadcloth or canvas, it does not readily ignite when it comes in contact with the flame or match. If, on the other hand, the material has a napped, brushed, or pile surface then the burning may be very rapid. If the fabric has been treated with some finishing material like pyroxylin to make it water repellent and easy to clean, the glazed surface when ignited burns with an intense hot flame.

At various times attention has been called to the fire hazard in various kinds of merchandise. To protect the public from buying garments and materials intended for garments which ignite easily and burn rapidly and are, therefore, a personal fire hazard has been the aim of legislators. Thus, some thirty years ago, England passed the "Fabric Misdescription Act" following the death of some English children and serious injuries to others when their long napped cotton flannel sleeping garments became ignited while playing before an open grate fire. More recently, and quite suddenly, the California legislature passed a bill governing the sale of flammable fabrics in California which created a good deal of discussion as to what kind of fabrics under this law could be sold in California, for the bill read: "It is unlawful to manufacture, sell . . . any article of wearing apparel, cloth, drapery . . . made from or containing any synthetic fiber, or any hazardous explosive or other substance in sufficient quantity so as to make such fabric or material more highly flammable than cotton in its natural state." The law went further to include "any toy, tool or other articles intended for use in any household . . . containing such hazardous or highly flammable substance." Making the flammability depend upon a comparison with "cotton in its natural state" left the interpretation as to what fabrics should be considered flam-

mable too vague and uncertain and the law unenforceable. Subsequently certain parts of the law were repealed and amended so that in the revised bill an "Inflammable article" . . . is any article made from natural or synthetic fiber and determined by the Fire Marshal to be so highly flammable as to constitute a dangerous risk of fire, etc."

What obviously was needed for the enforcement of laws relating to the flammability of fabrics was an accurate method of testing how flammable various types of fabrics are, that is to say, how fast do various types of fabrics burn and which should be condemned as too dangerous.

After the original bill had passed the California State Legislature, Congressman Leroy Johnson of California immediately introduced a similar bill in the House of Representatives which then was referred to the Committee on Interstate and Foreign Commerce. This gave a federal aspect to flammable fabrics.

The American Association of Textile Chemists and Colorists had a committee under Dr. Redwood working on flameproofing fabrics, which in due course would have taken up test methods for determining the effectiveness of flameproofing treatments, but due to the proposed national legislation there was great urgency in having a definite and reliable means for determining flammability.

Dr. L. A. Otney, Chairman of the A.A.T.C.C. Research Committee, appointed a subcommittee under the Chairmanship of Dr. H. E. Hager to specifically study flammability of consumer fabrics. The matter of determining flammability is not as simple as it may seem. For example, the committee soon found out that a fabric when tested under dry conditions would readily ignite and burn rapidly, whereas under humid atmospheric conditions the same fabric was difficult to ignite and then burned slowly, if the flame did not go out. The special committee first met March 27, 1945 and again on April 16th in New York, and to its meetings invited special interested guests, e.g., C. W. Reison of the Underwriters Laboratories; Capt. R. W. Little; Dr. C. Coppel; Dr. A. L. Peiker, all

working. Columbia University under the National Research Council on flameproofing and testing fabrics for the armed services; also men from the New York Fire Marshal's office. At the first meeting the construction of a simple apparatus was decided upon. At the second meeting corrections and improvements were suggested (i.e. standard gas; length of flame; inclination of sample so as to get a measurable time factor; automatic control as to time of application of the standard flame and rate of burning).

But the whole matter of the flammability of fabrics was suddenly and tragically brought to the attention of Congress and the nation early in April, 1945, in Washington, D. C., when three small boys were burnt to death and some seven others seriously injured because their cowboy suits caught fire while playing around an unattended brush fire. This brought restrictive legislation about the flammability of fabrics very much to the fore.

Under these circumstances, lest unwise legislation be forced through Congress, the Washington office of the National Retail Dry Goods Association arranged for an informal conference with Congressman Johnson and members of the special A.A.T.C.C. subcommittee in order to make clear that there was no standard test for determining the flammability of fabrics and that, in any case, no law could be enforced if based, as suggested in the original California law, on a comparison with "cotton in its natural state."

At this meeting, Congressman Percy Priest of Tennessee, a member of the Interstate and Foreign Commerce Commission was also present. During the testimony given in response to questions asked by both congressmen, it was made clear that flammability of a fabric was not necessarily due to the kind of cellulosic fibers, whether cotton, linen, ramie, regenerated cellulose type of rayon from which the fabric was made, but depended upon the construction of the fabric and particularly whether the fine fibers were brushed out or in the form of a long pile.

In other words, if such cellulosic fibers are in a finely divided state for the ready access of air, they are quite flammable. If, on the other hand, the same fibers are twisted together into a hard thread and are

then woven into a compact piece of cloth with few or no fine protruding filaments, they are not flammable.

Various materials are flammable and some are even explosively flammable when the speed of burning is very rapid, e.g., coal is combustible, but under ordinary conditions would not be considered flammable. If, however, the coal is in a finely divided state as a dust, then it becomes not only flammable but explosively flammable in its speed of combustion.

Similarly, when cotton or the regenerated cellulose type of rayon, or other cellulosic fibers are in a finely divided state as on the surface of a napped, brushed, or pile fabric, the speed of combustion may be very rapid, particularly if the fibers are dry. Used in garments, such fabrics, when accidentally ignited, burn so rapidly that the wearer often cannot extinguish the flame nor divest himself of the burning garment before serious injury has been done. Thus the long rayon pile used on the front of the chaps of the cowboy suits burned so rapidly as to cause panic with the resultant serious or fatal injuries.

But the ready flammability of a fabric may not be due to napped, brushed, or pile fibers on the surface of a fabric. Flammability may also be due to the use of a flammable finish, like pyroxylin, to glaze the surface of an otherwise non-flammable cotton or rayon fabric to make it more easily cleanable. Or take the case of netting, marquisette, gauze, etc. which because of the nature of their construction burn quite readily but are rendered still more flammable when treated with pyroxylin as a stiffening agent, which does not wash out.

All our garments will burn, especially those made of cellulosic materials, but the rate of burning of some will be much greater than other, and this will depend upon conditions of fabric construction, dryness, and various factors. Those that burn rapidly are termed flammable and offer a distinct personal fire hazard because there isn't time to remove a burning garment from the body, and such fabrics should not be used for garment purposes unless and until they can be made practically and permanently non-flammable.

In using this term "non-flammable," however, it is not intended to convey the idea

of being "fireproof." A non-flammable fabric may char and may be rendered useless under heat or the application of a flame, but of itself it should not, under ordinary conditions, readily support combustion when it comes in contact with the flame of a burning match or the glow of a cigarette.

After painstaking testing and checking an apparatus and a method of testing was developed by the committee by means of which the rate of burning or "flammability" of consumer fabrics can now be determined

with reasonable accuracy when samples are first carefully prepared and are then subjected to identical conditions of test.

Just as in the case of determining the flash point of kerosene or coal oil, and deciding which oil is to be considered a safe oil for use in lamps, so too in the case of fabric flammability it will be necessary to decide what the minimum rate of burning should be above which fabrics would be considered safe and below which unsafe for use in garments or other purposes.

THURSDAY AFTERNOON SESSION

October 10, 1946

Joint Session—Home Safety and Women's Programs

Presiding: Dr. WITT SMITH, Vice Chm., American Red Cross.

Cooperation of Community Organizations

By RAY SKIDEL

Dir., Dept. of Safety & Health, Rochester Chamber of Commerce

The Rochester Safety Council has had splendid cooperation from our community organizations. Monroe County has a population of nearly 450,000, but we're always getting requests for speakers and material from five or six other nearby counties. There are only two of us, myself and an assistant, in a full time capacity, so you can see how much we depend upon our volunteer committee members, and especially upon the organizations to carry on their own programs.

We are by no means completely satisfied with our program. We still do not have 100 per cent participation—there are still some who think they have carried on a safety program if they have a speaker once a year, or just once, period. What success we have had is due in large part to the correction of a major mistake, made when we first started our home safety program in September 1943. If you will bear with me, I'd like to review our activity at that time, to tell of the mistake we made and how we came out of it.

As I said, we started off on the wrong track. Women members of the Chamber belonged to what was called the Women's

Group. They were looking for projects, so we were able to convince them that there was a definite need for a home safety project. They started enthusiastically enough, but the program just bogged down in spite of all we could do. I realized that what was wrong with our program in Rochester—we were asking *business* women to promote a home safety program.

We let our project die out, but in the meantime we struggled with the task of getting the Safety Council to take down the "men only" sign which had been hanging since 1914. We succeeded finally, but the executive committee limited the original membership to 15 women. They were carefully selected—the top representatives of organizations such as the Parent Teachers Association, Home and Farm Bureaus. Each was invited to join the Council—the first women in the history of the Safety Council! They were invited to attend meetings, but not asked to do anything else.

This delayed-action beginning proved to be corrective medicine. It worked beautifully. We had given them actual representation on the council. We hadn't asked them to do a thing. BUT, when they asked

us what they could do, we were ready for them. We asked them to go back to their own organizations and set up programs with the assistance of the Safety Council. We wanted them to stress all kinds of safety, but at that time rationing was keeping traffic accidents minimized, so we emphasized home safety. There was so much to do all of a sudden that we had to enlarge from one original committee to a division, with seven committees and a farm safety section!

Believe me, we were kept busy supplying outlines and suggestions. The heads of the PTA and Home Bureaus (now enthusiastic Safety Council members) had brought together all unit presidents and chairmen and told them to appoint safety chairmen and see to it that they got busy and worked. We've covered practically every unit of both organizations with speakers and films and most of them devote time at every meeting to a discussion of safety.

Dr. Dukelow who follows me on this program will tell you about the work of the public health departments. I shouldn't cut into that, but I must say that without their help in Rochester our program wouldn't be worth anything. The nurses from the city Health Bureau, who spend most of the year in the schools, made a survey and left literature in the home of every pre-school child in Rochester during the summer of 1944. They had a four-hour selling program before starting out. The district nurses who have marvelous backing from the State Department of Health, received 12 hours of home safety instruction and they do so much that it's almost impossible for us to keep up with their requests. One major activity was to get each town Health Committee to promote home safety. The chairman of our Home Visitation Committee is the Executive Director of the Visiting Nurse Association.

Through the efforts of this ambitious chairman, we lined up the social workers through the top management of the Council of Social Agencies (also a new Safety Council member). She selected a committee which now reaches in its function all children's and old people's homes and institutions as well as all foster parents and even the "mothers" who go out by the day. Another group which we have been working on strenuously is the doctors. The

Monroe County Medical Association appealed to all physicians to do all they could to prevent home accidents. We have supplied literature featuring "What's Wrong with This Picture" puzzles to be read in and taken home from doctor's waiting rooms.

The hospitals are cooperating splendidly. The leaflet "Congratulations" is brought to all new mothers by the librarian with her traveling library or by hospital aides. The superintendents have allowed Red Cross Staff Assistants to get at the records for statistical surveys. The Rochester Hospital Council in its broadcasts urges conservation of space by prevention of home accidents. The Hospital Service Corporation distributes original posters to its many member organizations and seldom misses some reference to accident prevention in its bulletin.

Not long ago the Monroe County Tuberculosis and Health Association set up a neighborhood project—on the west side of Rochester which includes a large district of colored people. Naturally we went after the Association to include home safety with their health program, and they agreed willingly.

We have splendid cooperation with the Rochester Chapter of the American Red Cross. Even though we worked together to have an accident prevention instructors' training program and a large group was certified, we are still reluctant to organize classes for the adult course. We feel that they just won't "take". However, all 7th and 8th grade parochial school teachers were certified and the junior course will soon start its third very successful year. The executive director of the Rochester Chapter (another of our pioneer women) wasn't satisfied with just that much—she saw to it that every home nursing, nutrition and dieticians' aides course had one lesson added to it. Yes, in home accident prevention. First aid instructors never lose sight of the fact that the primary purpose of first aid is to prevent accidents.

We're pretty proud of the home hazard elimination program carried on by our city school children. More recently we've stepped up activity in the county schools. At every meeting of home economics teachers in city and county, home safety is stressed. To them we supply material and they really do instill safe habit forma-

tion in their pupils. Yes, their inspiration also comes from one of our new women members. I doubt if the Girl Scouts of any other city in the country do as much toward home accident prevention than do ours.

One of our committee has been industriously working on the architects and home builders and while there aren't too many luxurious safety features being built in, we are reasonably sure that safety in housing is not forgotten. We were instrumental in getting neighboring towns to adopt building codes and we're proud that our efforts to prevent relaxation of their codes and the city's have so far been successful. We do have splendid cooperation with the Building Bureau, and also with the Bureau of Fire and county Volunteer Firemen's Association.

We urge all our cooperating organizations to follow seasonal activity. I don't think we left a stone unturned in our efforts to have all of them participating in fire prevention week which as you know is current. House cleaning and home repairs spring and fall, winter hazards, canning—we try to supply special suggestions for all these.

On the subject of canning, every organization interested has stressed safety so much that we have yet to have a real serious accident and there have been very few of minor nature. I knew that our women members were industriously working, but I had to read an article written by one of them to know just how much this particu-

lar one was doing. Apparently the National Safety Council knew better than I, because they asked her to write for HOME SAFETY REVIEW.

The Monroe County War Council Consumer Division did splendid accident prevention work during the war. Every town had a committee and the division was headed by the woman who first gave us the idea to call her fellow members "pioneers". The others represented in the Safety Council and not previously mentioned comprise the Federation of Women's Clubs (each club has a safety committee), the YWCA (and they have any number of women's committees) the American Legion Women's Auxiliary, industrial public relations and radio. It adds a great deal to our publicity to have the women's editor of our biggest station, and the Red Cross Public Information radio representatives as members of the Council.

For the benefit of the men in the audience, our male members do a great deal too, especially to promote safety in construction and maintenance. However, without the women members and without having learned our lesson, I know we wouldn't have been awarded the National Safety Council plaque for Outstanding Service in the Field of Home Safety. Our hardest task right now is to keep up with the demand and fulfill all the requests which our cooperating community organizations make. We think they like us and we know they like working for home safety.

What a Health Department Can Contribute to the Home Safety Program

By D. A. DUKELOW, M.D., M.S.

Director, Health and Medical Care Division, Minneapolis Council of Social Agencies

During most of the past six years the chairman of the Home Safety Section of the Minnesota Safety Council has been a physician member of the staff of the State Health Department. This has identified home accident prevention with the other preventive aspects of the public health program. Since the director of public health education directed the home safety program during the greater part of this time, the same channels were available for home

safety education as for health education. In spite of this close relationship there has been little demonstrable evidence that safety education has influenced behavior. It seems that even with a sound organizational pattern no method has been found that will motivate people to act in accord with the facts they have learned.

To give you an example of one organizational pattern, I will outline the Minnesota Home Safety program. In 85 of Minne-

sota's 87 counties, there is a County Safety Council, 55 of which have Home Safety Sections. In most of these the included municipalities are part of the County Safety Council though 15 municipalities have a separate organization. Twelve of these have a Home Safety Section. Not all of the Home Safety Councils are as active as they might be, and it is frequently difficult to get a significant attendance of members from Safety Councils other than those near the city in which the meeting is held. However, on the whole considerable home safety work is being performed.

A committee was formed known as the Home Safety Planning Board, which consisted of seven individuals selected from the most active county and municipal home safety sections. After considerable correspondence and deliberation a Minnesota home safety program was recommended to the executive committee of the state Safety Council and was accepted in March, 1945. In essence this plan consisted of six points:

1. Safety councils in the counties and the larger municipalities are encouraged to maintain home safety committees for a study of and the demonstration of information concerning the cause and prevention of home accidents. These committees should have in their membership representatives of the civic agencies in the community, public services and municipal facilities, architectural and contracting interests concerned with the construction of residences, the school, official and non-official public health agencies and the agricultural interests.
2. This committee, through an executive group of its own members, shall be responsible to the local safety council for the conduct of the home safety educational program in the area of its jurisdiction.
3. The program conducted by this committee shall be two-fold:
 - a. The primary responsibility is to interpret to the community, the individual and collective responsibility of the members of the community for safe living, and illustrate the prevention of disability from home accidents by the use of local information, gathered through surveys of accidents occurring

within the knowledge of the community, and shall use all local agencies interested in home safety in promoting this education program.

- b. The secondary interest is to interpret to the community, using local information wherever possible, the state wide programs of the State Safety Council.
4. In conducting a home safety program it is recommended that meetings be held at least quarterly and monthly wherever possible; that some of these meetings be open to the public; that the program of meeting be so planned that it lends itself to publicity in the local press; and that each committee limit itself to one or two important projects that can be completed in three to six months unless the committee has sufficient experience to successfully carry on several projects simultaneously.
 5. To provide coordination of the home safety committees of the state, the chairman of each home safety committee automatically becomes a member of the home safety section of the state Safety Council.
 6. It is recommended that the committee make use of all available sources of information in developing a community understanding of home safety, among which should be included the facilities of the State Safety Council and its member agencies, the American Red Cross, the State and Local Health Departments, and the educational material provided by numerous commercial agencies.

Inauguration of this program stimulated considerable interest in certain safety groups that were already active, but many groups have yet to be reborn. Now is an ideal time for stimulating and developing a program of this character, because many of the community leaders, fatigued by the activities incident to the war have had an opportunity to relax and reevaluate their time and are looking for worthy projects to which they can lend their ability and time.

According to the best concepts of health education, this Minnesota program is backwards in that ordinarily the organization

should be fitted to the problem, while in Minnesota we have more or less fitted the problem to an organization already existent. This seems justifiable, however, because of the strong safety program existing in other areas and the home safety program merely being an addition to an existing program.

The Minnesota program just outlined was quite different in its beginnings from the program started by the New York State Health Department. Minnesota had some kind of an organizational structure in the home safety field and had a strong State Safety Council very active in the industrial and highway fields at the time this program was started. When the New York program for home and farm safety started in 1941 there was comparatively little organization on which they could lean. The Health Education Bureau of the State Health Department outlined a direct educational program which would be carried out through a group of committees working under the state home and farm safety advisory committee and a host of agencies interested in either the home or the farm. The program in New York started by the development of community conferences and projects intended primarily to educate the people who were members of certain organizations about which their pattern developed.

At the same time other fairly strong programs involving health departments were operating in New Jersey, Illinois, Kansas, Wisconsin, Tennessee, Iowa, Ohio, Utah, Kentucky, and Georgia. Largely because these programs demonstrated that health departments have an interest in home safety, the Committee on Administrative Practice of the American Public Health Association designated a Subcommittee on Accident Prevention which concerned itself primarily with the home safety field.

This committee sent a questionnaire to most of the state health departments and many county and city health departments, asking them about services and studies now being conducted or contemplated. It is interesting to note that only 29 of the 43 state departments sent the questionnaire answered, and of those 23 had made no home accident studies. It is at least as interesting that only 32 of the 100 county health departments questioned bothered to answer and none of these 32 reported home accident studies. Of the 86 cities of more

than 100,000 population only 33 replied, 31 of which had done no home accident work. And only nine replies were received from 78 cities under 100,000 population and none of these had performed studies, though six stated that studies were contemplated. This shows the stage at which home safety programs, studies, education, and administration were in relation to public health administration as of 1944.

The subcommittee on accident prevention reported this inactivity, but recognized a considerable awareness of the importance of this field and the logic of health department participation in it, as well as of public health administrators' desire for suggestions and information which health departments can utilize in integrating home safety with other health education interests. In fact, the committee points out that home safety activities can be integrated into nearly every phase of public health programs where persons representing the department actually enter the home in a teaching capacity.

Since I think of these integrations as practiced in Minnesota, Minnesota can well be used as an example. The state health officer for years has been a member of the executive committee of the state Safety Council and can advise the safety interests of the state on any phase of its program that might touch health department interests. The health department also contributes its representative to the committee of state department representatives, which coordinates the several interests of state government in a total safety program.

In the vital statistics field, accident mortality data is second only to communicable disease information. A close liaison has been developed between the health department and the highway department in this regard. The Division of Birth and Death Records undertook a most interesting study of deaths from home and farm accidents a few years ago in which a special questionnaire was sent to the coroner or physician signing the death certificate for every death in which a home accident might have been a contributing factor. This information gives a very clear picture of the characteristics of home accidents and farm accidents in a way that was not obtainable from the data customarily entered on the death certificate. In vital statistics activities it

helps to have some safety-minded person work closely with the registrar and statistician because so much of the data needs interpretation before it is of any value in educational preventive programs. Too frequently the vital statistician responsible for studies of accident mortality is a registrar with no interest in the solving of specific problems and with little understanding of such factors as age, season, time of day, and location, that are so important for the interpolation of mortality data into useful educational material.

The public health nursing program of a Health Department is a natural place for centering a good part of the safety education program. Public Health Nurses are teachers and have access to the homes of the community. In those homes they advise on a host of problems intimately related to living, and it is a very short step from teaching healthful living to teaching safe living. A nurse who is informed on home hazards and unsafe practices can teach home safety in conjunction with the individual and group teaching which is a normal part of her service. Frequently a passing word from the nurse who detects some danger point in the household is all that is needed to initiate a physical change or a consciousness of a dangerous habit. It is not suggested that public health nurses devote so much time to home safety that they are unable to accomplish their other duties in a generalized nursing service. It is suggested, however, that a conscious utilization of the "teachable moment" will produce surprising results.

In the area of maternal and child health, not only the public health nurse but also the physician, the nutritionist, and the others associated with the broader aspects of this program can give information and motivate action in the safe handling of children, particularly those of younger years. Most of the accidents occurring to children under one year of age are due directly to the negligence or faulty habits of the adult. In teaching adults child care the safety aspects are important. It would be a simple matter for the nurse and physician to give advice on the selection of cribs and play pens, and restraint of children who refuse to stay under the covers, and the selection of toys along with the advice on feeding and bathing and other necessities to the process of growing up.

With the development of staff other than the health officer in local public health jurisdictions, the public health engineer and the sanitary inspector have an increased opportunity for personal contact with the ultimate consumer of their services. An engineer, calling on a farmer to advise him about his water supply or an inspector reviewing the sanitary care given a dairy herd, would certainly be in order to drop a remark here and there regarding the hazards he finds in the home or on the farm. It is recognized that farming is a very dangerous occupation and is one in which there is an intimate relationship between the residence and the place of business. Actually the hazards of one become the hazards of the other and the same principles of control apply to each.

A Health Department function in which a sound home safety program will produce results is the Division of Industrial Health. Industries are learning that an employee has just as much time loss disability from a home accident as from an industrial accident, and that an active home safety program within industry protects the industry from time loss accidents over which they normally have little or no control. Industrial nurses have an excellent opportunity to do home safety instruction because of their intimate relationship with the rank and file of employees and because they are so often looked upon by the employees as counsellors to whom they may take their family troubles. We frequently find a situation where an employee is too ill to man his machine and spends a day or two at home. He is, however, not sick enough to stay in bed, so he putters around the house, climbing ladders, working in his yard, and doing minor repair jobs under conditions that are extremely hazardous because of the instability produced by his illness. Much time loss by wage earners could be avoided if industrial nurses could convince workers that when they are too ill to be present on the job they are too ill to assume jobs at home.

Health departments, whether at the state level or in the larger municipalities, frequently carry out administrative responsibility in other fields. Some are concerned with food and drug control. It would certainly be within their province to inform the public on the dangers of certain commercial poisons and the proper handling of

the common drugs, most of which are dangerous if taken in doses beyond those normally prescribed. Some health departments are concerned with housing, and have an excellent opportunity to study the structural details of residences and advise against those that are inherently hazardous. This may require cooperation with architects and builders and those who supply the furnishings for homes. Some departments are concerned with licensing functions including such varied activities as hospitals, rest homes, homes for the aged, boarding facilities for children, hotels, restaurants, and a host of other places designed for public use or for the care of certain components of the population. Such licensing usually is done in cooperation with the fire marshal, but attention should be given to the multiple minor accidents that might occur as well as the occasional major catastrophes.

Last but not least we have epidemiology, the primary function of all public health personnel. Accidents occur in patterns related to time, place and person that are as characteristic as the patterns of disease incidence so well known to every epidemiologist. The application of the principals of disease control to the equally important accident control would permit studies of the cause of accidents that can be done in no other way. The epidemiologist has a place in the safety picture that can be filled by no other person regardless of his training.

In looking back over the survey of current activities of health departments in the safety field, made by the Committee on Accident Prevention of the Committee on Administrative Practices in 1944, it is most interesting to note that of the 307 questionnaires sent to health departments of states, counties, and cities, only 103 were sufficiently interested to answer the questionnaire, and only eight, plus the five state health departments operating programs previously, reported any kind of a home safety program or study during the near past. Only seven of these health departments had plans leading toward future safety programs. Yet it is quite obvious that there is a very close relationship between the life saving activities of an official public health agency and the interests of the safety movement. It is also reasonable to assume that the administrative organization within the health department for the

direct control of disease and disability, as well as the educational facilities and personnel normally in their employ, could be directly applied to the safety program with a minimum of difficulty, and with no loss to the programs normally a part of the health department.

The inactivity of both state and local health departments in the home safety program may come from any of several factors. In the first place, the health department operates a broad inclusive program with too little money to perform those responsibilities required of it by law, even when the local tax contribution is augmented by federal subsidies. The inherent tendency of both individuals and agencies to care for their own child before supporting their neighbors may be one reason the health department has failed to include home safety in its program. I have repeatedly heard health administrators state that they have insufficient nurses to carry on the services they are obligated to perform, let alone add a new interest. In most health departments the vital statistics program is purely registration and the issuance of crude rates, because they have no statistician interested in looking behind the crude rates to find the detailed factors that are responsible for their occurrence.

The lack of the necessary money for conducting sound Home Safety programs in health departments, both state and local, is due in part to the lack of adequate appropriations from legislative bodies who represent an uninformed public, and to the hesitancy in the past of the United States Public Health Service and the Children's Bureau to include home accident prevention as one of the areas for which they will provide financial subsidy. Recent changes in the administration of the Children's Bureau include the provision of grants in aid to states for some Home Safety activities.

Health departments, therefore, must do their epidemiological studies, their statistical analyses of accident mortality and their educational programs in home safety as a side issue, almost secretly, because the money they spend for these activities have in most cases been earmarked for something else.

The education program conducted by safety councils, agricultural interests, industry, and to a lesser extent by health

departments, has failed to reduce home accident mortality, because it has failed to motivate enough people to act according to the information they have learned. This suggests that the information distributed may not be the right information for teaching a behavior pattern to the general public. There is need for extensive research in what is behind accidents. To be sure, we know that so many accidents result from falls, and so many from burns, and that falls are produced by loose rugs and open stairwells, but we do not know why people create the hazards that cause accidents or what psychological twists cause people to perform unnecessary acts which they know to be dangerous. I have the feeling that an extensive and fundamental research on the way people think in hazardous situations might change our whole approach to home safety education. We have little information on the relation of accidents to the economic status of the person suffering these accidents, to the kinds of homes in which they live, to the unhappy social adjustments to which they are exposed and to the intercurrent illnesses that an individual may have at the time he suffers an accident. I am quite convinced that the promiscuous use of sedatives and headache remedies reduce the reaction time of those who take them to a point that makes these individuals accident prone. This type of basic research could well be part of graduate study projects under any number of foundations or by national agencies interested in problems of health and safety.

There appears to be a limited association between health departments and safety councils and other safety-minded civic groups at the local level. At the state level, the mutual interests of these agencies is rapidly developing, but at the local level lip service is the rule. In any city of more than 100,000 population safety councils and health departments could join in obtaining the proper personnel to carry out the fundamental research that might enhance the life saving program of both agencies. By spending money together, the public can see the relationship between agencies and the need for supporting the interests represented by these agencies. Many cities and counties operate Health Councils or Coun-

cils of Social Agencies in which health interests are a component part. They frequently have research facilities which could be used to determine the multiple factors behind home accidents, if the public were convinced that this was a desirable expenditure of their voluntarily contributed dollar.

One of the great problems is to convince the public that money for home safety is a justifiable expenditure. To get money one must spend money. The National Safety Council has prepared some excellent materials to stimulate an interest in home safety, but most of them are too expensive for general distribution. Local health departments and Safety Councils cannot afford to spend \$60 to \$75 per thousand for several thousand pamphlets and many might be financially embarrassed in spending from \$7 to \$10 per thousand for several thousand of the smaller items. Much could be accomplished by developing pamphlets that could be sold at a smaller figure, pamphlets that might contain not more than one idea and could be used in large numbers for wide distribution with other materials that health departments constantly send to standard mailing lists.

In reviewing the home safety interest of public health administration, it appears logical since so many health department activities are concerned with the home and so many of the personnel are in constant contact with people in the home on an informal teaching basis. With a minimum of effort health departments could do a considerable amount of teaching for home safety at the point where the desired practices should be put into effect.

The greatest difficulty encountered in any educational program, whether it be safe living, disease prevention, environmental sanitation, or the proper care of children, is the problem of motivating people to behave in accordance with the facts that they have learned. I remember with some dismay the criticism I received when my wife fell down an unprotected basement stairs and broke her arm, on the publication date of an article I had prepared stressing hand rails on stairways as an important safety measure in the home.

What a State Safety Council Can Do to Prevent Home Accidents

By MRS. GEORGE P. PARKER
Director, Home Division, Utah Safety Council

One of the greatest destructive forces of our time—accidents—stalks the land as a modern "Grendel," snatching unsuspecting victims, breaking bones and crushing out lives much as the monster did in the *Beowulf* epic.

The various modes of travel are increasing their speeds, and household and farm labor saving devices are becoming more extensively mechanized. Safety must become a way of living, if man is to survive.

As we stand on the threshold of the atomic era and peer apprehensively into the future, we become more and more aware of the preciousness of life and of the joy that comes with living in safe, unimpaired conditions. We can see that it is the sacred obligation of every one to do everything within his power to protect, not only his own life, but also those of others.

Safety must be a state of mind super-induced by correct attitudes. Some of these are: being watchfully alert at all times; being cautious (the "C" in "courage" stands for "caution"—it is intelligent to be careful); doing things the right way (it is not only the safe way but the efficient way); being courteous (thoughtful of others' welfare); using common sense and foresight (anticipate dangers that might result.)

Accidents in and around the home resulted in 33,500 casualties in 1945, a 3 per cent increase over 1944. There were 5,000,000 non-fatal injuries, including 130,000 permanently impaired.

The death toll of little children and elderly people runs rampantly along its tragic way.

It is evident that there must be a greater effort put forth and a marshalling of all our forces in the interest of safety. There must be a closer, fuller cooperation and more definite co-ordination of activities. It is imperative that there be a leadership group to direct, unify and extend the safety programs.

It seems logical that the State Safety Council should assume this responsibility of

co-ordinating the many community projects which will be undertaken through its stimulus and sponsorship. The State Safety Council should be the headquarters for safety education, and should send forth streams of information and suggestions to every part of its commonwealth by every means available—by the newspapers, metropolitan and suburban; by the radio, through its public service facilities as well as in time donated by private sponsors; by talks and demonstrations for group programs and exhibitions for public display. The State Safety Council is, to its communities, what the National Council is to the states of our nation.

In the field of home safety, greatest emphasis must be given to educating people to become safety conscious, bringing to the attention of every member of the household the many serious hazards which are encountered in the home and the best methods of over-coming them.

Persuasion must be substituted for enforcement, especially where it concerns a person's living habits, as home is considered the place where one can do as he pleases. Engineering and enforcement may enter into uniform building codes which require good design, safe construction of houses and the careful inspection of utility installations and equipment. Manufacturing companies can be induced to improve the safety aspects of their products.

One of the problems confronting safety leaders is how to make safety education persuasive and appealing enough to stir people to action—to make them want to do something about it. Every known method of appeal needs to be used, if all levels are to be reached and the widest dissemination attained. Radio dramatizations, which depict familiar home situations containing hazards, pictorial write-ups in newspapers and magazines, posters, films, window displays, which catch the imagination, contests and check-lists to go into the home are some ways of getting the message over.

Much depends on the foundation organization of the State Safety Council. If all

the civic, industrial, cultural and religious groups and agencies which are interested in human welfare, especially those concerned in some phase of safety, are invited to become a part of the Council and are made active participants, closer and fuller collaboration can be obtained.

The Utah Safety Council following the suggestion of the National representative, was organized on this basis. The executive officers and directors of divisions were chosen from the participating units.

The wisdom of this plan is evident in the wide spread interest and cooperation in safety which exists throughout the state. Following the same plan the Home Division Committee members were chosen from organizations vitally interested in the home and which could give valuable assistance and provide channels through which safety education could be charted. The cooperating groups include: American Red Cross, Girl Scouts of America, Public Health Nurses, Home Economics Associations of the Department of Public Instruction, Parent Teachers Association, Utah Federation of Women's Clubs, Salt Lake Council of Women, Church Organizations which include The Ministerial Association, Catholic Diocese, Jewish Welfare Board, Relief Society, Mutual Improvement Association (which includes Boy Scouts) and Primary Association of the Latter Day Saints; Women's Safety Councils of the state, Architects and Home Builders.

Having no precedent to follow, the Home Safety Committee of the Utah Safety Council began to pioneer its way, its inexperience bolstered by enthusiasm.

One very helpful gesture—an excellent example of effective cooperation—was made by the chairman of the Public Information Division of the State Council. He called together all the heads of the advertising agencies, press and radio giving the Home Committee the opportunity to tell its aims and prospective plans and in return, getting instruction and advice for obtaining the use of their advertising facilities.

When appeals were made for the first Home Safety Campaign, April 8-14, 1945, these agencies knew about it and gave their cooperation. All people saw the need for greater activity in the fight against traffic accidents but many had to be converted to a belief in the need for home accident prevention.

The first project of a Home Safety Division is the formulation of general over-all plans that will answer the *what, how and when* of their activities.

WHAT is the objective? WHAT are they trying to do?

A simple statement of objectives will clarify and direct the group's thinking.

As accidents are caused by unsafe actions or unsafe conditions, efforts must be directed toward elimination of both of these causes.

There should be a program of education which will reach into every home, to promote a safety consciousness in every individual, to create proper attitudes and develop habits and skills and a feeling of responsibility for safeguarding himself and others from potential hazards.

Homes must be made safer by eliminating unsafe conditions in and around the house.

Insure the building of safety into new homes by securing uniform minimum standard building codes for statewide use and more careful inspection of installations and utility equipment.

Then the question of *How, When and Where* to accomplish these objectives arises.

An outline of proposed activities is very helpful. Plan each year. 1. A Home Safety Week, or period of intense activity in connection with a national week if one is established. (One week was found to be a better attention catcher than a month of more moderate activity.)

2. Carry on a continuous program of safety education by a variety of means, e.g., a bulletin or news sheet to be sent to leaders of participating groups, giving local accident facts and program suggestions. By magazine articles, pictorial write-ups, radio dramatizations, window displays, etc.

3. Give emphasis to seasonal hazards, e.g., spring house cleaning, gardening, home drycleaning, etc., summer outdoor activities, mountain climbing, swimming, picnics, Fourth of July, fruit canning, fall fires, back to school problems, Halloween, winter ice, snow, Christmas Holidays.

4. Cooperate with other groups working for the same safety goals, directing efforts to specific needs of the home. Cooperate with, rather than duplicate, Baby

week, Farm week, Fire prevention week, the civic and municipal league safety activities.

5. Encourage accident prevention courses given by Red Cross Safety Service or other qualified instructors.

6. Provide a Home Service Bureau where speakers, literature, posters, check lists, films and exhibits may be obtained when requested.

The general committee may be divided into groups or subcommittees which can be delegated to carry on various phases of the safety activities.

The main committee makes the overall plans for the general activities and coordinates the work of the subcommittees. The subcommittees bring their proposed projects to the general committee meeting to be approved before being put into operation. This procedure insures greater unity of action and avoids duplication of effort, or any inadvisable project which the enthusiasm of inexperience might launch.

The number of subcommittees will depend upon the needs and conditions of the state and its communities. The Utah Home Division has developed the following subcommittees.

In the field of education and publicity:

1. **PRESS AND PUBLICATIONS** committee—to get safety information into metropolitan and country newspapers, magazines, and news sheets of participating groups throughout the state.

2. **RADIO** committee — provide interviews, spots, shorts, dramatizations, talks by specialists.

3. **PROGRAM & BULLETIN** committee—to get out a quarterly bulletin issued with information for club, church and other group programs on seasonal hazards, timely suggestions and the local accident statistics.

These are sent to presidents of State Relief Societies, Catholic Women's Diocese, Jewish Welfare Board, Ministerial Associations, District Federation of Women's Clubs, Parent Teachers Associations, home economics and extension service groups, etc., with an accompanying letter asking them to distribute the bulletin to the leaders of their local units, encouraging them to use the material in some available space in their programs. We are encourag-

ing Women's Clubs to schedule a safety program in their year's calendar of activities.

In the engineering and enforcement field:

4. **HOME BUILDING** committee—(a) To promote the planning and construction of safe houses, and (b) to secure the adoption of uniform codes and a more careful inspection of installations and equipment.

5. **PROMOTION & HOME SERVICE** committee—To develop and procure material for programs, exhibits, films, and demonstrations for specific programs, accident prevention classes, contests and other projects, gathering accident facts. Other committees may be formed as the need arises.

"Home Safety Week" beginning with the governor's proclamation was very successful in our state. A full, front page, carrying pictures of little children in hazardous positions came out Sunday in one of the leading state newspapers. All state papers, including country weeklies, ran stories of the safety campaign. This required ground work preparation many weeks in advance.

Radio stations gave spot announcements, interviews and dramatizations.

Public service periods were taken advantage of. Visiting representatives of the National Safety Council gave talks over many of the stations.

The Home Economics Association, the Extension Division of the United States Department of Agriculture and Utah State Agricultural College, and the Utah State Federation of Farm Women have given radio periods to home safety.

In the State Department of Education—the adult phase of Home Economics Education which puts over Family Life Institutes, about seven each year, is planning (in cooperation with the Safety Council) to put over an Institute on Safety which will cover all phases that affect family living, early next year.

Public safety meetings have been held, one of which was sponsored by the public service department of a daily newspaper. While they were only fairly successful in reaching the rank and file of the community, it brought out the leaders and those most interested in the safety problem. Through these leaders, it is hoped the message will gradually reach all homes.

In Utah, all the churches are very cooperative, especially the Relief Society, Mutual Improvement Association, and Primary Association of the Latter Day Saints which have organizations that reach all age levels in every town and city in the state.

The Relief Society magazine, which serves more than 100,000 members gave space for articles on Home Safety very frequently and the Society permits the bulletins to be sent to their state and ward leaders with recommendations that the safety information be used in some available time in their ward programs.

The Mutual Improvement Association, the young peoples' organization put a course of accident prevention in their special activity field.

The Primary Association, which consists of 110,000 children from four to 12 years of age, publishes a fine children's magazine "The Children's Friend." It has established part of a page each issue for safety education in the form of stories, rebuses or drawings.

The Parent Teachers Association is probably the next largest group, covering most of the state. It has a well-defined safety program and is very cooperative. The home and the school can help each other by working hand in hand. Through the school children, many homes can be reached that would not be touched by other groups. Permission may be obtained for children to carry home safety bulletins, leaflets and check lists. School teachers should be safety conscious in order to instill attitudes of safety into the minds of their students. These students will be the parents of tomorrow.

The home should be the fountain source of safety education. It is the laboratory

where the first habits are formed. It is the parents responsibility to teach and train for safe living. If the three "Cs" of safety, "Caution," "Courtesy" and "Common-sense" dominate the actions of the household the problems of traffic and industrial safety will be greatly decreased.

The Public Health and visiting nurses are valuable mediums for getting safety education into homes that need it.

In the province of securing safer homes, the home planning and construction subcommittee sent out letters of inquiry to the larger cities of the state regarding type of building codes in use. It was learned that there was no uniform state building code although most cities were using the Pacific Coast Building Code. Rural districts were not covered by any regulations. The committee found a need for a more careful examination of plans accompanying applications for permits to build. These would require the services of at least three more qualified inspectors in Salt Lake City. An appointment was made with the Mayor to discuss the problem. The Mayor saw the merit of the committee's requests. He admitted the need for more inspectors and promised to do all in his power to secure the necessary budget appropriations to make this possible.

As we improve the safety of the home, we will improve the integrity of the home. The thoughtful, careful attitudes which produce order, efficiency, and responsibility are basic qualities of true character.

By our efforts we will build not only better homes but a stronger, finer citizenry. Security can not be attained by the work of one individual or one group, it can only be accomplished by the marshalling of all our forces in a great united effort for the safety of our homes and our nation.

School and College Session

MONDAY AFTERNOON SESSION

October 7, 1946

Presiding: W. W. CHARTERS, Dir. of Research Service, Stephens College.

Mobilizing for Safety Education

(A report of the National Conference on Safety Education)

By DR. PAUL V. SANGREN

Pres., Western Michigan College of Education
and Chmn., Nat. Conf. on Safety Education

There is growing today a pattern of co-operation among agencies working for public welfare. Cooperative efforts, it has been found, bring better results. Various agencies working in a specialized field can supplement and complement each other's programs.

An excellent example of the efficacy of this cooperative trend is the National Committee for Traffic Safety. This committee acts as a coordinating agency for organization interested in promoting traffic safety. A voluntary association of national civic, service, business, professional and other groups, the committee was organized in 1943 to serve as a clearinghouse for participating organizations in planning and securing public support for their traffic safety programs. The committee has no action program of its own, nor does it direct the program of its member organizations. Rather, it stimulates their work by providing a medium for exchange of ideas, discussions and forums on traffic safety. Results of the committee's work are already noticeable, with a gradual diminution of overlapping efforts and increasing efforts in previously overlooked areas.

Committees of similar nature have been set up in the fields of home safety and farm safety. Equally encouraging progress has been made.

To discuss the feasibility of setting up such a committee in the field of safety

education, 13 government and private agencies sent representatives to a one-day conference held in New York last January. The purpose of that meeting was to decide whether such a joint committee was needed or would be helpful, and if so, how to go about organizing it and setting up its functions.

The first step in considering such a project was to make a survey of the field. To get a quick, over-all picture of existing programs, representatives of each organization outlined briefly their individual interests and activities.

For the benefit of those who may not be familiar with the work of these 13 organizations, I shall summarize the reports made at that meeting.

The American Automobile Association carries on a vigorous program of traffic safety. In planning this program, two major needs of the individual are considered: The individual needs to adjust himself to traffic conditions; in other words, he needs a better understanding of traffic, its hazards, his rights and responsibilities. And, as a unit of society, the individual needs to understand what organized society is doing to provide safe and efficient highway transportation. Public opinion must support strong, progressive programs. To these ends, the AAA's activities in the school field are concentrated in four areas:

1. Elementary school safety education aids
2. School safety patrols
3. Driver education and training
4. Driver research

The American Association of Health, Physical Education and Recreation has a safety education section made up of persons interested in the health and physical education programs throughout the United States, representing various areas of the school program—elementary, secondary, administrative, etc. This group assists in preparing the safety education section in the health education bulletin, relating directly to those phases of safety involved in the health and physical education program. The group also provides a consulting service for other sections in the Association, relaying information on various aspects of safety in their programs, and developing new ways to promote safety.

The American Association of Teachers Colleges has a standing committee on safety education, which studies and promotes the status of safety education in the 200 or so teacher training schools represented in the Association. A few years ago when the Association undertook the study of safety education in its member schools, it found that too little work was being done in the preparation of teachers but that a good share of the work in safety education was taking place in the public schools and originated from independent sources. This survey called attention to the fact that responsibility rests upon teacher training institutions to make some definite contribution in the way of preparing teachers and making them safety-minded. There is a need for some experimental studies in this field and the Association probably will maintain a standing committee for some time to come.

Individual responsibility is the keynote of the American Red Cross accident prevention program. Its courses of instruction are based upon the daily life experiences of the individual, with a two-fold aim—to enable each person to recognize the accident hazards that confront him, and to help him formulate a plan of action for safe living. The accident prevention service of the Red Cross offers three courses through local chapters and community groups—one in home accident prevention, a farm and home course, and a junior course. In

many schools these courses are integrated into regular school work. Several teachers colleges offer Red Cross instructor courses. The Red Cross also works through volunteer instructors trained by chapters in cooperation with schools and community groups. In addition to the accident prevention courses, the Red Cross has for years had first-aid and water safety programs in the schools and colleges.

The Automotive Safety Foundation is interested especially in street and highway safety. It is not an action organization in itself but limits its work to practical aid, such as financial grants to certain national organizations for specific projects.

New York University's Center for Safety Education has been active for several years in leadership, training, research and field services. Besides the courses offered on the campus and in off-campus centers, the Center staff members instruct and participate in various institutes and workshops held throughout the country. Research is aided by fellowships and scholarships, and usually, although not always, is done in connection with study for advanced degrees. Research is done in all areas of safety—industrial, traffic, driver education, school, etc. Field services, in addition to those mentioned, include assistance to graduates in organizing safety programs, talks by staff members at teachers' conferences, co-operating with state education and motor vehicle departments in providing staff assistance to teacher institutes and consultation service for publications, motion pictures and sound slide-films, etc.

The National Board of Fire Underwriters has been active for more than a quarter of a century in stimulating interest in fire prevention education and fire protection in the schools, its primary objective being to encourage wider interest and broader activity on the part of educators. The Board produced the first textbook in this field in 1918 and has since brought out several texts and other teaching aids. Along with the development of fire prevention education in the schools, the National Board of Fire Underwriters has been a pioneer in improving school building construction standards and getting adequate fire protection.

The National Conservation Bureau is the accident prevention agency of the large capital stock casualty insurance companies.

The Bureau has a vital interest in public safety. It has promoted safety education for many years, principally in the field of high school driver education. Its program is on both a state and a local level and functions through state departments of education, state motor vehicle departments, and state police organizations.

Safety has always been a basic part of the program of the National Congress of Parents and Teachers. That organization has 50 state branches, each with its own safety chairman, and all of these have subdivisions and local associations, most of which also have safety committees. In this way there is established a direct channel to the local community and school district. The Congress cooperates closely with many other groups, such as the National Safety Council, the Red Cross, the Automotive Safety Foundation, etc., and is interested in all phases of safety, especially those fields most closely allied to schools—building safety, safety patrols, transportation and the like.

The National Commission on Safety Education, of the National Education Association, acts as an advisory body, correlating the best and most recent developments in the fields of safety with the latest methods and procedures in education. To schools, it brings specialized knowledge of safety experts and safety organizations in forms available for teaching purposes. To safety specialists it offers aid in planning school safety programs and methods for carrying them out. The Commission has three specific objectives:

1. To interest educators in safety education
2. To offer them guides in conducting their activities
3. To assure cooperative efforts between schools and recognized agencies interested in safety education and training.

All educational levels come within the scope of the program and, to facilitate the functions of the Commission, members have been divided into four standing subcommittees—Elementary Education, Secondary Education, Teacher Education, and College and University Education.

The work of the National Safety Council is largely stimulating, coordinating and cooperative in safety projects. The School

and College division works chiefly in three areas—research, exchange of information and curriculum. Research includes a number of major projects, many of them conducted in cooperation with other organizations and educational institutions. The purpose is to learn more about safety education needs and to develop new materials and approaches for the various subject matter areas. In the field of exchange, there are the division's monthly magazine SAFETY EDUCATION, and several newsletters. Consultation and field service are other important aspects of the Council's work, and include participation in workshops and institutes as well as consultation with local groups on their programs. In the curriculum field, the Council prepares a good many teaching aids and materials, such as lesson units and posters, teachers' manuals, handbooks, etc. The School and College division works in several fields of safety education—elementary, secondary and higher education, school shop, home economics, driver training, school plant standards, pupil transportation, and student safety organizations.

The United States Office of Education has stressed industrial safety through a safety program in school shops and vocational schools. A reorganization of the office recently provided a division of elementary and secondary education having a safety specialist; a division of physical education and athletics having health instruction specialists in both the elementary and secondary fields; and a division of school administration having school transportation specialists and a school housing section. The Office of Education has also a home economics service which stresses home safety.

The Children's Bureau of the United States Department of Labor, although it has done little in the field of safety education, is interested in furthering such a program. It is chiefly concerned, of course, with vocational training and industrial safety, and has done considerable research in occupational hazards.

This discussion of the activities of the participating organizations, the leading ones in the field, showed us that a great deal of fine work is being done, but it also indicated that there were some areas in which work overlapped, while there were others

which had been more or less neglected. It seemed there were great possibilities for united action. Our thought was that if we could become more familiar with each other's work and thus cooperated in presenting a united front in safety education, schools and colleges would be aided and each of use would be stimulated to do better work. Public opinion and public support for safety education would naturally result.

No thought or intent to dictate any program exists. Rather, our goal is to develop a greater understanding each of the other, in order to supplement the work of each agency and present a correlated program of safety education for schools and colleges.

It was brought out that a great deal of research and analysis is necessary before a really comprehensive program can be worked out. A much more detailed survey of the various activities would be required in order to know what areas of safety education need more concentrated effort, in which areas there is needless duplication, and which areas are already receiving attention which, while sufficient, would be more effective if coordinated more intensively.

The levels of safety education activity which it was suggested should be included in the program developed by this conference were many. They included intensified emphasis upon safety in the training of teachers, school administrators, and industrial safety engineers. Driver education and driver training are important, as is the integration of safety into courses in social studies, science, home economics, school shop and physical education. Kindergarten and elementary school safety programs, parent-teacher programs, student safety organization programs and school safety patrols are all fields included in our plan of action. School plant planning, pupil transportation, accident reporting systems and the training of school employees in safety are also major fields of endeavor. Adult education for industry was also discussed at the conference and it was decided that it, too, should probably be included in the future program.

Another major need in the safety education field as a whole is more research into the causes of accidents, how to prevent

accidents, methods of teaching safety, etc. Quite a lot of research has been done in the past, both by teachers working for advanced degrees and by those working independently, but not as much use has been made of such research as should have been. One of the objectives of a joint program should be, we agreed, the encouragement of more research and practical application of the results of such studies.

One question raised during the discussion of whether or not we should continue this committee on a permanent basis was how much duplication there would be between this group and other national committees, such as those on traffic safety, home safety, farm safety, etc. The answer was that this would be the first time a group of this kind had attempted to draw up an over-all program for child safety, concentrating on protecting the life of a child. Furthermore, the continuance of this committee would not commit the various organizations to any new program but would explore what each was already doing, would cement their relationships, and would enable each to expand.

Then there was the question of endorsing each other's programs. Endorsement would not necessarily mean specific obligation to act but would mean approval and support of the over-all program. It was suggested that there might be as many as 70 or 80 organizations which would be interested in whatever we might develop, and that many of them might become active endorsers and supporters of the program.

It was also agreed that before any program was finally accepted or put into action, the classroom teachers would be called upon to share in making final decisions. Inasmuch as the teachers are the persons who, in the long run, will be putting the program into practical use, they should have a voice in formulating it.

This discussion led to the decision that a definite need existed for continuing such a conference. Conferences were agreed upon rather than a permanent committee. It was also agreed that more thorough study be made before establishing a permanent organization and, in the light of the findings, a recommendation of needs be drawn up and be submitted to the formal education group for final action.

It was then decided that the most effective organization would be one large advisory

body committee divided into two smaller working groups, one subcommittee to make a comprehensive analysis of existing activities of represented organizations, the other to develop a tentative program of activities based on findings of the first group.

I was asked to serve as chairman of this advisory committee. The secretary is Wayne P. Hughes, director of the School and College Division of the National Safety Council. Committee members are: W. P.

Loomis of the United States Office of Education; Dr. Herbert J. Stack, director of New York University's Center for Safety Education; Burton W. Marsh, director of the Traffic Engineering and Safety Department of the American Automobile Association; Dr. Irma Gene Nevins, National Director of Accident Prevention for the American Red Cross; and Dr. Robert W. Eaves, secretary of the National Commission on Safety Education of the National Education Association.

Your Division Reports

A Report of the Work of the Headquarters Staff of the School and College Division, National Safety Council

By DR. H. T. HEALD

Pres., Illinois Institute of Technology and Vice-Pres. for Schools and Colleges, N. S. C.

Preventable accidents claim the lives of more children than do pneumonia, diarrhea, enteritis, whooping cough, diphtheria, measles, cerebro-spinal meningitis, scarlet fever and infantile paralysis all combined. Twenty thousand boys and girls between the ages of 1 and 19 died in needless accidents every year. These facts bring into sharp focus the need for a strong and active program of safety education.

The School and College Division of the National Safety Council has as its primary purpose the prevention of accidents through education. There are several channels through which this goal is approached. They are: (1) giving advisory assistance to school systems in the improvement of their safety education programs; (2) developing safety education materials for teachers and pupils; (3) encouraging safety education activities in institutions of higher learning; (4) promoting safety activities among young persons; (5) establishing strong safety committee organizations; (6) encouraging other educational organizations to improve their safety education programs; (7) co-operating with other agencies interested in safety education.

The activities of the Division and the extent of its work are, of course, dependent upon available resources—the cooperation of pupils, teachers, administrators, parents, sponsors of youth groups and other co-operating groups and individuals.

Most immediate resources are the staff of the School and College Division and the staffs of the other program divisions of the Council: Farm, Home, Traffic and Transportation, Industrial, Statistical, Public Information and Film Service Bureau. The staff of the School and College Division includes an elementary consultant, a secondary consultant, a home economics consultant, an industrial education consultant, a specialist in school plants, school transportation and accident reporting, and a school publications consultant.

Also to be counted as resources are the committee organizations we have set up—the National Elementary School Safety committee, the National Secondary School Safety committee, the National Higher Education Safety committee, the National Driver Education and Training committee, the Safety Education Supervisors' section, the committees on School Plant Planning, Pupil Transportation and Accident Report Revisions, and the Vice-President's Advisory committee.

In line with its objectives, the School and College Division has quite a broad and varied program. It works with schools and professional education groups in three areas: research; consultation and exchange of information; and curriculum and preparation of materials.

If safety education is to be most effective, much research is needed to determine

the "what, why, when, where and how" of accidents, the best means of eliminating accident causes, and the most effective ways of disseminating information concerning accident prevention. To this end, research now being carried on by the Division includes several projects of major proportions.

One such project is that being conducted with the American Association of Teachers Colleges on the problems of teaching safety in teacher training institutions. The first step was to find out what was being done in the field, and that step has been completed and reported in the Association's year book. The next phase of the project is a series of spot studies in which different techniques of teaching safety can be tried out and the results passed on to other institutions.

Another interesting and valuable project is being carried on with the four state teachers colleges of Michigan—a study to determine whether or not teacher education for safety can be improved by increasing the quality and quantity of safety education in campus and demonstration schools. The hope is that every teacher who attends a Michigan teachers college will have an opportunity of viewing and participating in an excellent program of safety education.

With Southern College we are doing some research and experimental work in developing safety education materials and methods for the liberal arts college level, a field previously rather neglected. This project includes a study of plant safety, student behavior, and safety information in the content of certain courses.

Four leading engineering colleges—Georgia School of Technology, the Engineering College of the University of California, the College of Engineering of New York University, and Illinois Institute of Technology—were selected this year by the National Safety Council to develop a program for the training of industrial safety engineers. These colleges are cooperating with the School and College and Industrial Divisions of the Council in carrying out the project.

The School and College Division cooperates with the United States Office of Education on many projects from time to time. A recent one, for example, was a study conducted in several states on pupil transportation. The Division works, too,

with the Home Economics Educational Service in providing home economics supervisors and teachers with new materials and programs on home safety for homemaking courses. Likewise, the Division works in a similar manner with the Division of Trade and Industrial Services.

Another cooperative project, now in its third year, is the joint safety committee of the National Safety Council and the American Vocational Association. This committee is divided into a number of subcommittees working on such problems as farm shop safety, teaching home safety, accident reporting, safety for the physically handicapped, safety in industrial arts shops, etc.

The Division cooperates, too, with the safety committee of the American Home Economics Association in establishing safety committees in the state home economics associations and developing suggested safety programs for their use. We also work with their junior group, the Future Homemakers of America clubs.

Another undertaking, new this year, is the Conference of Organizations for Safety Education, in which the School and College Division is participating and which was reported on by Dr. Sangren this afternoon. This conference, it is hoped, will lead to a greater understanding and cooperation among the many organizations which sponsor safety education programs.

Participation in the President's Highway Safety Conference was an important part of the Division's program this year. Tomorrow afternoon's general session will be devoted to discussion of that conference and its significance.

The work of the Division's committees falls into all three of the areas I mentioned—research, exchange of information, and curriculum. The committees work with the Division's staff on experiments and research, they test new materials and evaluate publications, and make many valuable contributions to the program. The National Elementary School Safety committee is typical of the others. Membership on the elementary committee is open to any elementary teacher in the United States who has anything to do with teaching safety. There are at present more than 900 members of the group. A five-year plan for its Executive committee has been

drawn up with the objective of developing a group of persons skilled in safety education at the elementary level. This group will serve—as a matter of fact, already is serving—to extend the scope and influence of the staff consultants.

Some of the projects of this committee are a publication dealing with student safety organizations which was completed in the fall of 1945, and an experimental manual for elementary teachers which is being tried out during this school year and will be published in the fall of 1947. Another very interesting project is the intergroup series being featured in one of the elementary newsletters. In this series an attempt is made to interest children in their own safety by contrasting, as well as pointing out similarities of, accident problems of children in other communities. This helps promote an understanding between peoples by demonstrating that the same problems exist throughout the world.

The committee also serves as a consulting body to the staff in the matter of publications. For example, one subcommittee evaluated SAFETY EDUCATION magazine. Two other subcommittees joined together to recommend subjects for and supply material for lesson units and posters.

The Higher Education Safety committee is an outgrowth of the former Committee on Teacher Education for Safety. Although it is gradually extending its scope of interest to other areas, such as liberal arts and junior colleges, its main interest is still teacher education. The committee's chief project this year was the annual compilation of safety education courses offered teachers. Records showed that 35 colleges in 20 states offered summer session courses in safety.

The Driver Education and Training committee was formed two years ago for the purpose of affording opportunity through research and other means to procure, discuss and exchange information on the problems of driver education and training in the schools. Subcommittees have been studying specific problems which will be reported at the committee's session.

There are also committees working in the fields of secondary education, school plant planning, pupil transportation and accident reporting.

The Safety Education Supervisors' section of the Division is the first School and

College group to be admitted to section status by the Executive Committee of the National Safety Council. It is made up of persons who, by virtue of their employment, are immediately responsible for directing or supervising the safety education programs of city or state departments of education. At the time that this rapidly-growing section was admitted in December, 1945, the safety education program planned by the group affected 30 to 40 per cent of all school children in the United States.

On the Vice-President's Advisory committee are persons well known in the fields of education and safety. This committee acts as an advisory and consulting body for the Division. It evaluates the Division program, when called upon to do so, and makes suggestions for changes or improvements in the work of the Division.

Consultation, an important part of the Division's work, is supplied without charge to state departments of education, local school systems, colleges, teachers, pupils and local safety councils. Counseling is conducted both by correspondence and by visitation with staff members, and many more requests for such services are received than can be filled.

Consultation concerning a general safety education program includes work in the safety education curriculum, student safety activities and administrative aspects.

Staff members also do considerable work of an advisory nature in the several specialized areas. School shop safety consultation has been made available to all 48 states in the last few years, and several states now have committees working on accident reporting, inspection and shop safety curriculum. Most of the states have been provided with consultation in home economics. They are all being encouraged to include more home safety in home economics courses and to develop home safety education programs. Staff members also take part in institutes to train driver training instructors and school bus driver supervisors, and in in-service curriculum workshops in which safety courses are developed and integrated with regular courses.

Consultation also includes the grading of the school section of entries in the National Safety Council's Traffic Safety contest and the making of recommendations based on these gradings to any city or state requesting such advice.

Another type of consultation is the advice recently requested by film producers regarding the kinds of films needed for school safety programs.

Guidance and assistance in developing safety programs is also given such organizations as college chapters of the American Society of Safety Engineers, Boys' Clubs of America, Girl Scouts, Camp Fire Girls and junior home economics clubs. The manual, "Safety in the Boys' Clubs Shops," published last spring, was the result of the Division's cooperation and consultation with the Boys' Clubs.

Materials published by the school and college division are developed with the help of the various committees in the field, and prior to publication are tested in member schools or submitted to the committees for evaluation. These materials are provided to schools free or at cost.

SAFETY EDUCATION, the only education periodical devoted entirely to safety, contains articles of general interest, lesson units, posters and various special features. It is published monthly during the school year for school teachers and administrators, and has a circulation of about 10,000.

Lesson units for four grade levels (lower elementary, 1st to 3rd, upper elementary, 4th to 6th, junior high, 7th to 9th, and senior high, 9th to 12th) are published each month during the school year and present various phases of the safety education program. The activities outlined in them are designed to be integrated in the regular subject matter courses of the curriculum. Posters prepared to accompany the lesson units are also issued each month for both elementary and secondary schools. Circulation of the lesson units averages 107,000 a month, and of the posters, 64,000.

The Division also has prepared a number of teachers' manuals which deal with special phases of safety education—the elementary school, the secondary school, school shops, physical education and recreation, home economics, the rural schools, student safety organizations, etc. Two of these publications, *Much to Do About Safety* and *Student Safety Activities*, were listed by the National Education Association and the U. S. Office of Education among the best educational books of 1945. *Much to Do About Safety* was prepared for elementary school teachers and deals with elementary school

student safety organizations, while *Student Safety Activities* is a handbook for secondary school student safety organizations.

Safety Education Menos covering many phases of the safety program are available, and are compilations of information designed to answer the questions most frequently asked concerning safety education. Many other pamphlets and reprints on various aspects of safety education are also published.

Seven newsletters are issued periodically for the schools. Intended to be mediums of exchange for ideas on safety programs, these are: Safety Exchange, for higher education teachers; Safety Beacon, for elementary teachers; Safety Sentinel, for elementary pupils; Safety Scope, for secondary teachers; Student Safety Organization News, for secondary students; School Shop Safety, for the school shops; and Safety Highlights, for home economics supervisors and teachers.

Other publications include significant studies conducted by the School and College Division and by other groups in the field, as well as research reports of other divisions in the Council, including information on traffic and industrial safety.

Visual aids are also produced by the Council. These motion pictures and film strips cover many phases of safety—traffic, home, fire, etc. Right now the School and College Division has undertaken a new and unusual project. In cooperation with *Coronet* magazine, the Division is producing a series of eight slidefilms based on the lesson units which appear each month in *SAFETY EDUCATION* magazine. The series will cover fire safety, community recreation problems, traffic safety, safe practices in laboratory work, small machine tool safety, home safety and bicycle and pedestrian safety.

The school subscription plan is designed to give schools and colleges the benefits of all features of the program at the lowest cost to the schools. Through the option plan, put into effect last year, subscribing schools can get the materials and advice best suited to their particular needs. Schools may get, in addition to the basic unit, as many special options as they wish at a small additional cost.

Subscription service consists of the Basic Unit and one Optional Service, the cost of which is \$10; additional Optional Services

are \$5 each. The Basic Unit gives a school the full advantages of participation in the National Safety Council, including voting rights within the sections selected, and participation in all sectional affairs. It also entitles the school to purchase at subscription prices any National Safety Council materials.

The Basic Unit provides material of a general nature, and the various options provide more specialized material. The optional services are Elementary, Secondary, Home Economics, Industrial Arts, Driver Training and Administrative. There are also specialized subscriptions complete in themselves, for the school library, school

shop, the engineering college and the teachers college.

One popular feature of the subscription service is the annual Honor Roll award to subscribing schools for exceptional effort in the field of safety education. This year 59 schools won recognition and were listed on the Honor Roll, 14 of them for the second successive year.

Subscriptions of the School and College Division increased 35 per cent this year over last year's total. This substantial increase indicates a tremendous growth of interest in safety education and the acceptance of it in the curriculum of the nation's schools.

Standard Student Accident Reporting System

(Committee Report)

By ZENAS R. CLARK

Chairman, Administrative Assistant, Wilmington (Del.) Public Schools

The committee is not present today to furnish a finished report. It does not yet know enough to do this and is in need of further reaction and advice. Copies of a proposed form, devised by the National Safety Council staff after consultation with the members of the Committee, are available and will be distributed. The committee wants to present them in terms of a general statement and then get advice and comment.

The problem of the committee is to revise and develop an accident reporting system which will be used and which will supply data for control groups. In developing any such type of program, one must remember that the program is based upon voluntary participation. Hence it is necessary that the plan be one which will secure all essential data without becoming too much of a burden.

Before going into the details, let's review accident reporting in terms of the whole safety instructional project. As I see it, the major objective is to sensitize children and adults to potential accident hazards and to develop in them a pattern for recognizing inherent possibilities. A person cannot be alert unless he knows about what he is to be alert.

In such a program, accident reporting and analysis has a proper place and responsibility. It provides the data for planning the comprehensive program of safety

instruction and the data for checking some of the effects of the program. It further provides data for selection of specific emphases at designated time.

If this thesis is acceptable, let us examine the needs of accident reports in terms of several potential uses:

(A) Classroom teachers need information to help them meet these specific needs and problems of the children in their groups. They also need information for direction of special emphases and problems unique to the individual situation. It is granted that classroom teachers have many duties and that many of them will not study in detail the trends shown in the reports. However, if the right type of report is developed, it is expected that the percentage of teachers giving thoughtful study will increase.

(B) The safety specialist needs an over-all picture of the types of accidents in the school system as a whole. By studying cumulative records and past performances, trends can be developed and the necessary corrective measures initiated. Again it is granted that many places do not have a safety specialist. Here summaries are of particular value to the school administrator who must assume what he can of the duties.

(C) Local officials cooperate with the schools carrying out safety programs,

and need factual data to help them in their activities. Police, fire, and local safety councils are demanding organized (factual) data as a basis of their cooperation.

(D) The National Safety Council needs data from all over the school system. Without these data, which are the foundation and the basis of their work, they cannot do the effective job which they are capable of doing.

This being the case, the problem of the accident report system becomes one of specifics. The copies of the proposed form are

in your hands. The committee realizes that many want more time in which to mature their judgment. However, there are some of the special problems which should be thought about in the use of this and many other forms:

1. What are the essential data necessary to a complete report?
2. How can these data best be secured?
3. What types of form will secure more voluntary participants?

These are the problems on which the committee needs help. They urge you to speak freely and without reserve.

TUESDAY MORNING SESSION

October 8, 1946

Group Meeting on Higher Education

Presiding: PAUL V. SANGREN, Pres., Western Michigan College of Education; Pres., American Assn. of Teachers' Colleges; and Chm., National Committee on Higher Education, N.S.C.

Improving Teacher Education for Safety

By PAUL V. SANGREN

Pres., Western Michigan College of Education

The American Association of Teachers Colleges some years ago, began studying the status of teacher education so far as it relates to safety. This program was carried through in cooperation with the National Safety Council. We have a fairly good record from the colleges of the United States showing what is being done at the present time in training teachers in the field of safety.

Our findings indicate that too little is being done. On the whole, up until a few years ago, colleges engaged in the preparation of teachers were neglecting to train the people who were responsible for conducting the safety program.

Following this study, two things have taken place. In the first place, it is apparent, at the present time, that that study stimulated the interest of large numbers of teacher training institutions in the United States. Recent correspondence with many presidents of teachers colleges in the United States indicates clearly that many of them have initiated some types of teacher education programs in safety since that study was made.

We are not sure just how far this has gone along, because we have only an informal report. But on this point we are clear, as of today many more teacher training institutions are engaged in some type of program for preparing teachers in safety than was true when this study began a few years ago.

We expect to continue this program in the following fashion. We are hoping, at an early time with proper financial support, to carry on some experimental studies—spot studies—in a few teacher training institutions in the United States. We can then have some model or demonstration of the possible and most effective ways of training teachers in safety in our colleges of education.

Up to the present time, we have not been able to find the proper finances for carrying the program through, because we believe it will cost us several thousand dollars and the survey should run over a period of two, three or four years. But we are still working on the scheme and look forward, in the very near future, to having the proper financial support to en-

able us to carry forward an experimental spot study program which will show us the results of carefully conducted studies in the field of safety education for teachers.

The American Association of Teachers Colleges not only has had a standing committee which has been engaged in this joint co-operative project with the National Safety Council, but it also has had a representative, in fact a chairman, on the National Commission for Safety Education for teachers of the National Educational Association.

The National Education Association, through this National Commission, and as a result of its work in co-operation with the American Association of Teachers Colleges, has produced two outstanding volumes relating to the field of safety education.

One is just recently off the press and is entitled "Safety Education for Teachers, Part One, a Guide for Administrators and Teachers in Colleges and Schools of Education." This volume is intended as the initial effort to summarize the philosophy and background which would guide administrators in colleges of education and teachers colleges so that they may initiate and properly orient programs for the preparation of teachers in safety.

A second volume is in preparation and will be in print soon. Part Two of Safety Education for Teachers is entitled "A Guide for College Instructors of Safety Education." This second volume is intended to be an illustrative guide for the application of safety education in teacher training institutions in the instructional program and is particularly adapted to an integration program in connection with the various subjects and courses taught in teacher training institutions.

Now let us devote a part of our attention to a project which has been going on in the State of Michigan for a little better than a year, which has to do with a definite effort to improve safety instruction in the Michigan training school.

Two or three years ago, the State Committee on Safety Education for the State of Michigan made a recommendation to the Council of Teachers Colleges Presidents of the State of Michigan to this effect: "We wish the colleges of education in the State of Michigan would co-operate in a sincere effort to put in operation in all the teacher training institutions a definite program for the training of teachers in safety; we wish that they would co-operate to the extent of resolving upon some united action which would involve co-operative effort on the part of the staffs of these institutions."

At that point the matter came to the attention of the Council of Teachers Colleges Presidents and the Council of Teachers Colleges Presidents of the State of Michigan decided that the place of beginning was in the demonstration or training schools.

We felt that if we can have practical programs of safety education in the schools in which our teachers are trained, we can expose those teachers to good practice in safety education. With this thought in mind, we invited representatives from the National Safety Council, who spent several days with our people working with the teachers colleges and particularly working with the training schools. The result was that either the existing programs in these teacher training institutions and training schools were improved or they found new stimulation and development, and new programs were initiated where none existed before.

Improving Safety Instruction in the Michigan Training School

(Lecture and Discussion)

Discussion Leader: PAUL V. SANGREN, Pres., Western Michigan College of Education.

Participants:

MAYNE McCARTER, Teacher, Campus School, Northern Michigan College of Education.
Dr. ROY C. BRYAN, Principal, Campus

High School, Western Michigan College of Education.
EDNA M. HILLMANN, Teacher, Elementary Campus School, Central Michigan College of Education.

THE CHAIRMAN: For what specific hazards do you teach protective measures that are limited to your school or your region?

MISS McCARTER: Just two weeks ago this morning, when our college classes in the Campus School assembled for work, a little child from the kindergarten, who had not been on our campus before, passed by the windows of the shop room. The little child was so thrilled with seeing so many people in this room that she became very excited. In fact, she became so excited she cried out in alarm. The faculty member went out and visited her. He was thinking of three months hence when, at that particular window, there probably would be one of our greatest hazards—icicles. If you can imagine the location of our city up on Lake Superior, that would not seem at all improbable. The only casualty in our city of Marquette last year, among children, was that of a child killed by an icicle dropping from the roof.

Within an hour after this had been referred to our office, this icicle problem was referred to our student council organizations. We have one at both secondary and elementary level.

Another of our winter hazards is skating. At about the seven-year-old level, in our school, children usually ask for skates, and so we have to train them or help to train them to meet the difficulties and to help them see the dangers of ice-skating.

The man who handled the driver education course in our high school last year, told me the greatest hazard emphasized in teaching that course is in the preparation for winter driving.

Right across from our Campus School, there is a parochial school. Our street is very narrow. Children dodge in and out from behind parked cars and it creates a bad situation, because drivers are bringing their children to both schools. The bus, which brings a great many of our children, stops at the same corner. That is another one of our hazards.

Our buildings have been arranged so that when a student enters our building in the morning, he has college classes and comes to the training school. He does not have to leave the building at all. Our buildings are connected with corridors, presenting an additional fire hazard.

Now that our enrollment has increased, we are having to do quite a little bit of co-operative thinking and acting together to see that children leave the school safely. Our steps are not built for children. Our physical plant was built for adults.

We happen to be located in an area where tourists are numerous in the summertime. One of the fifth graders discovered last year that we had a profusion of ragweed getting started. It is supposed to be a place where people come to get away from hay fever. This group of children went before a group of the Chamber of Commerce people to try to get them to see the need of the community.

CHAIRMAN SANGREN: Can the other panel members add a sentence or two to illustrate further this matter of adjusting the safety education program to the situation which exists in a particular school?

MISS HEILBRONN: My school is in a very small town and our college is at the very edge of the town. We don't have city traffic but we do have the rush of traffic that often occurs at the edge of a city, and we have absolutely no police protection. That means our school is responsible for traffic problems.

Many of our children are from rural areas, so we have problems of riding on buses, getting on buses, getting off buses, crossing the road, taking care of yourself inside the bus, etc.

We also have such problems as walking on the right side of a rural road, use of farm equipment and protection from accidents when at work on the farm.

We have no city fire protection. Our fire force is a volunteer force and that means that we have to do a great deal of safety education in fire protection matters.

DR. BRYAN: Our student body uses the classrooms on the college campus. They go to the college science building for their science classes, the college art building for their art classes and so on. That takes them all over the campus. There is a highway running right through the center of the campus, so naturally we have a problem every hour of the day. These young people are crossing a busy highway every time they go on the campus.

MR. HARDAN (Safety Director of Army Air Forces, Wright Field): They have been talking about hazards. The ques-

tion is, how do they teach the protective method? Eighty-eight per cent of accidents are caused by an unsafe act.

CHAIRMAN SANGREN: I think that will probably come a little later. This question, as I gather it, is simply to raise and open up what the hazards are. I think a little later we will attempt to answer this question, "what are you doing about it?" Let's go on to question number two: "What techniques did you use to discover the out-of-school activities involving hazards in which your pupils engage?"

DR. BRYAN: Our teachers have used ACCIDENT FACTS and other sources of information on the assumption that hazards children face out of school are similar throughout the country. Of course, we combine this with the knowledge that we happen to have of our local situation.

In a committee meeting at the end of the last school year, some of the teachers insisted we weren't going far enough. We can't be sure that there are not other out-of-school hazards that should be taken into consideration. The committee decided to use standard accident reports for the next several years to see what we would uncover. The advisers will keep that record because all persons returning to school after being absent for any length of time must come through the adviser's office.

MISS HEILBRONN: We tried to do one thing, but we haven't carried it on year by year, and that was to make a study of some of the activities in which children participate regularly out of school. If they belong to Boy Scout troops, when do those troops meet, where do they meet, how do they get there, does the trip take boys out on the street at night on their bikes, and so on. Then, of course, in our parents' council we have done a good deal of investigating particularly into what work boys do on the farms that require the use of hazardous tools.

I think this has helped us keep track of the hazardous activities that children are carrying on, and this has helped us to work out some of our problems.

MISS McCARTER: We have taught through surveys—the children make surveys of the hazards in the building and the community. I think that we need to pay attention to the children's self-expression. That

is a grand technique for finding out what the hazards are and where they are. This can be done through field trips and excursions.

MISS MARY MAY WYMAN (Louisville): Will you explain what you meant by self-expression.

MISS McCARTER: In one of our art classes one day, we had a little first grader who drew a picture of himself with his sled tied to the snowplow. Our student teacher was alert, and used that as a bulletin board lesson. It seems to me that was a good technique for finding out what was going on in the minds of each. That child, undoubtedly, had done just that at some time or other. The teacher took the children, following that, to find out the working of a snowplow in action.

MR. JAMES MANN (Winnetka): May I tell you a snow-plow story? The village was plowing sidewalks just across the street from the building. The kindergarten had just been dismissed and I looked out to see four or five children following the snowplow; they were right abreast of it, near the big blade.

We got the driver to stop and we took the children back to the kindergarten. We sat down with them and talked it over very carefully and got them calmed down and ready to go home. The teacher talked to them at considerable length before they went home and she thought she had them properly impressed. As they went home, she asked them one by one what they were going to remember. One little girl said very solemnly, "We are always going to remember not to get in front of a snowplow because we might get in the wheels and stop it."

MISS HEILBRONN: We have discovered, in this matter of ice and snow hazards, that it is well to do some definite parental education, as well as child education. We have found that parents take the children out for a Sunday afternoon joy ride, and allow the children to hitch their sleds onto the back of the family car. How are you going to develop safe habits in children if parents do such things?

CHAIRMAN SANGREN: The next question is: "How did you determine in which level specific items of safety should be taught?"

MISS HEILBRONN: We don't have any hard and fast rule as to where anything should be taught because, in safety education, we feel that the time to teach it is when the need arises. When we discover that certain projects are arising, we teach the safe way, to do them. For example, during the war we had to teach at an earlier age the safe use of tools and equipment, because many children were helping in homes and on farms with hazardous activities that they didn't engage in before. That was our chance to teach safety at an earlier grade level. A lot of our teaching is incidental. It has to be.

DR. BRYAN: Most of the safety teaching is done in conjunction with the activities of the classroom and the extracurricular activities.

For example, in home economics, the matter of home safety and the proper use of sewing machines, irons, cleaning fluids, and so forth—are brought in as they come up. However, our Committee on Safety Education, in evaluating what is being done and what should be done, decided that there are certain elements of safety that are not being taught by integration and a certain period is set aside in which elements of safety, that are not taught elsewhere, are emphasized.

Of course, that raises the problem of selecting the items that will be taught. In the opinion of the committee, it was deemed wise to start with, to select certain accident facts and information, and then allow the class members to express their opinions on the particular problems they feel they are most interested in. The class often raises additional problems not already listed.

MISS McCARTER: We have not yet reached that stage of development. We have tried to go through our orientation period of developing a safety program. I feel that this is one that must be worked out with a common philosophy. Thus far ours has been determined more by the individual teacher in conjunction with her other phases of work, as needs and experiences arise.

MR. CLARK (Wilmington, Delaware): I would like to ask the group if, in their planning, they think of a comprehensive over-all safety program for children in the elementary school, or whether the plan is

haphazard, taking form as the moment arises?

DR. BRYAN: In our particular situation, we have a committee that includes representatives from the elementary school program and they, of course, work out their own program.

MR. HARDAN: In that program, is safety teaching combined with other classes?

DR. BRYAN: It is a part of the regular class-room work. All our teaching is integrated with other work.

CAPT. BRACKETT (Grand Rapids Police Department): We have a particular problem in Grand Rapids, now, with scooter bikes and motor bikes. What would the panel suggest to solve the problem?

A lot of the drivers of these vehicles aren't 14 years old and, in Michigan, drivers have to be 14 to get a motor vehicle operator's license. What is the solution to our problem?

DR. BRYAN: A friend of mine recently was hit by one of those new scooter motorcycles. He suffered a broken nose. He had to go around with it all bandaged up, and the only sympathy he got from his friends were remarks like this: "Watch out for baby buggies in the future!"

MEMBER: Are not those classified as motor vehicles?

CAPT. BRACKETT: Sure they are, but a lot of kids are riding them.

MISS WYMAN: Doesn't that become an enforcement problem?

MISS WEEDON: It is illegal to drive a motor scooter in practically every state without a driver's license. So it is up to your police departments to enforce the law. Of course, the police are always hesitant about arresting a minor and we sympathize with the police on that score, but, speaking for myself and not for the National Safety Council, I think the police should get tough.

CHAIRMAN SANGREN: Question number four is "What safety responsibilities are delegated to the boys and girls in the school?"

DR. BRYAN: In our school situation, there are certain things that the student council has been doing for some time. These activities were largely initiated by the student council. It has administered safety

activities and has been carrying them on for a long time.

For one thing, an assembly committee plans all assemblies in co-operation with the assembly director, a faculty member, and recently three safety assemblies a year have been scheduled.

One assembly last year was an original play that had been written in one of the English classes. It was a satire. I forget the title but it was something like "Quick Way to Destruction." A group of toughies devised ways for quickly ridding the community of its entire population. Of course, in so doing, they got into many angles of safety in the negative sense.

Another thing the student council has long had is a monitor system; in addition to managing all study halls, their duties have long consisted of planning traffic and keeping the building clean. The council appointed a citizenship committee, each homeroom being represented on that committee. The group meets regularly twice a month, sometimes four times a month, and its responsibility is largely checking and discussing citizenship problems. Of course, safety is a big part of citizenship. Then the citizenship committee reports back to the student council.

The student council puts up safety posters in the halls from time to time during the year. Every member is constantly on the outlook for hazards.

For example, if the grounds men do not get the ice off the stairs as promptly as they should, we hear about it in the office. I recall the student council recommended that we put a roof over a stairway recently erected in the building, because water dripped down in the winter and froze on the steps making them slippery.

The council asked us to reinforce a banister which the students lean on, at the top of the stairway, and the council has taken quite an interest in school lighting. Two or three years ago the council got a light meter and checked all the rooms in school, after which it recommended that a new lighting system be installed in the study hall. Of course, with all the facts and figures presented to us, we had to put in a new lighting system.

Last year, another check was made and we had to increase the light in two of the

classrooms. I think this illustrates some of the things that can be done.

MISS HEILBRONN: Our school is an elementary school, and we have a safety patrol. We also use bus patrols, because so many of our children travel by bus. In addition, our student council appoints a committee which has to do with safety within the building. These children inspect, from time to time, and make recommendations for correcting hazards.

We also have a committee that works on playground hazards. It is very alert in reporting not only physical hazards in equipment but human hazards, such as children bringing the wrong type of playthings to school.

MISS McCARTER: One of our problems is our safety patrol which has to be planned with the safety patrol of the school across the street from us. This takes a great deal of co-operation and planning on the part of the children. We work together, and, I think, it is rather interesting that we can do that.

MR. CAHOON (Flint, Michigan): I am in charge of the safety patrols in the city of Flint. We are quite an industrial town and we seem to be having a problem in attracting the proper sort of students to the safety patrol work. The students who seem to be the smart students in the school have after-school jobs and they believe, for some reason or other, that safety patrol work is a little degrading.

It appears that we completely stock our safety patrol workers from the elementary schools. The junior high schools and the high schools pay no attention at all to these safety efforts. In addition, the older students make trouble for the elementary school patrols, kidding a lot of the boys out of wanting to be on the job.

I would like to ask if anyone is running into the same problem. What might we do to encourage the proper sort of boys to be on the safety patrol? In many of our schools, the low scholastic record boys, who would like to be leaders but just aren't, take over the safety patrol work. The boys who are the natural leaders are not attracted to the patrol.

MISS McCARTER: How are your patrols selected?

MR. CAHOON: By the schools. Each

school selects the patrol members from the sixth grade, the homeroom teacher or the principal doing the selecting.

MISS McCARTER: Do the children have any part in the selection?

MR. CAHOON: The children volunteer their efforts. Out of a room of about fifty, about 14 or 15 boys volunteer for service on the safety patrol. The patrol only requires seven or eight members, so the teacher picks out the ones she feels are best qualified. Usually teen-age boys don't volunteer because there is no remuneration for the work and our children are interested in getting paid for anything they do.

MISS McCARTER: Our children have a part in choosing their patrol.

MR. CAHOON: The whole classroom chooses?

MISS McCARTER: Yes.

DR. BRYAN: The problem there is similar to the one I have experienced a number of times in connection with our monitor plan. As I mentioned, our monitors manage all of their study halls and do hall patrol work and so forth. I have seen situations where, when that plan was first initiated, none of the students were particularly interested and the job didn't have any prestige. We felt we had to build up prestige. In co-operation with the students we took every opportunity possible to build up the prestige of that work.

For one thing, we aimed to point out that an appointment of that kind was one of distinction. That is, the person appointed to the post had certain outstanding qualifications; he got his job by virtue of those qualifications. Then, we did a number of other things. We gave appointees a prominent part in our honor assemblies; we issued certificates to them and had a regular installation ceremony.

I think one thing that helped, as much as anything else, was the dinner we gave them once a year. At that dinner, the student council honored the monitors and reviewed the services they rendered the school. We generally try to have at least one distinguished person in to meet with them at that dinner and give a brief talk. By this method of building up prestige, we have achieved good results. It has come to the point where, instead of 20 per cent being willing to do the work, as was the case in

the very beginning, about 95 per cent are glad to serve. The only refusals we get now are from individuals that just can't do it because of schedule conflicts or something of that kind.

It is one of the honors that the younger kids in school look forward to attaining when they are a little older. So, I think, your main job is building up prestige.

CHAIRMAN SANGREN: Our fifth question is: "What activities have been undertaken to secure parental co-operation in safety instruction?"

MISS HEILBRONN: In our school we have had this problem arise and we have handled it through committees that have worked with our Parent-Teacher association. We have a very active P-TA and whenever we have a problem arise, we have a committee work with the parents through the association.

MISS McCARTER: We have done that too with parents' groups, but our system is to report to parents through interviews and conferences. We feel this is one of the methods that has been most successful with us. Each teacher has at least two conferences with the parents during the school year.

CHAIRMAN SANGREN: Our sixth question is: "What problems have involved community co-operation for safety?"

DR. BRYAN: The representative of our college staff is on our city safety council and the work involves co-operative efforts in one way or another. For instance, we had a problem at Halloween, when much damage was done by mobs of kids running through the streets and so forth. It was a very bad situation. This degeneration occurred gradually over a period of time. Finally the entire community was worried about it. A couple of the teachers on our staff, in co-operation with members of the safety recreation committee, got the idea that maybe we could turn Halloween night into a constructive program of activities.

They talked it over, called in representatives of all other groups in town—school groups, and civic groups—and out of that developed a program. On Halloween night, there now is a program in every district in town.

The junior high schools all had programs planned, largely by the students with the

help of adults. At the city armory, the Junior Chamber of Commerce had a big program to attract some of the older students. It was surprising, the result we got. There was a negligible amount of damage done. The kids were all so busy that night that they didn't have a chance to roam the streets. It was such a grand success that, of course, it will become an annual feature of our community.

MISS HEILBRONN: In our community, we have a director of recreation that functions all the year round, after school, Saturdays, during vacation time, and so forth. That director is a parent, a mother, who is a trained person, incidentally.

We also have a community council that was really started by a junior and senior high school group of boys and girls who wanted a safe place to go evenings and Saturdays. The ministerial association, the school system, the college, and parents and the children themselves got together and organized a council and established a youth center. They put on a campaign and earned the money to run the center and pay a director. This has done a lot toward taking our children out of hazardous places and giving them a safe place to go.

CHAIRMAN SANGREN: Our next question is: "What contributions have pre-service teachers made to the improvement of safety education in the campus school?"

MISS McCARTER: While we have had no direct course in the college for training in safety education, we do feel that our pre-service teachers in the training school have performed quite successfully. One of our best units on safety last year was carried on in the high school by the English department as a result of the course in driving offered. The unit developed incidentally and was handled by a student teacher.

One of the finest activities I have seen was carried out by a student teacher at Christmas. The student teachers I had were the ones in the home economic department. In planning decorations and food and all for the Christmas party, they took into consideration all their safety work. We have no course planned for training in that line. It is just as we function with the individual teacher and the teacher, in turn, with the children.

DR. BRYAN: I think we do pretty much the same in our school. These student teachers participate in all the activities of the school. Wherever safety activities are involved, they have to help carry them out; when they practice teaching in home economics, for example, they have to help plan the safety aspects of the work.

I might give one illustration in the extra-curricular field. We have a hunters' club that is sponsored by a student teacher each semester under the sponsorship of a staff member. Last year, that student teacher and the youngsters on their program committee planned several programs that could be classified as safety programs. They had a film on safety and the safe use of firearms. That is one of our local problems.

They had the game officer in our district in to answer objections and questions, and he placed emphasis on safety. One of the boys in the group happened to be the son of a man whose hobby was guns. He collects guns, rifles and pistols. As he put on his program, of course, he emphasized the safety angle. In addition, during the early hunting season, the club was given the opportunity during an assembly, to give advice on the safe use of firearms. So, indirectly, the student teachers have a chance to make their contributions.

CHAIRMAN SANGREN: Our last panel question is: "What has been the most significant development as a result of your year's work?"

MISS McCARTER: I think that our outstanding development has been the several needs we have met. First, we have worked out a common, consistent co-operative philosophy of safety education. Then we have done something about the pre-service and in-service training of teachers. And, lastly, we have delegated responsibility. That, of course, will work itself out as we work out a common co-operative philosophy, but we hope that, with our training of pre-service teachers, we will be able to work out some type of training before they do their practice teaching.

MISS HEILBRONN: I think probably our most significant development has been a change in attitude. We now feel that regulations devised by the children themselves, which have evolved out of a need, rather than disciplinary action, are much more satisfactory. Instead of doing things

certain ways in the building, on the stairways and on the playground, because these are hard and fast rules and regulations set up by the administration, these activities are governed by rules devised by the children because they see such safe actions are necessary for safe living. The change in attitude is probably one of the most significant things that has come out of the program.

DR. BRYAN: Prior to last year, our safety program was largely a matter of the individual teacher's judgment and the individual teacher's planning. As a result of committee work, everyone has become more safety conscious.

We realize we haven't done any more than get a start in this field and, I think, we are on the right road to developing a better program.

MR. WINTERS (State Department of Public Instruction, Utah): I wondered in hearing this discussion, whether or not you have within your program of teacher training a definite place for each pre-service teacher to practice teaching safety education in the schools? It has seemed, from the discussion this morning, that the actual teaching may be just a little haphazard, being left to the teacher's judgment. It seems to me, at this time when emphasis on safety education should be so great, that the teaching pattern should contain a specific unit on safety.

In connection with the question that was asked awhile ago about what we can do to add prestige to the junior safety patrol, in one community in Utah, the Lions Club was contacted by the schools and the Lions took over the junior safety patrol organization. It has added prestige to the organization, furnishing the boys with their slickers for stormy weather and other equipment. The fact that prominent citizens in town sponsor the patrol has added prestige to the point where when one boy was nominated to two positions—chief of the safety patrol and student body president—he chose to resign as the nominee for student body president and ran instead for chief of the junior safety patrol.

MISS HEILBRONN: In our school there is a definite place for safety education and the teaching of safety. They get it at the same time they practice teaching.

MISS McCARTER: I didn't mean to insinuate that, because we did not have a

course labeled safety education, our various subject matter areas were not covered. Actually it would be pretty hard to handle an economics, sociology, biology or other such course without dealing with safety. I think I could illustrate my point.

We are in a stage of development and we are trying very hard to work out what we think best fits the particular need of our community. I think perhaps it is going to be much better to plan in smaller groups before planning in large groups. Then, perhaps, we can let our planned course come as a result of that planning, rather than have safety education inflicted without the need first being felt. I might use Dr. Weedon as an illustration, if she does not mind my being personal.

She was invited to come to our school last year as a consultant. We were not quite ready for a consultant, and it was not Dr. Weedon's wish that she come in and try to set up for us a planned program. We realized after her visit that the program must come first through small group planning, later large group planning and then it would continually grow, just as a child grows in his reading ability. He gains, and he naturally evolves, and goes all the way through the various stages of development and growth. Of course, our plan of safety education is growing. We hope it has evolved as with the child. We are trying to trace the stages of development and we feel that, in all areas of subject matter, we are covering safety education, but we are just not labelling it safety education as yet. Does that answer your question in any manner?

MR. WINTERS: Yes, I wasn't concerned about it being safety education, and entitled as such, but I am concerned about having safety education as a part of each unit of instruction.

MISS EMMA SCAD (Public Schools): I would like to ask Miss Weedon what the National Safety Council can do to get the state colleges and normal schools to incorporate safety education in their curricula, and what can be done to make them conscious of the fact that safety must be included? I think Miss McCarter is right when she says safety is taught in all areas, but shouldn't the new teacher have safety emphasized so that she will seize opportunities in every area? Sometimes we do it

incidentally. Maybe in the normal school there should be definite safety instruction, under the title of safety education.

MISS WEEDON (N. S. C. Staff): I have a long speech outlined there. But I want this group to hear from Marian Telford, and we are already running late.

Therefore, I am going to urge you cordially to stay and meet the members of the panel after we are adjourned.

CHAIRMAN SANGREN: I want to make two comments, in closing. You must realize that the program presented here this morning by these three institutions, representing three of four teachers colleges in the State of Michigan, is only a beginning of what we feel will be a well planned, well implemented preparation for teachers of safety education. I know the speakers don't want to give the impression they are satisfied that the job is completed or that they have all the answers. On the contrary, they want to bring you up to date on what has happened in about a year's

time. They hope that in another year or in several other years they can develop, in teacher institutions, a program that is designed to prepare teachers for this important safety work.

I think you also should recall that this is just one attack on the program of preparing teachers for safety instruction. The attack is through the medium of exposure of the student teacher to a working program in the training schools. We have insisted all along that that is the first place we have to attack.

We have to protect the children and furnish them a safety program; then the student teacher has to see that program in operation, be exposed to it and work with it.

Also, I think this represents an initial effort towards co-operation on a state-wide basis. You understand that it is relatively futile for one institution to have a program, when all the other similar institutions in the state do nothing.

The Stephens College Project

By MISS MARIAN TELFORD

Assistant Director, School and College Division, National Safety Council

What we have attempted to do at Stephens College is work out a pattern in this whole field of safety education. We have attacked two problems. One is the instructional aspect of the program.

What do the girls at Stephens need to know about safety education? What do they know when they arrive at college? After all, presumably they have been exposed to the fine elementary and secondary school programs. What do they need to know now?

The second problem is what college people, what departments of the college will be responsible for imparting whatever knowledge is necessary? And how can the college safeguard these people while they are at college?

Stephens College, you know, is a fascinating place. It has everything: a private lake; it teaches girls how to fly; they have stables with a lot of beautiful horses in them. They have everything under the sun. They have a thousand rooms in use, classrooms

and living rooms. Everybody lives on the campus, some of them in buildings that have been in service, I fear, quite some time; some of them are in newer buildings. There are all kinds of conditions as far as environment is concerned.

Where are all these girls going to do their laundry and ironing? There are lots of specific problems like that. Through the help of some of the technicians associated with the state inspection service, a rather technical survey was made of the entire plant. We are now working out shorter surveys, the day-by-day checks that need to be made. For example, we found in making the over-all study that the distance between the fire hydrants and certain buildings was so much. That isn't the kind of thing that needs to be checked every day. The buildings are going to stay right where they are and probably the fire hydrants will also.

But in the day-by-day check, what do you suppose we found as one of the com-

mon hazards? There are a great many places on the campus where sidewalks run under dormitory windows. Stephens girls drink milk and coca cola. They have no cooling facilities in their bedrooms, so they stand the milk and coca cola bottles on the window sills. I am sure it is just a matter of time before someone, probably an illustrious professor, is going to be beamed by a coke bottle while walking on the campus.

A lot of specific problems like that have to do with conditions under which the students live.

The doctors have been working on the problem of what an adequate student accident reporting system would show. What does the college need to know about the accidents which occur? What needs to be done when an accident happens? The situation there, of course, is very unusual because of the adequate medical staff that is available at all hours of the day and night, every day of the week, so Stephens has

perhaps a different problem from what you may have in other institutions.

All that has been said here about the Michigan program being somewhat anticipatory, Dr. Sangren, I think can be doubled and underscored regarding the program at Stephens. We are just getting under way. Those of us in the Council feel privileged, of course, to have an opportunity to work with such a fine person as Dr. Charters and at an institution in which so many people are interested.

I think the reception of the program is something that would warm the hearts of the old line safety member who used to think that nothing could ever be done about any of these college people. I think there are many evidences now that such is not the case. Because the program is incomplete and in the process of development we would welcome any suggestions that any of you would like to make.

The meeting adjourned at 11:30 a.m.

TUESDAY MORNING SESSION

October 8, 1946

Group Meeting on Physical Education

Presiding: HELEN MANLEY, Specialist in Health Instruction & Physical Education, Recreation and Safety, Office of Education, and Pres., American Assn. for Health, Physical Education and Recreation.

Safety in the Selection of Athletic Equipment and in the Planning of Recreational Areas

By HOWARD G. DANFORD

Dir., Dept. of Health, Physical Education, Recreation and Safety
Madison (Wis.) Public Schools

Many of the activities in physical education and recreation are hazardous in nature and, in part, owe their popularity to this characteristic. Remove entirely these elements of danger which are inherent in the activities and they will lose much of their appeal and value. However, a considerable portion of the accidents occurring in these activities are due, not to hazards which are a part of the activities, but to extraneous factors such as improper or inadequate equipment and supplies or to unsafe places in which the games and sports are con-

ducted. Even in those cases where the hazards are a part of the game, there is no special merit in being injured. The appeal of the activity may lie partially in the hazard involved, but the satisfactions are greater when the participant faces the danger and proves himself master of it.

The 1946 Edition of *Accident Facts*⁽¹⁾ shows that 44 per cent of all accidents to school children occur in the school building or on the school grounds. About one-fourth of all such accidents occur in the school building and 34 per cent of the building

accidents happen in the gymnasium. Accidents on the school grounds account for 20 per cent of all school child accidents. Almost all of these accidents involve children at play.

Pinckney's study⁽²⁾ of accidents to Texas school children lists eight groups of activities being engaged in when accidents occurred. Play and recreation is highest on the list with 49.81 per cent of all the accidents charged against it. Of 593 accidents among elementary and secondary school pupils in Madison, Wisconsin, during the 1944-1945 school year, approximately 43 per cent involved pupils engaged in play activities.

Lloyd, Deaver, and Eastwood estimated⁽³⁾ in 1939 that 17,330 accidents occur in athletic activities in high schools every school year, with a loss of over 17,000 school days.

These data clearly indicate a need for safety education in the physical education and recreational programs. To eliminate the hazards natural to a game would remove much of the fun of playing it and would minimize the opportunities for education through the game. However, a public institution which does not adequately protect its students from unnecessary hazards is derelict in its responsibility to the students and to the public which it serves.

Accidents due to faulty equipment and improper or inadequate play facilities are unnecessary, inexcusable, and should be prevented. And yet, approximately 20 per cent of the physical education accidents involving high school pupils are reported to have occurred from these causes.⁽⁴⁾

Adequate, substantially built, properly fitting protective equipment is an important factor in the reduction of athletic injuries. Most of the athletic activities in high schools are controlled by well-established rules which require the use of certain types of protective equipment. The rule in softball which requires the catcher to wear a mask is an example. However, these rules usually establish only minimum standards and should not be permitted to prevent the adoption of requirements guaranteeing greater protection for players.

The relatively large number of fatal accidents which occurred during the 1931 football season resulted in rule changes

recommending among other things that players be prohibited from wearing equipment which officials considered dangerous to other players.⁽⁵⁾

Since that time many improvements have been made in protective equipment for football players although the war greatly retarded progress in this area of safety. When selecting protective equipment school officials should be guided by the following standards:

1. The garment should be reasonably comfortable in any temperature in which it is to be worn.
2. It should fit well, allow freedom of movement, and give necessary support.
3. It should afford adequate protection against the hazards for which it was designed and it should not create additional hazards. A football helmet, for example, originally intended as a protection for the wearer, should not be turned into an offensive weapon.
4. It should be durable.
5. It should be of high quality and purchased from reputable manufacturers.⁽⁶⁾

Piper, shortly before the war, listed the following recent improvements in football equipment:

1. Side line markers and corner flagposts of rubber.
2. Improved construction of pads for shoulders and hips: light but strong, better fitting and padded on the surfaces.
3. Thigh guards of bakelite and overlapping sponge rubber knee pads that slip into pockets built into the pants.
4. Locking devices which prevent cleats from backing off.
5. Elastic webbed belts with leather at both ends giving more "play" and keeping pants in close contact with the shirt.
6. Helmets constructed with hammocks to keep the head from contact with the top surface.
7. Special types of protective devices for the abdomen and other surfaces.
8. Improved types of knee braces made to individual measurements.
9. Blocking dummies that can be used in place of "live bait" so the scrubs don't have to be used as "cannon fodder" for the varsity.

10. Protective blocking uniforms for "live" blocking practice. (Although live blocking practice is not recommended.)⁽¹⁾

Recently a letter was sent to a number of selected high school coaches in Wisconsin, to Paul Neverman, Secretary of the Wisconsin Interscholastic Athletic Association and to Dr. Floyd Eastwood, under whose direction the annual Survey of Football Fatalities is made, asking for information on any recent improvements in protective equipment for football players or athletes in any other sports and on any further improvements which they felt should be made. The replies are extremely interesting and valuable as they point the way toward greater safety for our athletic participants. They are summarized below:

Football

1. More and more schools are using the rib pad or rib girdle for protection of the ribs and sternum.
2. The shoulder pad has been so shaped as to give better protection for the shoulder point. A well-designed pad protects the point of the shoulder as well as the collarbone area. The cantilever type is much safer than the flat type.
3. The heavy old-fashioned metal braces for protection of elbows and knees are now illegal. A more modern brace of soft material is available. The most common is plastic.
4. A recent development is that of plastic contact lenses and safety goggles of shatter proof glass to enable boys with defective vision to compete in sports more safely.
5. Buy the best grade of equipment but be sure to see that it fits properly.
6. It is very important that shoes fit properly, thus reducing the number of blisters, sprained ankles, bruises and infection. Aluminum or steel cleats should be eliminated as many serious injuries have resulted from their use.
7. Hard projecting nose guards on helmets should not be permitted as they too often become offensive weapons.
8. A plastic hip pad is now being manufactured which is light but seemingly very effective.

Needed Improvements

1. Reconstruction of our football head-guards based upon a study of the researches made by the American and English armies on crash-helmets. Extend these in the back to protect the neck.
2. A better hip pad is needed to insure greater protection of the hip joint and the base of the spine.
3. An improvement in the thigh pad providing for greater flexibility yet giving adequate protection.
4. A nose guard which, while protecting the wearer, cannot serve as an offensive weapon.
5. Cover all shoulder, kidney and rib pads, and head guards with foam rubber.
6. Provide better protection for knees, elbows and teeth.
7. Provide a better cleat and cleat assembly, one that will not split or come unscrewed during use.
8. Cover all hard pads with at least $\frac{3}{8}$ " of foam rubber.

Basketball

1. Reduce the size of the basketball in high school. By reducing the size of the basketball from 32" to 29 $\frac{1}{2}$ " the W. I. A. A. brought about an 85 per cent reduction in the number of broken fingers among high school boys.
2. A good grade of knee pad should be worn in both practices and games in order to prevent floor burns.

Track and Field

1. Reduce the height of the high hurdles in high school. The height of the high hurdles was reduced in Wisconsin a few years ago from 42" to 36" thus eliminating most of the accidents in this activity. A better rocker type of hurdle that will fall or give more easily when struck or tipped by the hurdler's spikes is needed.
2. The javelin has been eliminated because of the hazard and some suggest elimination of the discus for the same reason. A discus smaller than the college discus was developed for use in Wisconsin high schools.
3. Provide separate pits for pole-vault, high jump and broad jump.

Boxing

1. Use a protective helmet at all times, such as was used in army training camps.
2. Require the use of the new plastic cup supporter.
3. Insist on use of gloves with thumbs laced to palm. A glove should be manufactured with the thumb a part of the main section of the glove.
4. Provide a new boxing hand wrap which will prevent knuckle abrasions and infections. The ones used now are inferior and cause irritation of the skin.

Baseball

1. Eliminate the metal cleat and substitute a hard rubber cleat.
- Items of protective equipment, other than personal wearing apparel required by rule, which should be provided for various activities in physical education include safety belts and nets, mats for tumbling and gymnastic work or apparatus; pads on parallel bars; cross straps on rings; chalk, magnesium carbonate, to prevent the hands from slipping on apparatus;⁽²⁾ guards for eye glasses; and bat handles with safety grips of cork, tape, or composition material.

Playground Apparatus

The safety factor is of great importance in the selection of playground apparatus. It should not be the sole factor but if numerous serious accidents occur on a piece of apparatus, its removal will usually follow, regardless of its educational values. Highly hazardous equipment, therefore, ought not to be installed on playgrounds. It is recommended that the apparatus on a playground be limited to horizontal ladders, horizontal bars, and low climbing structures such as castle towers or jungle gyms. In Madison, we restrict the use of the ladders and bars to children above the third grade as we found that almost all the serious injuries which occurred on these two pieces of equipment when they were first installed involved primary grade children who lacked the necessary height, strength and judgment to use them with reasonable safety.

Planning Recreational Areas

Many of the accidents occurring in physical education or recreation result from

improperly planned play areas. A child swinging on a horizontal ladder is struck by a ball batted from an adjacent diamond; a boy attempting to retrieve a soccer ball which rolls into the street from the playground is hit by a car; first grade children on their way to the sandbox are run into by older girls playing hit pin baseball. None of these accidents would have occurred on a well-planned and properly constructed recreational area.

Safety should be built into play areas by following certain basic principles of recreational planning.

1. Selection of a Safe Site

The alert schoolman knows that safety in recreation begins with the selection of a safe recreational area. Some of the most difficult safety problems of a recreational leader would vanish if the play area had been properly located with reference to the hazards of contemporary life. Among the standards which should be of value in selecting a safe playground are the following:

- a. The playground should be in clear view when approached on the highway from any direction. If it is impossible to provide open approaches, warning signs of standard design should be displayed in prominent locations.
- b. The play area should be near the population center it is designed to serve. The most dangerous and heavily traveled streets should become the boundaries of the district.
- c. Play areas should not be located near such objectionable features as railroads or industries which may be physically hazardous.
- d. The area should be as level as possible. Grounds which require retaining walls, terraces, and steps increase the hazards to child safety. There should be sufficient slope to provide proper drainage.
- e. Space should be provided for safe parking of automobiles. Driveways on school grounds should be planned in such a way as not to add to the hazards of the play of children.

- i. On school grounds, buildings should be located in such a manner as to provide a maximum of play space with proper shape. It is usually best to locate the buildings at one end of the grounds thus leaving the remaining area unbroken for play purposes.⁽¹⁰⁾
2. Provision of Adequate Space

Large numbers of children playing vigorous games in limited spaces is a frequent cause of accidents. In general, fairly adequate provision has been made for football, track, basketball and tennis but almost any space has been good enough for the other sports.

While the number of children to be served by a playground obviously influences the total amount of space needed, the practice of determining space needs on the basis of a definite number of square feet per child is not desirable because the essential play needs of even a small number of children require a certain minimum sized area in order to provide the necessary equipment and play spaces. In other words, one baseball diamond may meet the needs of a school with an enrollment of fifty boys but the same amount of space for baseball is also needed for a school of nine boys.

National standards stipulate that an elementary school should have a minimum of five acres of land; a junior high school ten; and a senior high school twenty acres.⁽¹¹⁾
3. Segregation of Activities

An important safety factor in playground planning is the provision of different areas for special uses. Segregation of activities is an essential safety feature because of differences in the ages of children using the playground; because in certain activities boys and girls should not play together; and because of differences in the nature of the activities. It is desirable to provide the following divisions:

 - a. A small area for the pre-school child.
 - b. Apparatus area.
 - c. Area for free play and low organized games.
 - d. Shaded area for handicraft and quiet activities.
 - e. Area for athletic sports as baseball, softball, basketball, volleyball and football.
 - f. Shelter house.
 - g. Landscape area.

The apparatus area should be located near the school building so small children can reach it without crossing areas used by the older children. It should be as far removed as possible from the ball diamonds to avoid danger from batted balls. It is usually best to concentrate apparatus in one section rather than scatter it over the playground, although crowding should be avoided. Whenever possible, apparatus should be segregated in a well-defined area, such as between a fence and a path. It should be installed in such a manner that children using it will move in parallel lines. An important safety measure is the provision of soft landing surfaces with sand or shavings under the horizontal bar and ladder.

The area for free play and low organized games should be level and fairly close to the apparatus section. Children from six to twelve years of age will be the most frequent users of this area which should be at least 100 feet square.

Ball diamonds usually should be located with the home plates in the corners of the play areas so that balls will be batted toward the center of the playground. Backstops and canvas bases should be provided. Accidents may occur when stones, trees, or posts are used as bases. If a wooden home plate is used the ground should be kept level immediately adjacent to it or the edges will project and players may be badly injured when sliding into it. Holes should be filled and the diamond cleared of stones and similar objects which might cause the players to fall. Care should be exercised in laying out ball diamonds to see that they do not overlap with other play areas. A 200-foot battering radius for softball is sufficient for boys while the girls can get along with 125 feet. If the grounds are too small to per-

mit these dimensions a 14-inch ball may have to be substituted for the 12-inch standard ball.⁽¹²⁾

One of the most dangerous areas is the horseshoe courts, where children, never thinking of their peril, may run within range of the flying shoes or fall over the upright stakes. This area should be completely segregated either by a fence or by shrubbery.

4. Proper Surfacing

A good surface for play activities is an essential factor in the prevention of accidents. Falls lead all other types of accidents and many of these falls result from an uneven, abrasive, slippery, or otherwise unsatisfactory playing surface. The characteristics of a good outdoor play surface from the standpoint of safety are: resilience, good drainage, non-abrasiveness, firmness, smoothness, and freedom from such extraneous objects as stones, sticks, and broken glass.

Slippery locker room floors are a constant source of accidents. Abrasive flooring such as scored concrete or carborundum tile to eliminate slipperiness is recommended. Where such flooring is not provided rubber matting should be secured.

5. Type of Fencing

Among the most important safety features in playground construction is the fence which prevents the child from running heedlessly into the street and reduces the possibility of injury to passersby from batted balls. The National Recreation Association states that "chain link fabric made of copper-bearing steel wire, galvanized after weaving, is perhaps the most satisfactory type of fence . . . The height varies from 5 to 8 feet, depending largely upon the neighborhood and the amount of actual protection required."⁽¹³⁾

6. Elimination of Permanent Equipment Hazards

Since approximately one-third of all school building accidents occur in the gymnasium, every effort should be made to reduce to a minimum all permanent equipment hazards in this area. Storage recesses should be provided for pianos and phono-

graphs. Doors to storage spaces should be flush with the wall. Lights should be recessed in the ceiling. All glass in entrance doors should be safety glass. Doors should open away from the playing space to avoid possibility of players colliding with them. Swinging doors should not be used in gymnasiums or locker rooms.⁽¹⁴⁾ Drinking fountains, radiators, mat hangers and door knobs should be recessed or properly padded. Wall corners should be rounded, if possible, or padded. Where basketball goals are near an end wall or bleachers, these should also be padded. Windows should be screened to protect both players and windows. Shades should be provided for windows where the sun's glare is likely to blind players.

Lloyd's comprehensive study, in addition to including many of the suggestions listed in the preceding paragraph, makes further recommendations for the elimination of permanent equipment hazards in the gymnasium:

1. Gymnasiums should be so constructed as to remove hazards of pillars or obstructions projecting over the playing surface.
2. Sufficient area for the peak loads to prevent overcrowding and pushing.
3. Clearance of areas adjacent to the side and end lines of the basketball courts.
4. Offices with windows giving a clear vision of the total area for proper supervision.
5. Floor surfacing for slipperiness.⁽¹⁵⁾

In this paper I have attempted to point out that many of the accidents which occur to the youth and adults of this nation, while participating in athletic and other recreational activities, can be attributed to improper and inadequate equipment and facilities and, therefore are wholly unnecessary and ought to be prevented. Their prevention will take nothing whatsoever away from either the popularity or the value of the activity, but will add immeasurably to the joy and satisfaction of the participant. Progress in the prevention of these accidents will be in direct relationship to the growth of the concept that the welfare of the individual participant in an

athletic and recreational programs is of paramount importance.

References

1. National Safety Council, *Symposium Bulletin*, 1946, *Editorial*, *Chicago*, no. 10.
2. Friedman, James M., *An American Study of Texas School Children*, *Survey*, Bureau of Statistics and Health Education, The University of Texas, 1936, p. 3.
3. Lloyd, Frank S., Deaver, George G., and Eastwood, Floyd R., *Safety in Athletics*, Philadelphia: W. B. Saunders Company, 1939, p. 23.
4. *Ibid.*, p. 176.
5. Friedrich Fabel, *Caution on the Gridiron*, *SAFETY EDUCATION*, XXXI (December, 1941), p. 180.
6. Miller, Ben W., *Standards for Athletic Protective Equipment*, *SAFETY EDUCATION*, XXXI (September, 1941), p. 43.
7. Piper, Ralph A., *What Are the Recent Developments in Protective Equipment and Supplies for Athletic Participants?*, *Pre-Conference Conference on Safety Education—American Association for Health,*

Physical Education and Recreation, Abstract of the Proceedings, 1940, p. 10.

8. Paine, Hestley D., *Safety Procedures in Gymnastics*, *Athletic Journal*, XX (February, 1940), p. 11.

9. *Wagoner, Eugene*, *Safety Division in Gymnastics*, *The Journal of Health and Physical Education*, XII (February, 1941), pp. 98-100, 119, 121, 124.

10. *American Association of School Administrators*, *Safety Education*, Richmond Yearbook, Washington, D. C.: the Association, 1940, pp. 210-212.

11. National Recreation Association, *The New Play Area*, New York: A. S. Barnes and Company, 1934, pp. 3-4.

12. Gilbert Clegg, *Playground Planning and Layout*, *Recreation*, XXXI (June, 1935) p. 153.

13. National Recreation Association, *Playground: Their Administration and Operation*, New York: A. S. Barnes and Company, 1930, pp. 23-34.

14. Dugger, Arthur H., *Can the Gym Be Made Safer?*, *The Journal of Health and Physical Education*, XIII (May, 1942), p. 302.

15. Lloyd, Frank S., *Safety in Physical Education in Secondary Schools*, New York: National Bureau of Casualty and Safety Underwriters, 1933, pp. 131-132.

The Responsibility of Athletic Officials for Accident Prevention

By HOMER ALLEN

Asst. Prof., Div. of Physical Education, Purdue Univ.

There is no question in my mind but that poor officiating has been responsible for thousands of accidents in sports contests. Not that any official would intentionally bring about an injury to a player. But the facts that an official knows or does not know his job; is or is not paid a fair fee; is or is not interested in the progress of the game; these things all influence the accident situation. There is really no excuse for any school official to hire an athletic official who is incompetent.

Please do not get the idea that I am condemning the system as it worked a few years ago. It took a combination of the thinking of interested school officials and the athletic officials themselves, to gradually bring about desirable changes.

A few years ago an official's only qualifications were to have played the game at some time and to have the confidence of at least one of the coaches, that you would do a fair job. The other coach usually agreed that you were honest, even though he might have some doubts as to your ability. Of course, it was easier to be honest than it was to be a good official.

Officiating a game is as different from playing the game as night is from day. To

be a good official, one must be within the contest in one sense, and apart from the contest in another sense. One must be close to every situation as it develops, and yet be able to see a single situation in relation to other factors of the game. One must know the rules of the game and be ready to enforce them, yet be courageous enough to make one's own decisions at times, even though this decision appears to be opposite to the rule as written. One must be firm yet courteous, authoritative but not dictatorial—in other words, a good official is as hard to find as a good coach, a good banker, a good preacher, or a good anyone.

Good officials are made, however, by training, even as teachers, bankers, and doctors are made good by training. And as we might expect, many of our good officials are ex-athletes who retain an interest in the game and who also want to make a little money on the side. Some of our very best officials, however, never were athletes, but simply drifted into officiating because of their interest in the game itself.

In many instances, it has been the far reaching vision of athletic officials which has been responsible for improvements in the rules, equipment, and facilities of a

game. The officials, who being directly connected with a school or college, have been able to recognize hazardous situations which have gone unnoticed by those in close proximity to the game.

Some of our best athletic officials have also been representatives of sporting goods firms. Naturally, the desire to sell more athletic supplies and equipment could easily influence the safety talks of these men. But I believe that, in a majority of instances, these men were thinking largely in terms of the increased safety to the athletes.

So far as I can recall, there is a sentence in almost every athletic rule book, stating, in effect, that any situation which arises during the contest, and which is not specifically covered by the rules, may be decided upon by the referee. This is a very sensible rule, and the implication is that the referee is the final authority, and is supposedly capable of making a correct decision.

Too often have we had referees whose greatest fears have been that they would have to make an outstanding decision, one which would affect either team, or the crowd, or the press, in such a manner as to reflect badly on the character and judgment of the official. I submit to you that any official who enters a contest with such a worry on his mind is in no fit condition to work that contest.

In the former days of haphazard officiating there were two other factors which worked against smooth functioning. One was the lack of physical condition of the officials. This, of course, often resulted in a slowing down of the contest by the officials, or in some cases, actual interference with a player by an official, just because the official could not move fast enough to get out of the way. Needless to say, it was frequently the official who was hurt, rather than the player, when such a situation arose.

The other factor is the failure of officials to keep up to date on the rules of the games. For example, I recall a case several years ago of a football official allowing a boy to play part of a game without wearing a headgear. The state high school association had made the rule that all players must wear headgears at all times, but the referee had not seen the rule in print.

There has unquestionably been a gradual

and welcome improvement in all aspects of athletic officiating, during the past 25 years. The war slowed down this improvement, because so many young men were prevented from beginning their officiating careers. I feel sure that the new crop of officials will not only continue to raise the standards of officiating, but, as a result of some of their war training, will be more conscious of the hazards of the various games, and will try to anticipate and relieve dangerous situations.

An official can act, for safety in one or more of the following cases—(1) facilities for the game (2) equipment for the game and (3) recognition of injury to a player, and reporting same to the coach or doctor. Before going into these cases, let's review the general picture, as indicated in "Safety in Athletics," a fine book by Lloyd, Deaver and Eastwood.

According to the authors, on the college level, football, horse polo, wrestling and lacrosse are the most hazardous sports, while volley ball, indoor baseball, tennis, and rumberling and stunts are the least hazardous.

On the secondary school level, touch football, heavy apparatus, football and lacrosse rank in that order as highly hazardous, with boxing, volley ball, tennis, and calisthenics at the bottom of the list.

Sprains are the most common type of injury, but bone injuries are more severe. As we would naturally expect, contact games furnish more accidents and injuries than noncontact games. As we would also naturally expect, most of the coaches take what they consider normal precautions against injuries to their players. Yet I have seen silly evidences of either carelessness or ignorance on the part of coaches and other school officials.

It is in such cases that the alert official is able to become more than just a paid aid. For example, I recall seeing a basketball referee check the distance from one end of the playing floor to the edge of a stage. He knew that the visiting team used a fast breaking game, and he realized that when this team was going toward the stage it would be very easy for a player to bump into the stage. He called this to the attention of the home coach, who was courteous enough to have his managers lay gym mats over the edge of the stage.

The official should be calm, observant, and impartial, and many a coach and player has been saved an embarrassing or hazardous situation because the official has been unsighted.

Inadequate protective equipment, especially in small schools which operate on a low budget, has always been one of the main contributing factors to accidents and injuries. In spite of the fact that school officials and coaches know what should be worn by their players, we still see too many evidences of careless fitting of equipment, or lack of protective equipment on vulnerable areas of the body.

Some of the rules seem at times to be much too strict. For example, in high school football, the rule states that a player must wear a headgear at all times when the ball is in play. We have all seen plays, such as the try for point after a touchdown, when the ball holder and the place kicker apparently do not need a headgear. Why, then, force the boy to keep it on?

Simply because, on those occasions when the play fails to click correctly, and one of these nonprotected players tries to run the ball across the goal line, he is then exposed to head injuries which may keep him out of the game indefinitely. The referee would be lax indeed who did not place the possible safety of the player above any personal feelings of comfort the player might entertain.

School officials are in general agreement that there should be a doctor in attendance at all varsity contests, particularly at contact contests. We know from practical observation and participation that it is not always possible to have a doctor present. We also know that there are times when a coach is not qualified to determine whether or not a boy should continue to play. The excitement and strain of a close contest can easily warp the judgment of the coach, and he may be tempted to leave a good player in the game in spite of obvious injury.

Few officials are willing to incur the wrath of a coach under such conditions by ordering the player from the game. Some officials have done so, with varying results; some good, some bad, from the officials' viewpoint. I believe that an official can be diplomatic enough in most situations so that he can protect the player without

making himself bear the ill will of a coach or other school officials, not to mention the crowd.

In the long run, the coaches recognize as most competent those officials who have the interests of the boys in mind, as well as just officiating the game.

Every official should be, and usually is, willing to accept the responsibility of checking personal and other equipment used in a contest, and if changes need to be made, the official is entirely justified either in stopping the contest temporarily, or barring a competitor until he is suitably protected.

Such officials usually avoid hazardous situations by being able to anticipate them. For example, if a fence is too close to the sideline of a football field, and a play develops which apparently is going to finish against the fence, the alert official blows his whistle much sooner than he otherwise might.

If, in spite of precautions taken by the official, a player is injured, and there is no doctor available to declare whether the player should continue in the contest. I believe it is within the province of the referee to make that decision. If he does not want to assume the whole responsibility, he might consult with the other official or officials who are assisting him in the contest.

During the war years there probably were times when it became necessary to hire officials who were not entirely competent. This no longer should be, if school officials will act together for the best interests of athletics. Now is the time to enact regulations governing the training and licensing of officials for sports. With fairly uniform standards to meet, and with a fair scale of fees, athletic officials will become even more competent than in the past. This competency should be reflected not only in the mechanical traits of officiating, but also in their personal interest in the safety factors of the various contests.

School officials might profit by calling in outstanding officials for consultation concerning the safety factors of athletics. There should be more athletic officials' organizations, which will meet regularly to discuss not only rules and techniques, but any other matters which will make the official of more value to sports activities. There should be more standardization in

the qualifications and licensing of athletic officials.

Illinois, through its state high school association, has developed a fairly good system for developing young officials. The Northern Indiana Officials association is a very active organization, and through regular meeting the members have not only improved their skills, but actually have been able to obtain increased fees from the schools.

Many coaches hesitate to hire a so-called "green" official, because they either have not seen him work, or they feel that he is

not experienced enough for their particular contest. One wonders how these officials will ever gain experience if they are not given the opportunity.

Is it not possible and desirable to work these new officials with older ones, thus combining youth and enthusiasm with experience and mature judgment?

Few situations could arise in which a mistake by the young officials would not be adjusted through the judgment of the older man. It seems to me that only by some such indoctrination system will the schools be assured of continued good officiating.

TUESDAY MORNING SESSION

October 8, 1946

Home Economics Group Meeting

Report on State Safety Program American Home Economics Association

By GLADYS J. WARD

Asst. Prof., Home Management Extension, Cooperative Extension Work in Agriculture and Home Economics, Univ. of Illinois.

For many years, the urgent necessity in Safety Education challenging both educator and individual, has been and still is the home front problem. And, perhaps the first problem in this field to face and recognize is: "How can the emphasis be focused, in home safety education, on each person in the family group in order that each member becomes more safety conscious?" For, only to the extent that each individual becomes aware of the necessity for safe living and working habits at home, can the appalling yearly death rate from home accidents be reduced. This problem demands active cooperation between home, school and college in creating more effective methods for the teaching of safe living at home.

The first important instruction of children begins, informally, in the home, with the homemaker, herself, as the teacher. It is through her that each child first becomes conscious of safe practices used by the mother in the daily routine of working and living at home.

Home safety education is, first of all, then, a problem that concerns the adult education of homemakers. I believe the present emphasis in the field of adult education is sound, and it is more especially so with regard to the need for home safety education. When the child goes to school, there is the transfer to the teacher of definite responsibility for continuing the teaching of safety principles, applied to each phase of learning to live safely.

The first official participation by the American Home Economics Association in connection with the work of the National Safety Council, was the appointment of the writer by Dr. Gladys Branegan, president of the Association—as the Association's representative—to attend the first Home and Farm Safety Conference held in Chicago on February 17 and 18, 1942. As a result of this conference, two recommendations were made to Dr. Branegan for "early consideration of the executive committee of the American Home Economics Association":

1. "An active participating membership in the Home and Farm Safety Division of the National Safety Council.

2. A Home and Farm Safety Committee to function actively in every department and division of the American Home Economics Association.

About this time, the first Home Safety Committee, appointed by the Illinois Home Economics Association, included members interested in promoting home safety education in the various home economics subject-matter fields.

In June, 1942, at the annual meeting of the American Home Economics Association held in Boston, the first Home Safety Committee was appointed by the Extension Service Department. This committee, which served for four years with the writer as chairman, prepared and carried out an active program in home safety education in each of the forty-eight states. It was not until 1944, however, that the first Home Safety Committee was appointed by the American Home Economics Association to help develop the important work throughout each department and division of the Association.

During the years 1942-1944, the State Home Economics Association, through its Home Safety Committee, continued to emphasize the wartime necessity of home safety education. For example, the first home safety exhibit of posters, leaflets, etc., was shown at the state meeting held in Peoria in October, 1942. At the same meeting, the writer talked on the need for a continuous program of home safety education in homes and in schools.

It was over 10 years before this time, however, that the Home Economics Extension Service of the University of Illinois became interested in collecting some home accident facts given by homemakers over a four-year period, January 1, 1928 to January 1, 1932. From 23 counties, 143 Illinois homemakers, 137 of whom lived on farms, in villages, or in small towns, reported that falls totalled 42 per cent of all accidents and, for elderly persons, four out of five accidents were due to falls. Even for young children under 5 years, falls resulted in 30 per cent of accidents, as well as did burns, scalds, and explosions. These data give unmistakable evidence that it is of primary importance to have a continuous

home safety educational program for adult homemakers, especially those who have the major care of young children up to six years of age. These facts regarding the frequency and causes of home accidents were used in press releases, over the radio, and at various county meetings with homemakers where home safety education was the major subject discussed.

This information obtained on home accidents was used as the basis for a one-page leaflet prepared as a *Home Hazard Check List* for falls and burns in the home. These two most common hazards have been checked and corrected by hundreds of Illinois homemakers and family members in many counties. It is through the active participation of each person, in checking and correcting home hazards, that some measure of safety consciousness is developed. In this way each individual realizes a direct personal responsibility for helping to make his home safe and, to that extent, he, himself, becomes more safety-conscious. It was with emphasis on personal responsibility for home safety in mind that the state-wide Safe Homes Program was launched in June, 1943, by the Home Economics Extension Service of the University of Illinois. The two chief purposes of this program are:

1. To prevent home accidents.
2. To secure accurate data on the causes of home accidents.

For the fourth year, this program reaches every county in the state through publicity, radio talks, and regular news items. In 48 counties, there are over 9,000 Illinois families enrolled this year to help make their homes more safe.

It is not my purpose to review the state-wide program in detail, but rather to indicate that the main emphasis in home safety education should be centered first on the homemaker, and then upon each member of the family.

More effective coordination and participation of various organizations are essential to extend and improve home safety education in homes, schools, and colleges. For

"Home Accidents and Home Management," Gladys J. Ward, *Journal of Home Economics*, Vol. 25, pp. 770-772, November, 1933.

"Education for Safety," Gladys J. Ward, *Journal of Home Economics*, Volume 38, pp. 283-284, May, 1946.

example, in the present field of housing, much needs to be done to build houses more safely for daily living. In present day rural homes, two of the most serious hazards inside the house are stairs and the lack of good lighting conveniences. Few rural or small town contractors either know or practice the science and art of building safe stairways in houses. And since the majority of rural homes are built by contractors, some safety principles in building stairways should be made available to them. Is it not necessary to have two hand rails on stairs, since some people fall going up, as well as going down? In wiring the house, light switches at the top and bottom of stairs and steps is found in too few homes. Safety in house building begins with safe house planning. Consider, for example, the direction of door openings—especially in the

kitchen. Home accidents are fostered by swinging doors.

This reference to safe principles in building is amply illustrated in two excellent recent publications. In every other phase of safety education for home living, it is through removing the present causes that most home accidents may be prevented.

Home safety education is a necessary year-round program. Only in this way do families gradually come to understand that such accidents as falls and burns are not the real causes of home accidents, but are rather the result of one or more unsafe practices or conditions which they themselves can prevent or remove in their homes.

"Residence Design for Safety," by Professor George Martin, *Practical Painter*, October, 1943, and "When You Build or Remodel," by The Committee, National Safety Council, 1946, p. 14.

Home Safety in the Homemaking Education Program

By RUFIE LEE WILLIAMS

Home Economics Consultant, School and College Division, National Safety Council

We in the National Safety Council are cognizant of the fact that you, as teachers of homemaking education, are becoming more and more aware of the role you can play in helping to reduce accidents, both at school and in the home. For years many of you have integrated home safety in your programs, and even though you have been handicapped for source materials, you have done an excellent job in teaching home safety.

Other than spending time and effort in seeking source materials, you have found that it does not necessarily demand extra time in an already overloaded schedule to teach home safety. You teach students through certain activities, carrying out the principle of general education that students learn by doing. As you teach the way to do things, such as how to cook, how to sew, how to care for small children, how to manage a home, your aim is to teach the right way. The right way and the safe way are synonymous—the two cannot be separated.

We, as a service organization, are vitally interested in making this job an easier and a more effective one for you. A concerted

program in home safety education in The School and College Division of the National Safety Council began in 1943. At that time a specialist in homemaking education was added to the staff. And although this work is still in its infancy, materials are now available to you. I would like to explain how they may be used. I want also to review our program of work and the channels through which we have worked during these three years.

Our philosophy in developing these materials is the same as that of homemaking education in general, that is: the material has been organized so that home safety education can be integrated in each area of the homemaking program, with occasional special emphasis, such as the showing of a home safety film, an exhibit, a demonstration, a home clinic, the use of posters, special projects for in-school and out-of-town experiences and for future Homemakers of America chapter programs.

In addition, and following the philosophy of homemaking education, the materials have been organized and developed so that you, who are just beginning your career in homemaking education, or you, who are

just beginning to realize the need for safety education instruction, may teach a special unit in home safety. The materials will serve as a basis for developing the home safety unit. Once you feel you are acquainted with the safety instructional information, and once you feel secure in teaching and practicing safe working habits, the special unit may be discontinued and the information then can be an integral part of the program.

For you, who already are integrating home safety information, the materials will serve as a basis for evaluating the safety content in each area of your program. Furthermore, they will provide you with new ideas for in-school and out-of-school experiences.

Materials are now available for six areas of the homemaking education program. Those areas are: (1) Housing and Home Management, (2) Child Care and Development, (3) Meal Preparation, (4) Home Canning, (5) Selection and Care of Clothing, and (6) Home Laundering.

The materials are presented in the form of check lists that may be used to integrate and to evaluate safety content of each of the six areas of the homemaking program—both as to safe conditions and safe working habits. A second check list soon will be available whereby you and your students may check the safe surroundings of your homemaking departments. In addition, there is a third check list that you may use as a home project for your students to check the safety of their homes.

Other materials are presented as general background safety information on such topics as matches, electric equipment, toys and play equipment, poisonous plants, falls, and lifting. These materials are titled *Safety Education Data Sheets* and are reprints from our monthly magazine, *SAFETY EDUCATION*.

Included in the general background safety materials are facts about home accidents—the types of home accidents, where they occur, how they occur, and their frequency among different age groups. In addition, there are leaflets giving safety tips for the baby, the toddler, and the elderly person.

All the general background safety materials can be used to inform you and your students regarding safety on that particular

topic. Students need such materials when they plan a special safety program, before they start a school or a home project. You will find these general background safety materials helpful in making your teaching more effective, whether you are integrating safety in your program or whether you are teaching safety as a special unit.

There is a series of unit supplements directed to high school students which include the areas of: (1) home furnishing, (2) child care and development, (3) home management, (4) clothing, (5) meal preparation, and (6) family relationship. Included in each unit supplement are suggested activities for both in-school and out-of-school projects. These unit supplements can be and have already been used effectively in developing future Homemakers of America chapter programs.

Of interest to all of you is the bi-monthly newsletter directed to supervisors and teachers of homemaking education. It includes, in each of the five yearly issues, reviews of new home safety publications, an exchange of ideas by teachers on how they are effectively teaching home safety, a suggested Future Homemakers of America chapter program, and an article emphasizing some phase of home safety. Last year we stressed home safety in selected areas of the homemaking program. This year we will give emphasis to a major type of home accident—the causes and preventive measures to take in order to eliminate the hazards involved.

The National Safety Council has two films on home safety that can be used for secondary schools and adult homemaking classes.

Last, an annotated home safety bibliography is available. The bibliography includes free and nominal cost publications that may be secured from the National Safety Council, as well as materials that can be secured from other sources. The materials listed can be used in secondary school homemaking programs as well as in adult homemaking classes.

The School and College Division and the Home Division of the National Safety Council have developed the materials I have presented to you. All the materials that relate to a particular area of the homemaking program have been evaluated by homemaking teachers and supervisors. In first draft form, the teachers have used the

materials in their classroom instructional program, and have then made suggestions for improvement.

Since many of you have year-round home-making programs, which include participating in community programs, you will be interested to know that through the Home Division of the National Safety Council there has been organized a National Conference on Home Safety. Many national organizations are represented, including our own National Home Economics association. The National Conference on Home Safety has recently published a pamphlet outlining ways a community can organize to promote a home safety program. The pamphlet includes suggestions for setting up committees, the functions of the committee, suggestions for publicity, and suggestions for a program of work.

The School and College Division of the National Safety Council, in promoting home safety education for homemaking super-

visors and teachers, has worked through organized groups which are interested in homemaking education. These include: (1) the director and the regional agents of the Home Economics Educational Services Branch, U. S. Office of Education; (2) the state departments of education, Supervisors of Homemaking Education; (3) the American Home Economics Association; (4) the American Vocational Association; (5) the National Education Association; and (6) the training departments of teacher training institutions.

In conclusion, may I stress that you cannot relax your interest or your efforts in helping to reduce the yearly toll of home accidents. In 1945 home accident deaths increased 3 per cent over 1944, or a total of 33,500; there were an additional 5,000,000 nonfatal injuries; and the total cost to the nation was \$600,000,000. We in the Council are at your service in helping to reduce this suffering and waste of life.

Future Needs

(Program and Materials)

Panel Discussion

Discussion Leader: MATTIE PATTISON, Assoc. Prof., Dept. of Home Economics, Iowa State College.

Participants:

IRENE K. BRAUN, Homemaking Supvr. and Coordinator, West Allis (Wis.) School of Vocational and Adult Educ.

MARY MARK, Dir., Bureau of Household Arts, Chicago Board of Education.

RENA HODGINS, State Supvr. of Home Making Education, Illinois.

HELEN CHENOWETH, Asst. State Supvr. of Home Economics, W. Va. State Dept. of Educ.

HAZEL SCHULTZ, Chairman, Ill. Home Economics Assn. Home Safety Committee.

MARY BERMAN, Head, Home Economics Dept., Ball State Teachers Coll.

MISS PATTISON: We understand that the chief objective of our discussion today is to discuss future needs for the development of safety education through home economics. We realize when we start out to talk about need for development that there are several things that need to

be done. We have heard this morning that there has been a great deal done to develop safety education in home economics. As I was sitting here listening to the things that have been done to help teachers, I began to wonder where we were going to pick out spots that need more development. But that is our job today.

I would also like to emphasize the point which Miss Williams made—all of us working with teachers, who are teachers ourselves, recognize that the home economics curriculum is getting more and more crowded as we take cognizance of the complexity of the home. We know that safety is one thing we have to be concerned about, but there are many other things to concern us, too.

One of the things that we need to keep in mind is the fact that our big job is to help teachers realize that this can be done and that it can be done in the limited amount of time available.

I am going to revise these questions a

little so that we can discuss them and yet be dismissed by twelve o'clock. There are other meetings this afternoon.

I would like to ask this question of panel members and I would be glad to have questions from you or any comments. *What do we need for the future development of safety education through home economics in secondary schools? What are the high points of the things we need to be thinking about in our discussion?*

MISS BEEMAN: It seems to me we need a good many things, but one of the things I would say we need to incorporate in our teacher training curriculum is individual consciousness of the responsibility for safe practices. I was wondering why we couldn't have part of that in our student-teacher program. Why can't we incorporate not only facts that are needed, but also some experience in teaching those facts in the high school.

MISS HODGINS: I think if our teachers went out into the high schools and were sufficiently safety conscious—and if she consistently performs every operation safely, then she has set a good example and we have some basis for our safety program. We learn by doing, if we know what we are doing. If, when our teachers come out of college, they are conscious of good, safe practices and start their class work off right, they, in turn, pass their knowledge along. Whenever our students become safety conscious, then they carry over safe practice into their home. Our Illinois program in the secondary schools, which we have been working on for seven years, is most successful because of home projects, which were initiated in the classroom and directed by the teacher. The student leaves the classroom, goes into her home and does something about unsafe practices in the home.

MISS MATTISON: You are saying then that it isn't enough for us to teach professional courses in home economics in the colleges; we have to get safety education into the technical courses, in foods and clothing and so forth. That is a big job, because probably it is harder to get to college teachers than it is to secondary school teachers. We college teachers have been on the job longer and we are more set in our ways. Have you any suggestions as to what might be done?

MISS SCHULTZ: I believe it was in January when we had a meeting at which Miss Ward spoke and Miss Swain, here in Chicago, invited us to use the Board of Education offices for a state committee meeting. The National Safety Council sent us statistics. I believe Mr. Johnson was there then, as was Mrs. Barnard of the Council. What we wanted at that time was to get divisions of the association interested and bring out the kind of subject matter that related to each phase of the program. For example, the nutrition people should have a definite interest because some accidents are due to the physical condition of an individual, as much as they are due to carelessness. Dr. Klasse told us about the relationship of foods and good eyesight, so necessary if we would prevent accidents. Miss Handmacher had a great deal of material on the relationship of fashions and safety. Miss Ward had a list of questions for checking physical factors of a safe house. At that time, we asked the statisticians whether they could break down some of the figures for us. The majority of people live in houses and homes are credited with all of these accidents. Could the figures be broken down in such a way that we could relate them in our teaching? Could we find out how much is actual carelessness and how much is something over which the specialist should have control?

MISS MATTISON: That may be one of the needs—to get our facts so that they are more usable for actual teaching. We are getting good statistics for general distribution, but we may need some other kind of facts. Does anyone have a comment on that?

MISS BRAUN: I think that is one of the reasons why teachers aren't conscious of home safety education in their departments. They don't know what is happening in their backyard. Maybe you see an article in the newspaper which might contain certain statistics, but that has nothing to do with your own community. But, if you hear that your next door neighbor has had a fire, you pay attention to it. If it happens in some other part of the county, you don't give it much attention. I think we need more statistics for smaller areas.

MISS MATTISON: Then we get an emotional tie-up to the statistics.

MISS BEEMAN: Don't you think it is true that your smaller community knows

more about what is going on than the larger cities? It seems to me that everybody in a rural community knows about all their accidents.

MISS BRAUN: They hear about one this week and another one next week. In the *Milwaukee Journal* two weeks ago, county statistics were given. There were 28 deaths by traffic and 61 in the home. If some of the suburbs would have statistics broken down, they would publicize them a little more. I think then the teachers would be more conscious of actual local conditions.

MISS HODGINS: Are there any techniques that we could give the teacher for discovering what is happening in her own community? There might be a few techniques for finding out the accidents that are happening, why they happen and what might be done about them.

MISS SCHULTZ: You have some materials on that, Miss Williams. There is a little game written up that children play. They write down the kinds of accidents that occur in homes, put them on the board and classify them. It is among the literature put out by the National Safety Council.

MISS HODGINS: Wouldn't that be a good means for a local high school teacher out here to get the literature rather quickly? It certainly would be direct from the firing line.

MISS SCHULTZ: We tried it out in the teacher training group, and the teachers had as much fun as the children.

MISS BRAUN: School nurses could do a lot. When the children come in for special treatment, they could tell her what happened in the home and she could make a brief report so that we could get an idea of what the accidents are.

MISS MATTISON: In working with teachers, the idea of making a survey scares them. They do need help on just "how do you go about it," and "what do we do with it when we get through?" That is one of the weak spots in the collecting of material. In home economics we have collected enough data to fill volumes of research, but the facts are filed away and teachers aren't sure of what they mean. We need help on how to interpret the data collected on accidents.

MISS MARY MARK: We home economics teachers have a crowded curricu-

lum, yet, in view of the large number of home accidents, it seems to me that the home economics teacher needs to be taught and trained, before she goes out to teach, that some time needs to be devoted to safety. I think the beginning home economics teacher is so filled with the subject she is trying to get across that day, that she completely misses the safety factor which enters into it.

I have gone into any number of classrooms as the beginning teacher steps in front of the gas oven to light. No one has emphasized that that is not the proper position to be in when lighting the oven, and so the children are going to do the same thing their teacher does when they get home. I think she is concentrating on the subject matter rather than integrated safety at the same time.

MRS. ALDERMAN: We aren't asking a teacher to take on a whole new block of subject matter. No more time need be taken to show the children the right way than to show them the wrong way. Safety consciousness on the part of the teacher is all that is necessary.

MISS MATTISON: Safety might be one of the motivations for doing a thing. In the food lab, we tell the girls they must tie their hair back. They tie it back so it doesn't drop in the food. When you look at the safety literature, you find the reason for tying it back is for safety's sake. Sometimes we teach one reason for doing a thing, when we could teach much more effectively if we showed many reasons for doing it.

MISS BEEMAN: Isn't this one of the fine opportunities we have for getting pupil participation in setting up the program? Why don't we let them work out the reasons? Why should we tell them how to light the stove? Let them work it out. Get pupil participation in setting up the standards and procedures. Then, I think, you will have motivation and interest.

MISS MATTISON: Assuming the teacher has enough background for teaching people that way.

MISS SCHULTZ: This may be throwing a bombshell in here, but I think that we have been considering this whole subject long enough now to go back to the beginning of our own organization back in 1909. We had sanitation connected up with

hazards and with safety. I don't know why we couldn't do what we were referring to there and have more reasons. Health is a part of safety. We have limited our thinking more to hazards, and I think we ought to broaden our scope a little bit.

MISS MATTISON: I am wondering if we are beginning to get to the place in home economics where we need to have more people sit down and see the curriculum as a whole and get safety into the teaching. I would like to emphasize the point that Miss Williams made about making teachers safety conscious by having them take time out to teach it as a separate unit. I am wondering if there aren't a good many phases of the program in which we haven't gone far enough so that we can be sure that we get all safety practices into every aspect of the curriculum—such places as sanitation, family relationships, health, and so on.

MISS CHENOWETH: We have been discussing what we could do with the teacher training program. We shouldn't forget the teachers in service and the materials and methods we could give them. I was wondering if anyone in the group has any suggestions how this could be done.

We are beginning in West Virginia with a revision of our curriculum and thus far we have emphasized health, home nursing and first aid with little thought to the prevention of accidents. I wonder if someone has a suggestion as to how materials of that kind could be included.

MISS WARD: If safety is important, and I presume we all agree it is, then won't we find some way of getting it into the program? If it isn't worth while, then we are wasting our time considering it. I am reminded that there are a lot of educators who are not sure that safety teaching is worthwhile. I had a young lady say to me, "Miss Ward, I don't know how to get it into my program." She had been receiving this material and we labored hard and long over some of it. I think we have to use different approaches to different groups of people. I believe that teaching girls is much the same as teaching adult women. When you do laundry, when you wring clothing, when you light an oven, you teach them how to do it safely.

In the training of teachers, perhaps they should have a separate unit on safety.

MISS MATTISON: How are we going to make that a real motivation for making practice part of it. The difficulty is that many of us, as individuals, don't think safety is worth our time. It isn't worth having to think about it. We don't think an accident will happen to us. Isn't that part of our difficulty?

VOICE: I come from the same institution as Miss Ward, and if she weren't so dedicated to the importance of home safety, I am not sure Illinois would be doing the job it is. A person must believe in safety wholeheartedly. I have the same problem as Miss Bennett has—how to get people to accept safety teaching wholeheartedly?

MISS MATTISON: We can learn safe practices, but we know more than we practice. How are we going to get to the point of making teachers themselves feel that safety practices are worthwhile or that it is worthwhile to buy safety equipment?

MISS MATTISON: This may not be good psychology, but I suspect that if high school girls recognized that there was any danger of snoring their brains by their unsafe practices, we could appeal to them to do the thing safely. At that age, personal appearance is so important to them. If we could get that tie-up, the effect unsafe practices may have on them, we can show that safety is important, because unsafe practices block the goal we want to attain.

MISS HODGINS: If the teacher has good safe practice when she goes out to teach, she is going to get safe practices across to her students.

If we can get this thing going, I am not worried about the time element. I have tried and tried to make time studies of all phases of the program, yet I haven't any solid proof that time has a lot of connection with what the teacher does. Time has more connection with whether she does her work with clarity or frustration. I can give you instances where teachers with the lightest programs feel they are overworked. There isn't much correlation there. I am not concerned about the time element as much as I am about turning out teachers who believe in what they practice. I repeat, it wouldn't take any longer to do a thing the safe way.

MISS SCHULTZ: What was the motivation of that teacher who accomplished 34 safety projects?

MISS HODGINS: She became interested in it herself. I would have to say that, in her case, the motivation was not a case of her having had any safety work in college. She became interested. There were some boys in her homemaking department. The boys, I believe, were the ones who started the safety program, and they got the girls interested. This teacher had 34 home projects, and they were good. The boys started out, and some of the girls too, by making racks for such garden tools as the rake, the spade, the shovel and so on. Then they decided to paint those last steps down in the gradeway, and they got the whole family making gradeway arm rails. They even took old jar rubbers and put them under scatter rugs.

MISS SCHULTZ: Is there anything from that experience that might be helpful?

MISS HODGINS: We have already set up workshops. Miss Williams is helping us with them. We are going to have 20 future home-makers come in first. We will pick the girls who have had the most experience to talk on their experiences and to work on them.

MISS SCHULTZ: Have you thought at all about making films or movies?

MISS HODGINS: I have asked for them for three years. We have no funds to use for that now.

MISS MARKS: Some of those home projects might be home economics projects, the rack for knives, for instance. How many home economics laboratories use such a rack?

MISS HODGINS: This one teacher, who got 34 home projects in safety in one year, started right in the classroom. These projects had their effect on that commu-

nity; thirty-four homes were involved in a town of 2000 or 3000. They couldn't help but have an effect.

MISS MATTISON: We have said that the first point in the development of the program was that of improving our present service teacher's educational program. We seem to be agreed that our teachers are going out unaware of good safety practices in home economics. We also are faced with the problem of trying to help the teachers in college recognize the importance of safe teaching practices in laboratories. We probably have many safe practices that are not tied up with safety education directly. We also have some unsafe practices in our college laboratories.

We seem to be agreed that the curriculum is crowded. It is more a matter of not knowing what to do and how to do it, than it is a matter of time.

We need to show teachers that teaching safety does not take longer. Another of our needs is for statistics that are broken down in such a way that they can be used more effectively for teaching safety in the classroom. We probably haven't as much data as we need, but the suggestion was made that we try to get statistics on a community level, as well as on a state or national level. We need to get those details about accidents that will help to really tie them in emotionally with the facts. There is a need for wider statistics to a wider level to give the pupils a chance to see safety as a whole. We need in-service as well as pre-service education of teachers. This is really a matter of putting our finger on every spot to improve safety education. We can't let any one person take the responsibility of all of education.

TUESDAY AFTERNOON SESSION
October 8, 1946

General Session on "What the Report of the President's Highway Safety Conference Means to the Classroom Teacher."

Presiding: Dr. FOREST E. LONG, Chm., Dept. of Secondary Education, School of Education, New York Univ.

**The President's Highway Safety Conference—
 Education Report**

By ROBERT W. EAVES
 Secy., Nat. Commission on Safety Education

The President's Highway Safety Conference was probably the most important single event in traffic safety to date. More people participated in and have talked about it than any other single program in traffic safety planning.

Education had an important part in the total program. It was one of eight areas for study and development. The others were Accident Records, Organized Public Support, Engineering, Enforcement, Laws and Ordinances, Public Information, and Motor Vehicle Administration.

A committee of 68 persons were appointed to serve on the Education Committee—its function: To review the entire program of traffic and highway safety education at all levels; suggest essentials for a minimum program; and make recommendations for immediate action.

Membership was made up of safety education specialists, educators representing all levels of education—elementary, secondary, teachers colleges, and colleges and universities. Suggestions for committee membership came from educational organizations and agencies working in the field of safety. This committee activity provided a fine example of co-operation on the part of public and private school teachers, administrators, representatives from colleges and universities, and private agencies working together to solve a common problem.

The committee's plan of operation was outlined by the Co-ordinating Committee of the Conference. It called for a printed report to be ready at the time of the Conference. Consequently, the committee had

but one month for the preparation of this report. It was necessary to work rapidly. One general session of the committee was held at the National Education Association headquarters in Washington. Committee work was divided into five areas as follows: (1), elementary education; (2), secondary education; (3), teacher education; (4), college and university education; and, (5), school transportation.

It was suggested that school transportation presented an important highway safety problem which deserved special committee activity. Chairmen and secretaries were designated for each of these areas. They were responsible for the preparation of reports of various subcommittees.

Many last minute problems arose in getting the job accomplished. There were debatable issues and differences of opinion which, because of lack of time and the difficulty of calling other committee meetings, made it almost impossible to complete the job satisfactorily to all. Consequently, the secretary and his editorial staff were forced to take responsibility in making last-minute decisions to ready the report for the Conference.

At the Conference, several hundred delegates met with the committee to consider the report, at which time many differences of opinion were aired in regard to necessary changes. Certain changes in the report were agreed upon during the two-day session of the Conference. The state delegates who worked with the committee on the changes returned to their states enthusiastically prepared to pass the report on to others.

Debatable issues which arose at the Conference included the program on teaching driving in high school. All agreed that we should teach high school students to drive but the question at issue involved whether the committee should push or advocate a specific plan.

The committee solved that problem by agreeing to the following:

"The fact that no single blueprint will fit every school situation is sometimes viewed as an obstacle in driver education and training. Actually, this fact should be accepted by the school administrator as a challenge to his ingenuity in discovering or devising ways to adjust the course to fit the requirements of his own program, as in other fields of learning." (Page 12, Report of Committee on Education, The President's Highway Safety Conference, 1946.)

"Recommendations for Action. It is recommended that school administrators:

1. Work for adequate public assistance and support by informing the community about the aims, nature, and scope of the school traffic safety program. Enlist the aid of community organizations which have an interest in the program and have helpful resources.

2. Immediately determine adequacy of instructional programs and practices in relation to traffic safety needs.

3. Provide a supervisor of safety education, or committees of teachers, or individual school safety co-ordinators.

4. Plan for driver instruction, the utilization of co-curricular activities and student organizations, and the correlation of traffic safety instruction with courses presently offered.

5. Interpret the driver instruction program to staff members and students and delegate authority for its conduct to a qualified staff member.

6. Provide driver education and training as an integral part of the curriculum, when students are as near driving age as practicable. This work may be organized as a separate course, or as a distinct unit within an existing course. When organizing such instruction, the following should apply:

Standards for instruction which will enable students to exceed the requirements for state driver examinations.

Utilization of sound instructional materials, such as visual aids, psychophysical testing devices, and a motor vehicle.

Where provision is made for road training, the car should be in safe operating condition, equipped with dual control, and adequately insured.

7. Provide driver education and training courses whenever possible as a service during the summer, at night sessions, and for adults in the community." (Pages 13-14, Report of Committee on Education, The President's Highway Safety Conference, 1946.)

Other recommendations included:

"1. Elementary Schools.

Provide a safe school environment.

Prepare or revise courses of study in safety to emphasize traffic problems. Base day-by-day instruction on immediate needs and local situations, utilizing such techniques as dramatizations, films, maps, etc., and providing opportunity to acquire skillful habits.

Encourage safety activities among student organizations and, where needed, organize safety patrols and safety councils.

Co-ordinate the program with home and community safety activities, providing qualified supervisory personnel whenever possible.

"2. Secondary Schools.

Provide driver education and training as an integral part of the curriculum for students approaching legal driving age and other traffic safety activities for all age levels in the secondary school.

a. Standards for driver education should enable students to exceed the State driver license requirements.

b. Whenever possible the secondary school should provide driver education and training as a summer service, at night sessions, and for adults in the community.

Determine the adequacy of the safety instruction program in relation to traffic needs; correlate it with present courses; and utilize co-curricular activities, student organizations, etc.

"3. Teacher Education.

In Colleges

a. Administrative officials should provide safe facilities at the college.

b. Safety education programs, which include traffic safety and driver education, should be conducted either separately or as part of several courses, with provision for developing elementary and secondary school programs.

c. Colleges should co-operate with school administrators in organizing extension courses, workshops, conferences and other aids to in-service training.

d. Opportunities should be offered for advanced study and research.

4. In-Service

a. State, county, and city superintendents and supervisory officers should organize activities for the in-service training of teachers in traffic safety; include traffic safety in state and regional teacher conference programs; and provide instructional materials such as textbooks, visual aids, bulletins, posters, and driver testing equipment.

b. Teachers should be encouraged to participate in school and community traffic safety activities.

5. Colleges and Universities.

Should co-operate with Federal, state and local agencies (both public and private) in the training of highway transportation personnel such as engineers, administrators, fleet supervisors, police, driver license examiners, etc.

a. Expand research.

b. Engage in public safety education activities, through forums, radio programs, films, etc.

c. Offer fellowship and scholarship grants for advanced study in traffic safety.

6. Pupil Transportation.

States

a. Administrative or supervisory personnel should be given responsibility for development of a complete program in pupil transportation, including the adoption and enforcement of the vehicle standards recommended by the 1945 National School Bus Conference, and should establish procedures that will insure the selection and training of qualified drivers and maintenance personnel.

Local Authorities

a. Should fix responsibility for administration and supervision of a program to enforce State requirements; provide suffi-

cient vehicles to prevent overloading; develop safe schedules, loading, routing, etc.; and train pupils in safe bus transportation habits.

b. Should encourage the organization of school bus patrols." (Pages 6-7, Action Program, The President's Highway Safety Conference, 1946.)

The Report was prepared principally for leaders in education. In itself, it offers little direct help to the classroom teacher. Elementary and high school principals, supervisors and curriculum directors, superintendents of schools, and college administrators should find it helpful in planning an over-all program of traffic safety. While the Conference originally intended that the state delegates would carry the program to the states, there is much that national organizations can do to get the report before school groups and stimulate its use.

To date, the National Commission on Safety Education has issued 80,000 copies of a leaflet based on the President's Conference, entitled "Are the Schools Doing Their Part?" Fifty thousand copies have been distributed. The leaflet actively advertises the education report by calling it to the attention of school people.

The Commission has sent copies of the report to state departments of education and state education journals. Brief write-ups of the report are now appearing in current issues of various state journals. Other jobs can be done to stimulate its use through articles, quoting from it in meetings and in publications, etc.

We should not be disappointed if we observe only limited results from the Conference. Any additional interest in safety education as a result of this Conference moves the program forward. It is realized that any sound program of education moves slowly, too slowly, of course. Unfortunately, the American schools are in critical situation due to the lack of finances and personnel necessary to meet the demands being made upon them by society. Nearly one-third of the teachers left the profession during the war. Few have returned. This is easily understood in the light of the prevailing low salaries. It is essential that we keep in mind that a sound safety program of any kind must move along with other improvements in

school services. If it is pushed forward far in advance of other programs, it is likely to receive a setback. Therefore, it is

important that we do all in our power to promote traffic safety education and other forms of safety to meet current needs.

The Function of the Public Support Committee in Relation to Education

By PAUL H. BLAISDELL

Secretary, National Committee for Traffic Safety

Since the President's Highway Safety Conference last May we have witnessed a speeded process of evolution in the field of highway safety. There has been an unfolding of more intensive, better integrated programs for traffic safety among officials and among the great national nonofficial organizations which wield tremendous power in shaping the course of public approval and public support. This evolution has been disclosed in the series of state and local highway safety conferences which have taken the action program of the President's Conference and have adapted it to local situations. It has been manifest in the growing prominence of traffic safety on the agenda of national conventions, and in the statements of program objectives for the coming year. It has been evident in the willingness of the various media of public information to co-operate even more fully than in the past in bringing home to the individual the full facts of highway safety as a social and economic problem.

At long last, safe highways may be within our grasp, if we can consolidate our gains and capitalize on the current wave of enthusiasm. The principal step remaining in the two or three years immediately ahead is to achieve unified official action for highway safety and to back it up with unified public support.

This objective was the major thesis of the committee on organized public support of the President's Highway Safety Conference—that safe highways are a shared responsibility—that the official program and the nonofficial supporting effort are permanently linked—that the one cannot be successful without the other. It would be foolhardy to believe that better traffic law enforcement, better safety engineering or even a complete program of driver education and driver training in a municipal

school system could succeed without public approval and public support. It would be similarly futile to spend time and energy for public support of a traffic safety project which was not in line with known official needs. The public support committee of the President's Conference left no doubt as to its position on which program should be co-ordinated first, for it said of the duty of officials: "State by state, city by city, we must measure our traffic laws and ordinances, our police enforcement policy and practice, our safety education program in the schools and our engineering accomplishments against the standards necessary to achieve safety on our highways. If our own traffic safety program is substandard, we cannot rest until it is corrected."

Such a major premise is not intended to discourage nonofficial organizations from carrying on extensive highway safety programs of their own. Under our democratic system an organization can act for the public good without the benign smile of officialdom. However, it should be evident that joint activity will generate more steam and that a winning highway safety program seldom results from playing a lone hand.

The cosmopolitan make-up of the President's Conference committee on organized public support was our assurance that its findings would reflect the thinking in every phase of highway safety activity. While a majority of the committee came from national civic, service, professional and similar organizations, there was also sizeable representation from the official family of educators, police and engineers. The plan of action which they developed, and which the Conference approved, set forth a logical sequence of events at national, state and local levels to reach the ultimate goal of the Conference. Needless to say, the educator was cast in a stellar role in each case.

On the official side of the ledger, in the National Committee of State Official Associations, education is to be represented through the National Association of Chief State School Officers. In the state structure, the state superintendent of public instruction, or state commissioner of education works co-equally with the highway commissioner, motor vehicle administrator and head of the state police or highway patrol. In counties and municipalities, the superintendent of schools is a member of the official guiding body.

On the nonofficial side of the ledger, the President's Conference asked an expanded National Committee for Traffic Safety to carry on the development of public support for highway safety through national organizations, thence down to the states and communities.

Currently the public relations of traffic safety center in the drive for public support. The person uninitiated in the struggle for highway safety might ask why, since the record indicates that we need safer highways, does it take more than a bald statement of that fact to get safer highways? Why aren't the people of your city and mine so aroused that action is spontaneous?

During the years in which we have seen the responsibility for traffic safety separated into spheres of influence—that of the state, the municipality, the educator, the engineer, the police officer—we have expended millions of dollars, countless hours of human endeavor and an immeasurable output of mental energy, but we have not sold the all-important transition from approval of highway safety to individual practice of highway safety. *Time* magazine, in reporting the President's Conference, gave us, perhaps unwittingly, an evaluation of our success in its closing phrases which said: "The President made a strong plea for safe highways. Conference delegates nodded understandingly. Most U. S. drivers just nodded."

It is a statement of the obvious to say that probably much more could have been accomplished if we had spent every last bit of our money, time and energy in educating a generation of good drivers. Why, then, must safety education still have public support to reach maximum effectiveness? I can see three reasons:

First, the educator has a two-way selling job in safety education. One of these is external, in that it encompasses the broad concept of educating the whole people. The public must be convinced of the need for and the economic soundness of a program of driver education and driver training in every school system. The other selling job is internal, in that the educator, with the help of a convinced public, must sell the need for safety education to a school committee or a school board.

Second, if reduced to a choice in public expenditures, safety education will generally lose out to a more glamorous commodity. Traffic safety needs more glamour. To be a safe driver and a safe pedestrian must become the fashionable thing to do. Traffic safety must have the versatility of an orchestra: solid, as with Tommy Dorsey; sweet and "gurgly," as with Kosteletz; schmaltz, a la Spike Jones; or power, under the baton of a Koussevitzky. Yes, I'm asking educators to join the ranks of the "glamor boys and girls" sufficiently to make a safety education program look as good to the taxpayer as a new stadium or a new city hall!

Third, a program of driver education and driver training has four great barriers, the combination of any two of which constitute a mighty challenge to co-operative effort. These barriers are:

1. A lack of trained teacher personnel
2. A lack of dual-control vehicles, and the cost thereof
3. A place in the curriculum, and the cost-per-pupil
4. Accrediting the courses for college entrance requirements.

I am not going beyond a mere statement of those four barriers. All of them are being studied and acted upon by one or more committees in the organizations dealing directly with safety education. However, the three reasons I have given for safety education's need for public support are the very heart of the job growing out of the President's Highway Safety Conference. In undertaking that job, the position of the National Committee for Traffic Safety should be made very clear. It is *not* an operating organization. It is *not* invading the field of the National Commission for Safety Education, the School and College Division of the National Safety Council,

the National Conservation Bureau, the American Automobile Association or any other group working in safety education. *It is functioning as a clearing house and co-ordinating agency, trying to build public support where it is needed.* Your selling job to the American people is the task of a century if you try to convert them one by one. If you win them through the organizations to which they belong, it can be accomplished before the millennium. The use of the word "co-ordination" by the President's Highway Safety Conference and by the National Committee for Traffic Safety is not for the purpose of confusion, nor does it indicate an inability to take positive, assertive steps. Co-ordination is used in the sense which Noah Webster gave it . . . "to bring into common action, to harmonize."

To this end, on August 14 last, the National Committee for Traffic Safety adopted its 1947 program. The program admitted that the first loyalty of the state and local units of our national organizations is to state and local official programs for highway safety. If these official programs include driver education and driver training, which they should, the potential public support is yours for the taking. We were not content to let public support for safety education stop at this point, and our further interest was expressed by our taking driver education and driver training as our No. 1 supplemental objective. During the Congress sessions you will hear W. Earl Hall, Chairman of the National Committee for Traffic Safety discuss this program in detail.

In taking this stand for safety education, the National Committee for Traffic Safety was cognizant of the fact that a survey of the National Education Association, made only a year ago, showed that public school officials preferred assistance from other public officials rather than from civic and service organizations. There is no reason for an automobile club, a Kiwanis club, a parent-teacher association or any other organization to take offense at this position. It is doubtless an outgrowth of too many occasions of misguided zeal. After all, there are only two ways in which organized public support can aid safety education. The first of these I shall call the *embarrassment method*, or *now-you-have-it-whether-you-want-it-or-not*. Under this sys-

tem, for example, a public support group by-passes the school officials, buys one or two dual-control automobiles, presents them to the city, and gets a driver education and driver training program inserted into the curriculum. Without adequate preparation the star shines brightly, fades to the sixth magnitude, and finally disappears. The other way I shall call the *public promotion method*, or, *we-the-people-want-safety-education-and-are-willing-to-pay-for-it*. Under this plan the school official makes the initial determination of the need and then seeks public support. When driver education and driver training reach the curriculum through this method, they're probably there to stay. This way places a very heavy responsibility on the school official, for he is the one who must come forward and say to the support organizations: "Now I want your help."

At least some of the opinion favorable to co-operation within the official family which was registered in the NEA survey must be attributed to laziness on the part of school personnel. It's very easy to pass-the-buck and call upon the police department to do the job of driver training. Actually, the schools have no more right to expect the police to teach driving than they have to expect the local bawler's association to teach arithmetic. I would not minimize the effective work done by the police in driver training, nor would I suggest anything other than complete co-operation between the school and police departments, but I would contend that safety education is properly an assignment for the schools, and no amount of ducking or dodging can shift the responsibility.

So far I have tried to draw the broad picture of the relationship of public support to education, listing certain specific challenges to educators generally. To trace a direct line from the President's Conference to the classroom teacher requires brief amplification. At a minimum, the Conference report means these assurances to the classroom teacher:

First, that the President of the United States and some 2,000 national leaders recognized the importance of highway safety and the part education must take in securing highway safety.

Second, that through the report of the

Public Support Committee, organizations accepted a responsibility to back up the schools in their execution of a program of safety education.

Just how far can the average classroom teacher go with these assurances? There is no question that the elementary school teacher is responsible for much of the warning to and training of young children as safe highway users. On the whole the job has been well done. We can hope that the elementary school teacher will continue and expand this valuable service. Through the first eight grades the emphasis is on safe pedestrian practices. Suddenly the child enters high school, and the years as a driver are about to begin. If there is a program of driver education and driver training, it should make the transition from the pedestrian viewpoint to the driver viewpoint fairly easy. If, as in most cases, there is no formal program, then certain high school teachers have an opportunity to shape the attitude of the young driver, for there is an inevitable reaction in the youth which says: "Now I'm driving, and those young 'kids' must keep out of my way—that's what they're taught to do." Every high school teacher in the field of the social sciences has an opportunity to build highway safety as an attitude leading to better human relationships.

Some of you may feel that 1946 and 1947 are not an auspicious time to push for

safety education—there are too many problems of teacher shortages and overcrowded schools. I submit that the time is never perfect, there is no moment when other problems are not pressing whether you select your time by astrology, numerology, psychology or plain horse sense. Had leaders awaited the perfect moment we might have had no American Revolution, no college education for women, no Normandy beachhead.

We are only deluding ourselves if we think that the public promotion method won't work. There are, perhaps, no greater reeds to sway in the wind of public demand than the average school committee or school board. As of today, the National Committee for Traffic Safety represents 117,993 local units of national organizations, in every last corner of the United States. As of Thursday next that number will be a rising 125,000. To select just a few at random, I'd pity the school board which had the local Women's Club, Parent Teacher Association, Garden Club, American Legion Post, Business and Professional Women's Club, newspapers, radio stations and insurance agencies clamoring for a program of driver training and driver education. You can call it public promotion or public pressure—whichever it is, don't be afraid of it—use it—for if we believe in safety education as a means to safe highways, public support can give it to us.

What Each School Can Do to Implement the President's Highway Safety Conference

(Panel Discussion)

Chairman: DR. GEORGE D. STODDARD, Pres., University of Illinois.

Participants:

MARION L. BARTLETT, Principal, Howard Street School, Springfield, Massachusetts.

SISTER MARY CARMELYN, Faculty Advisor of Mundelein College, Chicago.

N. BLAINE WINTERS, Chm., School Education Committee, Traffic Div., Utah Safety Council, and State Dir., Teacher Personnel, Utah Dept. of Public Inst.

DR. STODDARD: It was shown in the statistics presented at the Washington conference that, while we had made great strides in teaching safety education and safety practices to very young children, that the total curve of fatal accidents showed a downward trend, we had not been successful at all in the age range from 15 to 24 which includes all our junior and senior high school youths, and most of our adult population.

Youth in the late teens has been in an increasingly deadly situation so far as highway safety is concerned. Teachers in the secondary schools have not been able to accomplish as much as the overworked elementary school teachers. Why? What comes in at the secondary level that makes the problem so much more difficult?

There are twice as many boys as girls killed in highway accidents. Why? Now, I know the immediate and obvious answer is, boys are more lively. There are more out on bicycles. They try out the family cars. But I am not so sure that is the answer. I see lots of girls on bicycles. They are as likely to cross the road as anybody else. Whether or not they are allowed to drive the family car as soon as boys is something we should think about. The fact remains, a girl is about twice as safe from highway accidents as the boy and if we can find anything from that one statistic to transfer over to the safety precautions on behalf of boys, perhaps it would be worthwhile.

Now, there are one or two other things I shall mention briefly. I know Mr. Eaves mentioned many other factors, but, like so many other experts, he comes around to the idea that you must have better driving instruction. It is not enough to eliminate grade crossings, to widen the road and put on better shoulders and fix up the curves. It is not enough to improve the mechanical factors in the car or the means of law enforcement. Perhaps the most vulnerable area of all is what happens in the mind, in the thinking, in the motor adjustments and even in the intentions of the young driver or the driver of any age. That can be taken care of, obviously, by driver instruction.

I can think of no other area of learning which you would give over, without proper supervision and under dangerous conditions, the very first learning to the boy or girl. I can recall that in high school and college, you weren't allowed to work with chemicals or to use expensive laboratory material until you had received a certain amount of instruction. We didn't want everything destroyed. I know that during the war, many of us helped to train some hundreds of thousands of workers in the war industries and one of the essential items in those courses of instruction was not to turn loose

the green hand upon the particular product which becomes a war material. He must practice on something else. Otherwise you will have 50 people working on a plane and the fifty-first, not being well trained, will ruin his part of the work and the plane will fail to pass inspection, and that will ruin the work of everybody else in the factory.

Then, we had the pre-training courses. Many of these courses were given in the high schools and we gave the students little welding units. Students didn't work on planes at all. They worked on cheap materials. They worked on parts of planes which were not to be used.

Well, as you know, when it comes to driving instruction, we seem to think nothing at all of giving the novice the family car—an expensive piece of material—and of putting him out on the highway, not in the safeguarded yard or section, but right out on the highway where the chances of doing something wrong are. I should say that almost 100 per cent of the driving students, in the course of the first hour's instruction, will do something radically wrong. He will do it radically wrong not only where he endangers the car, but the lives of everybody in the car and everybody he meets on the highway and every living thing that tries to cross the highway.

So, in our instruction, I am hopeful we can think of some ways, some proving ground as it were, for this type of training. I am wondering, too, as an ex-Commissioner of Education, if we somehow couldn't take advantage of the out-of-school hours of the children? I would agree with Mr. Eaves and Mr. Blaisdell that it is a good and sound part of any elementary or high school curriculum to have instruction in driver training, but I must add, mighty few try to put too much of it in the classroom, as you will run into a rather subtle opposition from the teachers of other subject matter, who also have their obligations. The children are supposed to learn something about English and social science and other subjects.

In other words, the teachers' professional lives are attached primarily to standard subject matter. I am not advocating that as a principle. I merely recognize that many of them feel that way about it, and when you come in with new subject matter,

you have to be careful not to take out too much. Otherwise, you get a resistance on the part of the teachers and the supervisors. But, more important than that, I have a feeling that there is a lot of spare time in the calendar which might well be given over to the laboratory and the training phases of driver instruction. Have the theory in the classroom. Break down the parts. Go over the charts and learn the rules and the legislation and do all the abstract work. Then, instead of trying to carry out the actual experience or the tutorial experience—instead of trying to carve that out from the short classroom day—let's extend the day.

My guess is that is one thing these children would be glad to have the day extended for, and that is one thing every parent and public teacher would be glad to have a longer day for. That is something I would be glad to throw to the discussion panel.

The school day is short and the astronomical calendar is long. I would suggest that we have intensive driving sessions, perhaps under dramatic and colorful conditions, during vacations.

MISS BARTLETT: Our school is a downtown building in the crowded section of the city of Springfield, Massachusetts. It covers a whole block in the business center and is less than an eighth of a mile from the railroad tracks on the banks of the Connecticut River. We have about 500 pupils and 16 classrooms, ranging from kindergarten through the sixth grade, and four special classes for the mentally retarded. About 60 per cent of the children are of Italian descent. Many are from the less privileged group. Close beside the Howard Street School, with only a wire fence between the yards, is the St. Francis Parochial School. The pupils of both schools use the same streets.

The following activities are a part of our weekly program. Hot lunches are served each noon to 120 children. They remain during the noon hour and are cared for by experienced teachers. Each pupil in the building has a shower twice a week. Also, many of the adults come to the school for showers. Last year, 9,000 showers were taken by the adults of the immediate neighborhood. This community service continued throughout the year.

A young mothers' club meets once a week. This program is both educational and social and is a great help in relating the school program to the needs of the community. We have also organized a P.T.A. which is functioning quite satisfactorily. A class of adult aliens meets once a month and they range in age from 23 to 78. Most of them are now citizens, but they continue to come. They wish to become more Americanized. This is more or less a picture of my own school.

On the outside of the city of Springfield, is a four-floor modern building located in a good residential section. It is Sixteen Acres School. The building is as safe as careful planning can make it and the playground is adequate and away from the streets. The children live in attractive new homes, and their backgrounds are socially and financially secure.

What should be the approach to safety education in these two schools? How can we help the children to anticipate and recognize danger, and can they be made to realize that their very survival may depend on quick reaction and good judgment? With or without careful planning, daily living presents many hazards. Safety is a part of every child's experience.

In our section of the city, all streets are dangerous. Traffic is heavy at all times. At Sixteen Acres School, many children coming to school traverse the through Boston to New York highway. Many ride bicycles while others come in buses. The following procedures have been found helpful: First, a study of the environment by the principals and teachers is essential and, because these change from year to year, this study of hazardous areas should be continuous. This includes not only the inside of the building, the playground, routes to and from school taken by the children, and the accident situation in the community; but a record of the accidents should be made to locate the immediate hazard and determine where the responsibility lies, whose problem it is—the community, home or the school—and what can be done jointly to prevent recurrence of the accident throughout the city.

The schools have had an accident reporting system in effect for many years. This is good, but a recommendation that the National Safety Council Accident Summary

Report sheet be adopted, will be submitted to the administration this year.

The classroom teacher is the one who has to present the instruction. She must endeavor to create an interest in the study at hand and to build desirable attitudes and habits of safe living. The approach differs according to the grades and the district.

No two buildings are alike. It is not desirable to have them alike. Howard Street emphasizes the dangers of playing in the streets or near the railroad tracks or the river. Sixteen Acres School must teach children how to walk on roads where sidewalks are not provided and teach bicycle safety and how to be safe on buses. The safety patrol is one of our most helpful activities. This helps the children to practice safety in and about the school. They are learning to do safely the things they will do anyway. It provides opportunities for them to make wise decisions, to learn self-control, to be courteous. The whole school is represented at its weekly meetings—one person from each room. From these meetings come class room discussions, suggestions for bulletin boards, demonstrations, according to the needs of the season of the year. When problems arise, reports are brought to the patrol meetings and the members of the council are urged to suggest ways of bettering the conditions.

Visual aids, carefully planned school campaigns, a share in the city campaigns, such as the Community Chest and the Junior Red Cross and so forth, are additional activities of tremendous interest to the children, which stimulate the teaching of safety. Perhaps a respect for law and order, accompanied by the desire for self-control are the most difficult to develop, and the most necessary to have.

Jaywalkers are a hazard. Some are self-willed headstrong individualists. Primarily this is a home responsibility, but the school must carry where the home leaves off.

I would like to describe one community project which has been developing over a period of three years. On October 20, 1943, a joint safety meeting was called by the supervisors of safety education of the schools of Springfield and the director of the Safety Council, Mr. Ellis. Among those attending, were 16 representatives from the agencies of the organizations interested in child welfare; the police, fire department,

parochial schools, Y.M.C.A., Council of Social Agencies, boys' and girls' clubs, Scouts, P.T.A., Y.W.C.A., S.P.C.C. and the public schools.

The major problems submitted were Halloween, street accidents, vandalism in and around schools, general vandalism. The purpose of the meeting was to develop a program of recreational activities for the children for Halloween and to devise ways of contacting the children to inform them of various activities.

In three minute talks in all the high school assemblies, junior high school principals informed pupils of constructive activity for the week. There were broadcasts by the chief of police and by boys and girls who were club directors. All teachers told students about the broadcasts and the opportunities for recreation.

The results were gratifying. The Department of Streets and Engineering reported it was not called out once and the false alarms fell from 50 to 20. I must be honest and admit that the night before Halloween the weather was stormy. That probably had considerable to do with the record. However, the children were at liberty the whole week before, and we feel that this organized program really did reach many of them and accomplished a great deal.

Because of that, this committee still functions. Last year, the weather was beautiful with a full moon and both police and other departments reported that there was trouble, but the trouble was caused by children over school age. So, we felt that we were justified in planning and organizing this committee. This year, the schools began planning in September. The P.T.A. presidents were contacted and urged to arrange small neighborhood parties and it is hoped to have publicity through the radio and newspapers, bulletins to all teachers and principals, the Council of Social Agencies, and then work out something for the upper teen ages.

The Merchants' Association arranged parades of bands and there were prizes and many P.T.A. school parties. Those have proved to be very successful where they have been held.

SISTER MARY CARMELYN: It has always been my firm belief that all safety education is based on emphasizing the per-

sonal responsibility of each individual towards respecting the person and property of everyone else.

In our liberal arts college and in the grade school work, I found it practically impossible to try to introduce any separate courses. The teachers say they haven't time, and I believe them, but I do believe that if we wait until we have the time we will never get anything done. So, we have tried to correlate safety with the regular school subjects.

In our parochial schools, the one subject we consider of utmost importance is religion. We have tried to correlate safety education with the teaching of the Fourth and Fifth Commandments. Each child is taught to honor and obey his father and mother and anyone with jurisdiction over him. Each child is also taught "Thou shalt not kill."

In our college, we have the Red Cross accident prevention course, which is accredited. We teach first aid, home nursing and nutrition. In addition, I have tried to contact personally all teachers of all other subjects to see if they would, wherever possible, stress safety education, highway safety and so forth. For instance, in economics, accidents in terms of protection of wealth in its various forms can be studied. Physical education and physiology might concern themselves with motor control and tests for vision and hearing. Education, of course, includes a few lectures for the cadet teachers. We train teachers to go out into secondary school, not primary schools. Journalism and art have been brought into play for publicity purposes and, of course, in sociology the place of safety education is clear, as we learned from the paper which was read just before our panel. Wherever engineering is taught, there is no doubt of the possibility of including safety education.

Our greatest problem is enforcement. Our Safety Council has no power. It can study the situation and make recommendations, but it has no enforcement power. We feel that the program in the parochial schools has great possibilities, but so far we have not obtained the full co-operation of all the teachers, although we do have the go ahead from the Superintendent of Schools, Monseigneur Cunningham.

MR. N. BLAINE WINTERS: This whole business of safety education, I think,

rests upon the attitude of teachers and pupils.

I think when we, as teachers, find youngsters with improper attitudes in safety we must take stock of our efforts and see wherein we failed.

The schools in Utah have a variety of methods for teaching safety education. I think the methods have to be varied according to the teacher, the classroom situation, the community responsibilities, and so on. I visited, recently, an elementary school in which there was a basement hallway almost as large as this room, with rooms jutting out from it. The school had painted pedestrian lanes and had a signal light system in the center of the room. Youngsters in toy automobiles and on scooters, and pedestrians moved about in typical street situations. A young fellow operated the switchboard and changed the signal light from one color to another.

That seemed good to me, on the surface, so I said to the principal, "Now, what do you do to follow this thing up? Here is an artificial situation which you have made as realistic as possible."

He said, "Well, to begin with, we didn't do anything. We thought this training was sufficient. But, we soon found that the training down here in the basement had to be correlated on the outside. This brought us into community relationship." The school had to get the support of the police department and others.

Another school, I suppose, has the most outstanding safety patrol in the state. They have worked it up cleverly through school-community relationships with the Lions Club and other organizations. The patrols give programs in the different churches around the community.

MR. WINTER: What is it that makes an individual, who is ordinarily courteous, develop a dual personality when he gets behind the wheel of an automobile? If anyone gets in front of him, he is apt to poke his head out the side window and shout.

DR. STODDARD: You might get other clues of this dual personality. You might get other evidences which are predictive of the behavior of children and youth when they get into this powerful situation. It might be that some of the projective techniques they try on delinquents or frustrated children would be helpful. Instead of hav-

ing them punished or having them punish another child or talk back in a nasty fashion to their parents, give them dolls representing other children or their parents and take down their conversations. Sometimes, the dolls are torn apart, showing they have this pool of unresolved aggressive behavior usually resulting from conflicts or frustration.

It might be that having discovered some of these things by projective techniques, you could also work them out under conditions less dangerous than placing an automobile in their hands. Maybe you could give them something to tear apart or give them something that would permit them to show how dangerous their behavior would be if allowed any freedom or power.

QUESTION: Would it be possible, provided Dr. Eaves brought them along, to read the recommendations and have the panel tell us what they mean in terms of classroom action?

MR. EAVES: I wish to read the entire recommendation for the secondary education group. It is not very long and I think it will be of interest to the group to read this one report at least.

"It is recommended that school administrators:

"1. Work for adequate public assistance and support by informing the community about the aims, nature, and scope of the school traffic safety program. Enlist the aid of community organizations which have an interest in the program and helpful resources.

"2. Immediately determine adequacy of instructional programs and practices in relation to traffic safety needs.

"3. Provide a supervisor of safety education or committees of teachers or individual school safety co-ordinators.

"4. Plan for driver instruction, the utilization of co-curricular activities and student organizations, and the correlation of traffic safety instruction with courses presently offered.

"5. Interpret the driver instruction program to staff members and students and delegate authority for its conduct to a qualified staff member.

"6. Provide driver education and training as an integral part of the curriculum, when students are as near driving age as

practicable. This work may be organized as a separate course, or as a distinct unit within an existing course. When organizing such instruction, the following should apply:

"Standards for instruction which will enable students to exceed the requirements for State Driver Examinations.

"Utilization of sound instructional materials, such as visual aids, psychophysical testing devices, and a motor vehicle.

"Where provision is made for road training, the car should be in safe operating condition, equipped with dual-control and adequately insured.

"7. Provide driver education and training courses whenever possible as a service during the summer, at night sessions, and for adults in the community."

I have held out for expanding the school program, as was done during the war, to include a longer day—Saturday and vacations. These longer periods of time, when the youngsters are not doing anything, can be utilized.

DR. STODDARD: Would it be possible to certify parents as teachers of their children? I have a feeling most boys and girls learn anyway from older brothers and sisters or perhaps chiefly from parents. I wonder if the school could recognize that sort of instruction by getting the parents together and telling them what to watch out for and providing special means of examinations. Then try out the system on the basis of the parents teaching their own children.

MR. EAVES: There are some experiments of that nature now. There are several centers where the school has taken the initiative to organize the parents to do this job. The school has strings on that program. I might say it is helping the parent to do the job. We will be interested in seeing the results of that experiment. I don't think they have done enough or gone far enough to determine the adequacy of them. However, we do see the possibilities of its working out in some communities, where parents have more active interests in their children and are working to do more things for them. This problem is something for which we are going to have to find a number of solutions. There certainly isn't any one solution on a nationwide basis, and if we are going to do the

job we have to experiment and try the various methods and ideas that have been developed, and look for new ones.

DR. STODDARD: I share Mr. Eaves' feeling. My observation, as a parent and teacher, is that parents teach their children, but teach them badly. Parents teach children almost exclusively on the negative things. If a boy or girl is driving badly the parent says something or gives him a look that says even more. The boy is always sure that the minute he does anything wrong, he will be jumped on. Yet he can do something right for weeks and neither his father nor mother will commend him. In other words, I don't believe you can take parents out of the teaching situation. They are going to be there, so you might as well bring them in with a little expert guidance.

Also, I don't believe teachers can do the job alone for the reasons which Mr. Blaisdell and Mr. Eaves mentioned. They are too scattered. They are not well enough trained and there just aren't enough hours in the school day. So, I agree with Mr. Eaves, we must hunt around for help and I also agree wholeheartedly with the point which was made several times that we have to look to the internal character behavior pattern of the individual boy and girl. We have to instill in him some feeling of pride in his driving and in his actions as a pedestrian. We have to make him pleased at his skill. Then all this bravado that may come in with foolish driving or careless or negligent walking on the highway, must be somehow transferred into good actions.

I don't think we need to give the blue stars of Sunday school or the medals of Boy Scouts to these young people, but I think we do need to give some rather dramatic and effective recognition of good work, of good skills. If we had more of that emphasis on the positive and less on the negative, I believe, it would not only lead to better driving but it would lead to what you might call an increase in self-reliance.

QUESTION: I would like for you to ask Mr. Keyes what he is doing with the State Department of Public Instruction in Illinois, in the organization he represents. I think it deals with this topic.

MR. KEYES: I am glad to tell you that we have done some work, assisted by the State Department of Education in Illinois,

in developing a guide for training teachers in this field. We have done that with a number of other state departments of education, also, as a service to those organizations.

In Illinois we have set up a number of ways in which the program can be done. Of course, we recognize the fact that you can't do it the same way in every school. In this plan in Illinois—the home co-operative enterprise—we send sheets home to the parents at the proper time when the behind-the-wheel lessons can be integrated properly with the related materials in the classroom. It does have many advantages. It also has many disadvantages, and some of those have been pointed out, but one of its advantages is that Dad and Mother do something too.

Probably it doesn't reach the parents who need it most, but at least we can hope there is something going home to the parents that will not only be an advantage to the student, but also to the parent. Thus we reach a much larger number of people. The students themselves are going to learn to drive some way and we may as well recognize that fact. We certainly should emphasize the fact that the best way is to have a teacher who is trained to do this job both in the classroom and behind-the-wheel. It is reasonable to believe it will be a long time before all schools can do this, then we must try to reach the young people in any way possible, and this home co-operative plan is just one way of doing it.

MR. MAURICE OSBORNE (New York State Education Dept.): Most of your conversation and discussion has been directed at the classroom, at the teacher and the child or the pupil. A great deal of my work has centered around adults. Tomorrow afternoon, I am going to talk on the program, and I don't want to give away all my thunder, but I will give away a little bit of it.

I think there are two very important watchwords that should apply to the motoring public and also to the people who are preparing directions, signs and things of that nature, for the motoring public. One of these is uniformity. I think the motoring public from the state of Washington to the State of Florida is completely bewildered by the lack of uniformity in connection with everything having to do

with traffic, everything having to do with the laws that apply to traffic, everything having to do with signs. There are signs over the center of the road and signs on the side of the road. The automatic signals or directional signs have different colors, are of different types and different kinds, as the motorist passes from one state into another. There is a complete lack of uniformity and, consequently, complete confusion on the part of the motorist. I think if he were to drive from Washington to Florida, he would need almost a back seat full of laws which he would have to consult almost every time he crossed a state line, in order to make absolutely certain that he was not violating some law in some state.

One other thing, I think, has to do with continuity of programs. I think a number of us speak of traffic campaigns and other campaigns having to do with safety as meaning something which is spasmodic and short-lived and, probably, all the good that comes from one of these campaigns or these spasmodic affairs which spring up, is lost within one week after the campaign is ended. There should be a program which has a very definite continuity, spread over a period of twelve months and continuing over another twelve-month period after that, and so on.

So, I think those two points are exceptionally important.

DR. STODDARD: I think part of the trouble, as far as safety is concerned, is a special condition arising out of a much more general condition of unhappiness or instability on the part of our young people. They aren't leading a normal life and they haven't been for the last five or six years. How could they? In most states those expecting to continue in school were compelled, by the exigencies of the war, to drop out either before they finished high school or shortly thereafter, and it must be that many of the ordinary things such as nutrition, health, highway safety, getting lessons and passing examinations seem relatively unimportant when the boy has his mind on when he will get into the war and under what conditions. In other words, we, ourselves, by getting into war as we do so often, have tended to strengthen this characteristic of violence. It is hard to give attention to details under those conditions

except detail that applies to the war effort.

Almost everyone expects to come through safely, regardless of how many other people have been hit. I am sure most of us have that feeling. It is somebody else who gets injured. Among young people, especially, who lack experience, it is hard to project, in an imaginative way, the things that can happen so fast and violently.

Then, as you know, during the depression, we paid very little attention to youth. We finally got around to deciding it was rather a dreadful thing for them to be out of school and out of work and we united, regardless of politics and partisanship, to improve the conditions and adjustments of young people. This accident curve, which I am told will rise unless something powerful is done against it, I should expect to see accompanied by a rise in delinquency, a rise in crime, by a general disturbance of the functions and attitudes of youth.

I should say then, if I might generalize in just one direction, that anything we can do to improve the quality of teaching in general, and Dr. Eaves referred to this—anything we can do to introduce better mental hygiene into our schools to get at the source of character and stability, anything we can do by way of personal guidance, visiting teachers, home-school relations, Parent-Teacher associations will be all to the good, not only in terms of the general adjustment of youth, but adjustment to this particularly dangerous problem of driving and walking. I don't feel discouraged. I have a feeling when we solve some of the more general problems, some of the things that seem so hopeless right now will begin to take shape.

One reason we have so many different signs and sets of state rules is that we haven't had the time or the money to work on that problem for five or six years. The time we have just gone through would have been adequate to standardize all these signs. It would have taken out, as we know, every dangerous crossroad. It could have made these things reasonably uniform, but we have been busy with other and rather dreadful things.

Now that peace has come or is about to come, I think I can speak for everybody here and everybody thinking about this problem. We ask that some substantial por-

tion of the thinking and of the wealth of the states and of the nation be given over to this problem.

We are not here entirely in a professional capacity. Those of you who are in the profession of safety education, wouldn't be in that field, unless you regarded the situation as crucial. And some of us on the margin must think of it because we think of the lives of our children. We know, too, the accident situation is some-

thing every parent thinks of all the time, and every teacher and every person in contact with young people. There can be no happiness in families as long as danger is there. We all know of lives that are ruined, because of dreadful highway accidents. We say very little about that, but it colors all our thinking, and it can't be taken out of the picture any more than the violence and destruction of war can be taken out of the professional plans for its elimination.

WEDNESDAY MORNING SESSION

October 9, 1946

Group Meeting on Safety in Industrial Education

Presiding: FRANK C. MOORE, Directing Supvr., Industrial Arts, Cleveland (O.) Public Schools.

What Constitutes a Good Program of Shop Safety in Industrial Arts and Vocational Education School Shops

By H. R. GRAMAN
Parker Vocational School

A good safety program for shop students and teachers should provide the student with safe surroundings, training in straight thinking, better perceptive and reasoning powers, safety habits and behavior integrated with the skills to be learned, ability in group action with fellow students, and a desire to prevent social waste.

Safe surroundings—Safeguarding the surroundings will help protect the student in moments of inattention, thoughtlessness, indifference to his physical well being and against mental fatigue. By safeguarding the surroundings their chances of accidental injuries are lessened.

Thinking, perception and reasoning—During the early training period, mental and physical habits are formed and moral concepts are established. We can make vast improvements in safety, as far as mechanical equipment is concerned, but if we do not direct the student's thinking and his perceptive and reasoning power, to the recognition of safe and unsafe practices, we cannot expect to produce safety-minded graduates.

Habits and behaviors—It is of paramount importance that an attempt be made to

understand and control all work habits and behavior in the interest of safety. The student's safety habits and behavior must be integrated with the skills he is acquiring.

Group action—Group action in eliminating hazards is one of the foundation stones on which we can build our shop safety program. We don't mean regimentation which may result in mechanical thinking, but in group thinking on mutual problems that are faced. Free discussion in class, of the problem, may bring better results than predetermined action, if an honest evaluation of various solutions is made.

Social waste and outcry—The fewer accidents we have the greater is the saving to the public. Every accident is a social waste.

We as teachers have several reasons why we should be interested in a shop safety program.

Negligence charges—Under new laws in many of the states a negligent act by some one can be prosecuted under the law of "Criminal Negligence." Even from a legal point of view, it is smart to teach safety as it is no small matter to defend yourself in court on a negligence charge. Remember a teacher is always personally liable when

negligence can be proven. The issue is not the injury to the student but the negligence of the teacher.

To avoid charges brought by students absent when safety rules were discussed, the teacher should keep a daily record of what has been taught with special note when a student is absent, and a follow-up when the student returns to class.

You must know your responsibilities and accept them. History will pass bitter judgment upon us for our neglect or indifference toward safety education.

Moral obligation, to the public, industry, student and to the teacher, himself—From a moral point we owe it to society to do everything in our power to make the shop as safe as it is humanly possible. To sell safety to others may have far reaching implications not recognized during the student training period, but will reproduce itself when the student assumes a position in some industrial plant earning his living.

Accident causes and their elimination—There is a definite need for accident prevention. The student is part of a group and acts as part of that group. If the group is well controlled and mannered the individual will act in the same manner. If the group is uncontrolled, very bad consequences may arise.

When the student enters the shop for the first time he comes into strange surroundings. His behavior pattern will be desirable, if control is employed, but should that not be the case, the student will turn from a docile and gentle being into a self-asserting and rough creature ready to question any authority. The student craves action, but we must be sure that the action is desirable and not lead to an accident or injury.

Students are just as easily upset by emotional strain as adults. If the instructor can discover and recognize such emotional disturbances, he may be able to prevent an accident either to the student or to someone else.

We must sell the student the idea that to work safely is profitable to himself, from a personal and financial viewpoint.

Accident reporting is the basis of sound accident analysis, and consequent reduction of accidents. The accident can be carefully checked to prevent future injuries of similar nature. By putting the information to

work, new safety material can be developed, jobs made safer or new teaching methods devised.

Should an accident occur in the shop, we must take time out to analyze its cause. Research into the effectiveness of accident prevention is of primary importance.

To prevent similar occurrences we must know what causes accidents. The absence of a safety guard may not have been the cause of the accident. It may be traced to hurry or inattention on the part of the student. We must discover why a guard was not provided and why the student was inattentive or in a hurry. Get the complete history on every case, if you would help prevent similar accidents.

Younger workers are more susceptible to accidents, because of their daring, adventurous and "I don't care" attitude.

The better your safety record is, the harder it becomes to convince students of the importance of safety. After an accident has occurred, they have visual proof what can happen. Using industrial material, or cases reviewed by the state industrial commission, may help make students realize the necessity of safety. Visual aid material is a vital supplement in teaching.

Since we can all become lax or forgetful, the teacher should be furnished with material from the school administration as a constant reminder of the importance of safety education.

Excellent results could be obtained if, at regular intervals, instructors of similar departments could get together and discuss some of their experiences. Analyses of past accidents, and circulation of bulletins on job hazards with suggestions for their elimination would be beneficial to all.

Safe and desirable surroundings—As a first obligation of the school, a good safety program can provide and maintain the student with safe surroundings. To accomplish this, good housekeeping must be one of the cardinal principles.

Shop layout should be such that it is easy to move about in, without having to twist the body in one direction or another in order to squeeze through machinery.

Sanitary facilities should include a proper place for cleaning after the student finishes his shop work. The student should not have

to go outside the shop to get a drink of water.

Painting of the walls, ceilings and machines is one of the newest features in providing good surroundings, increasing the ability to see and lowering causes for fatigue.

Lighting should be sufficient to prevent shadows or low illuminated areas. Much material is available from a number of sources on the subject of painting and lighting.

Bulletin boards are valuable as an auxiliary means of teaching safety. They serve as a constant reminder to act wisely while working in the shop. To attract attention, the posters must be easy to read, attractive, simple in design, and effective in color. The safety supervisor (foreman, engineer or inspector) should be responsible for the order and replacement of posters. Students should be permitted to contribute suggestions for posters and arrangements.

Machinery—It is essential that the placing of equipment is an important part of your safety program. Proper placing of machines with marked-off areas of danger will help in preventing many an accident. Machines should be so placed that should something fly out of the chuck on the lathe or off the grinder it will not injure anyone.

Machines must be properly guarded and conditioned before use. That means that the knife must be sharp on the planer, or the saw on the band saw, because a dull tool is more dangerous than a sharp one. Constant inspection will provide for the safety of the machine and the auxiliary equipment.

Manufacturers are constantly making an effort to make their equipment as safe as possible. Still, when workers begin to use the machine they find faulty conditions which sometimes contribute to accidents. Guards may not provide sufficient protection and must be either supplemented, or relocated. If one switch turns to the right for "On" position and another to the left, they should be made uniform in operation. Foot pedals for starting and stopping may have to be rewired so that the starting is done with a button and only the stopping with the foot pedal, to prevent serious accidents.

Tool control—The physical or material side of accident prevention should be care-

fully analyzed. Every physical or material object has an inherent or natural hazard which varies in accordance with changes in the position and environment of the object itself.

A tool in the instructor's hand, or wielded by some one who understands its use, may be fairly safe, but, in the hands of a "green" student may provide a major hazard.

The use of tools and equipment is necessary for the promotion of our comfort and well being. It is our responsibility, however, to recognize the need for correct positioning and environment.

Goggles, for instance, play an important part in the safety program and help increase the margin of safety in the shop.

Another factor in using tools and equipment is the speed of impact. Wherever motions are introduced, the danger of injury increases. A machine standing still is practically harmless, but, put that machine in motion and it becomes a potential hazard. The same is true of hand tools.

A thorough physical checkup should be made to see if the student is mentally and physically qualified to learn the operations required and to determine whether he has the necessary mechanical aptitude for the job.

Schools are in a transitional period at the present time, because of newly acquired equipment, attitude toward shop work, and the addition of the veteran training program, all of which bring many new problems into school shops. A good safety program becomes highly significant. To ensure enforcement, rules should be printed and put into the hands of all concerned. This is a definite step toward good safety practice and a protection against charges of negligence.

There are several specific safety rules which will fit into any shop program. The following are applicable to any shop program.

General safety rules should not only include shop behavior, but should cover coming to and leaving the shop. Two and three students racing out of a door create as serious a safety hazard as operating a high speed machine.

Specific rules should govern every operation performed and wherever hazards are present.

Never permit anyone to operate machinery while the instructor is out of the shop.

Never put work on the grinding chuck or remove it without stopping the grinder.

Roll your sleeves above the elbows before operating any machine.

Shop organization—A shop safety committee and a safety engineer (supervisor, foreman, inspector) would be helpful to formulate regulations for the shop. The committee and supervisor, should be given power to enforce regulations and impose penalties in line with the offense committed.

The job of safety inspector should be on a rotating basis to allow all students to serve. This would bring out many abilities and hidden talents which the instructor may not have noticed.

Shop inspection should be a part of the safety committee's job. Systematic inspection with a mimeographed check sheet as a control factor plus regular time schedules would greatly improve shop conditions.

One or two of the students on the safety

committee should be familiar with first aid methods, as even the instructor could be injured through someone's thoughtless act.

Work habits and behavior—Many youngsters have been injured by so called "horse-play," and most accidents could have been prevented, if proper safety precautions were taken and safety recognized as an integral part of skill development.

Each student should develop a sense of responsibility to himself, his neighbor, and his country. A spirit of co-operation is needed to do the job in a safe way.

Personal protection—It is the teachers' responsibility to see that students wear proper protective equipment when the job or danger areas require it. Adequate enforcement will help in eliminating indifference in wearing protective equipment.

It is just as important for a student to protect his eyes when he enters the school shop as when he goes into industry. The chipper in an industrial plant wears his goggles all day on his job and does not take them off because some particular job requires only a few minutes of his time.

Teacher Preparation in School Shop Safety

By DR. RAY M. STOMBAUGH

Director, Division of Industrial Art, Illinois State Normal University

Many persons in educational fields are looking to the teachers colleges and universities for help in improving and expanding their safety education programs. Directors and teachers of industrial arts should not be ignorant of accident situations in school shops. Several studies having to do with safety practices and procedures in secondary school shops have been made available to persons who might be interested in the findings. They bring to light many facts which should be of interest to in-service and pre-service teachers who are making a serious attempt to develop safety education programs. It is significant that these studies, starting in 1919 and continuing through recent years, should have found a marked degree of similarity in the school situation.

A good program of safety education must be based, in part at least, on the accident situation. That is, before any work

in accident prevention can be begun, we should know where, when, and how accidents occur.

As a foundation, a teacher-training program in shop safety needs a good picture of the accident situation in those places where the prospective teacher will work, primarily the secondary school shop.

Since the accident situation on the secondary level has been the basis for nearly every study of school shop safety made to date, a survey of data obtained should be helpful to the college instructor in preparing the prospective teacher to formulate a safety education program in his own teaching situation when the time arrives. If the prospective industrial arts teacher is to have an adequate preparation in this area of future activity, he will need some familiarity with the answers found in a study of a composite summation of several secondary school accident surveys.

1. HOW DO THE NUMBER OF ACCIDENTS PER PUPIL OCCURRING IN THE SHOP COMPARE WITH OTHER AREAS OF SCHOOL ACTIVITY?

Max Henig is reported to have found that more accidents per pupil occur in the shop than any other area of school activity.

Studies by Hughes and by the National Safety Council indicate the accident rate of the school shop is exceeded only by the department of physical education. Although it is unlikely that sufficient data is available to determine the per capita accident rate of the school shop as compared with other areas of activity, on a state or nationwide basis, there is sufficient evidence available to arouse an awareness among in-service teachers, teacher trainers and prospective teachers of the accident situation in the school shops and to cause them to devise ways and means to alleviate if not eliminate the condition.

2. DO THE NUMBER OF ACCIDENTS IN THE SCHOOL SHOP VARY ANY WITH:

a. TIME OF DAY?

The combined records of studies with comparable data, together with the weighted opinions of co-operating teachers regarding time of accidents, show more accidents occurring in the morning than in the afternoon.

This record also shows the highest frequency of accidents occurring during the hour following ten o'clock in the morning, and two o'clock in the afternoon. There is a gradual tapering off at both ends of each session.

b. DAY OF THE WEEK?

Only two of the studies (Cressman and Watson) gave any consideration to accidents and the day of the week they occurred. The combined record is similar to the individual records, with Wednesday having the highest frequency, and with a gradual tapering off to both ends of the week.

c. BY MONTH OF YEAR?

In general, shop accidents, tend to vary as the school year progresses! September and June have the lowest reported number of accidents. October shows a high accident record. After October there is a decline

in the number of accidents up to January, which shows a marked increase in shop accidents. January follows a vacation period and precedes the end of the first semester with the resulting haste and rush of a semester closing. Both of these factors are considered contributing causes of accidents.

March shows a sudden and extreme rise which tends to continue up to June. Cressman found May the worst accident month. The combined records of accidents by month of year would probably bear this out. Factors said to account for the sustained high number of accidents during this period are—rush of work for both the student and teacher at the end of the year, and "spring fever," with its resulting enervating effects upon the individual.

Since it is reasonable to assume that the hazards of shop work will tend to increase as the year progresses, due to the increased quantity and difficulty of the work load, it might well be expected that an increase of accidents during the year would be a logical result. On the other hand, it can be argued that a good program of safety education is likely to result in a declining number of accidents.

Although there may be need for further study to determine the relationship between accidents and the time of day or the day of the week; available data would indicate that, while the accident hazard is always present, there are certain time periods which demand continued alertness on the part of both student and teacher.

3. WHAT AGE PUPILS HAVE THE HIGHEST ACCIDENT RECORDS?

There is a gradual increase in the number of accidents from the age of 10 to 13. At 14 years of age, there is a marked increase which continues to climb through 15. At 16, a drop in the number of accidents is noted, followed by a steady decrease through the remaining years of the student's school experience.

4. WHAT IS THE RELATIONSHIP BETWEEN FREQUENCY OF ACCIDENTS AND GRADE OF THE STUDENTS?

The trend of shop accidents by grades of the secondary school shows a steady increase to the ninth grade where the greatest number are likely to occur. There then follows a steady decline. The grades above

ninth show a slightly higher frequency of accidents than those below.

When the shops of the junior high school are separate and distinct from those in the senior high school, there is apt to be a variation in the frequency of accidents. Under such conditions, the 10th grade, or first year of senior high school work, shows the highest frequency of accidents.

5. WHAT AREA OF ACTIVITY IS THE MORE HAZARDOUS?

The woods and metals areas stand closely together as most hazardous of all school shop work. The areas of transportation and communication likewise are closely linked but below the first two in frequency rating. Graphic arts had relatively few accidents and stands in last place, with a frequency rating much lower than the others.

Woodworking. The general woodworking shop shows the greatest frequency of accidents. Practically all schools offering industrial arts will have a shop where general woodworking is studied. This, of course, is a factor that must be taken into account when frequency of accidents is considered. Cabinet making ranks a close second. Carpentry ranks third with relatively few accidents, but with a per capita rating that undoubtedly would be high. The frequency of accidents in the use of woodworking hand tools is much higher than that of machine tools! The frequency of minor accidents in the woods area as compared with the frequency of major accidents is at a ratio of approximately 7 to 1.

In the metals area, the frequency of accidents in the machine shop is higher than all other shops combined. Exposure may be an important reason for this and must not be overlooked. The general metal and sheet metal shop rank second and third, but with far fewer accidents. The forge shop and foundry have relatively few accidents. However, the per capita accident rates of these two shops might be far higher than a frequency table would indicate. Only a small number of welding accidents are listed. The frequency of minor accidents, in the metals area, as compared with the frequency of major accidents is at a ratio of 6 to 1.

In the transportation area, the frequency of accidents is very high in the automotive

shop. In fact, it remains relatively high when this shop is compared with other individual shops. Very few accidents are reported in the aeronautics shop. This is one of the newer shops, however, and future investigation might reveal a different frequency picture. The frequency of minor accidents is at a ratio of 3 to 1.

In the communication area, the electrical shop stands alone. This shop is also relatively high in accident frequency when compared with other individual shops. The frequency of minor accidents in the electrical shop as compared with major accidents is at a ratio of 4 to 1.

6. WHAT IS THE DISTRIBUTION OF ACCIDENTS BY HAND TOOLS?

Several significant factors involving distribution of accidents by hand tools are revealed by investigators and by the combined listing of these frequencies.

The most outstanding disclosure is the unusually high percentage of hand tool accidents that involve use of the chisel. In round numbers, the frequency of accidents on this tool is as high as all other hand tools combined. While the chisel has always been considered a dangerous tool, it is doubtful if it has ever been revealed exactly in this position before.

Typical woodworking tools—viz., chisel, saw, knife, and plane—stand high in a combined listing of frequencies. Undoubtedly, contributing factors in this high frequency rating have to do with the nature of the work done by these tools and the nature of the tools themselves. All have sharp and exposed cutting edges. Only one other tool, the hammer, stands with this group.

The file has been labeled especially dangerous and much attention has been given to it in shop safety literature. Its accident frequency rating, however, is not especially high.

The soldering iron, on the other hand, looms up as a "dark horse." Very little has been written about it as a dangerous tool; yet its frequency is about twice that of the file.

The shovel accident rate is also a surprise, with almost as many accidents occurring with it as with the file.

The fact that the above tools figure in school accidents should label them all as requiring special attention in any effort to reduce school shop accidents.

FREQUENCY OF ACCIDENTS BY HAND TOOLS*

Tool	Number of Accidents
Chisel	1123
Saw	315
Knife	203
Hammer	127
Plane	125
Screw driver	93
Soldering iron	51
Wrench	32
Hack saw	30
File	29
Shovel	25
Drill bit	14
Scraper	14
Draw knife	11
Mitre saw	9
Rumisher	8
Coping saw	7
Shears	6
Pliers	6
Cold chisel	6
Vise	5
Punch	4
Gouge	4
Paper cutter	3
Holt cutter	3
Yankee drill	3
Tin snips	3
Back saw	3
Anvil	2
Clamps	2
Forging tool	2
Tongs	2
Wrecking Bar	2

*Tools showing an accident frequency of less than two have been omitted from this list.

7. WHAT IS THE DISTRIBUTION OF ACCIDENTS BY MACHINE TOOLS?

The jointer and the circular saw are the two most dangerous machines in the school shop. This fact is extremely significant because they are usually found wherever wood shop courses are offered. That these machines are recognized as dangerous is evidenced by the fact that in certain shops their use is restricted to all but advanced students.

It would appear that more effective instructions and precautions in the use of the jointer and circular saw are needed.

Other machines that may be labeled as especially dangerous are the tenoner, band saw and buffer.

The woodturning lathe shows the highest frequency of accidents of all machine tools, but when considered in the light of exposure, the accident frequency per lathe is below the average for all machines.

The accident frequency rate for grinders, under a similar examination, shows a corresponding drop in position.

SUMMARY OF ACCIDENTS BY MACHINES IN USE

Machines	Number of Machines	Number of Accidents	Number of Per Machine
Jointer	417	161	.38
Circular saw	402	104	.25
Tenoner	10	2	.20
Band saw	359	62	.17
Buffer	6	1	.16
Jig saw	153	17	.11
Planer	40	4	.10
Lathe (wood)	1741	171	.09
Grinder	464	39	.08
Swing saw	13	1	.07
Power drill	165	9	.05
Surfacer	66	3	.045
Boring machine	50	2	.04
Job press	28	1	.035
Sander	119	4	.03
Shaper	133	2	.03
Mortiser	86	2	.02
TOTALS	4252	587	.138

8. WHAT EFFECT, IF ANY, DOES EXPERIENCE HAVE ON THE DIS- TRIBUTION OF ACCIDENTS?

It is generally believed that experience is a potent factor in the reduction of accidents. The first few weeks in a given activity seem to be the most dangerous.

Experience takes on added importance when consideration is given to the fact that school shop work tends to increase in quantity and difficulty, and hence in hazard, as the student continues in a given area of activity.

More knowledge is needed, however, regarding the relationship between the nature of the work, exposure and experience.

9. WHAT IS THE RELATIONSHIP BETWEEN THE INTELLIGENCE OF THE STUDENT AND THE DIS- TRIBUTION OF ACCIDENTS?

It would seem, from the meager findings available, that intelligence does have a bearing on accident proneness. There appears to be a strong tendency among the lower intelligence groups to be accident repeaters.

10. WHAT ARE THE CONTRIBU- TORY FACTORS IN SCHOOL SHOP ACCIDENTS?

There is a decided lack of uniformity in the reporting and recording of the causal and contributory factors in school shop accidents. An examination of the various investigations into these factors show a wide variety of terms used in an effort to establish underlying causes.

Terms such as "carelessness" have been too freely used in the past. A gratifying outcome of this fault, however, is a present movement to abolish the use of non-descriptive terms. Hughes took the limited information available and reclassified reported accidents according to a modified check sheet based on one developed by Heinrich. A summary of these accident causes would appear as follows:

	Per Cent
Faulty instruction	4.8
Inability of student	17.4
Lack of concentration	3.1
Unsafe practice	61.5
Mentally unfit	2.4
Physically unfit	1.2
Physical hazards	1.4
Poor housekeeping	4.1
Defective equipment	1.1
Improper working conditions	.9
Unsafe buildings conditions	.5
Improper planning	.8
Improper dress or apparel	.8

Any good accident reporting system should include a thorough report of the causal and contributory factors involved. This report should, if possible, include statements by the instructor, the injured student, and witnesses of the accident.

Lack of uniformity in reporting and recording the causes of accidents may indicate that teachers need more information on accident analysis.

11. WHAT MAY BE LEARNED ABOUT THE NATURE OF IN- JURIES WITH RESPECT TO (A) THE SEVERITY OF THE INJURY AND (B) PARTS OF THE BODY INJURED?

In the majority of cases, injuries in the school shop are of a minor nature. Only a small portion of them necessitate the loss of time from school. However, it must be kept in mind that every minor injury is potentially a major one. Treatment should be prompt and adequate, and its cause thoroughly analyzed.

Severe injuries seem most likely to occur in the automotives, metals and woods areas of the junior high school, and in the automotives and woods areas of the senior high school. Severe injuries also occur in small but appreciable numbers in the electrical, machine and metal shops of the senior high school.

Injuries in the senior high school appear to be more severe than those in the junior high school, if the opinion is to be based on the difference in cost per accident.

Fingers and thumbs suffer injuries in the school shop more frequently than do all other parts of the body combined. Usually these injuries are in the nature of cuts. Hand injuries, which are likewise quite numerous, are, in most cases, the result of cuts.

One point of especial interest in body injuries is the relative frequency of injuries to the eye, as compared with other parts of the body, excepting the hand, thumb, and fingers.

12. TO WHAT EXTENT ARE IN- JURIES TREATED BY THE IN- DUSTRIAL ARTS TEACHER?

Treatment of school shop injuries varies from simple first aid given by the instructor to complete hospitalization of the injured student. In general, the instructor is called upon to treat most injuries that occur in the shop. Sometimes this treatment precedes further attention given by the school nurse or a physician, but more frequently it is the only treatment given.

It is especially important that all shop instructors be trained in approved methods of first-aid treatment. It is likewise important that shop instructors understand

the need for and the contents of a well-equipped first-aid cabinet.

Any shop teacher must be adequately prepared in the safety practices related to his teaching activity, if his safety program is to be effective.

Safety education must be effective in its nature. It must not be merely an attempt to prepare an individual to pass a given course or to write a successful examination. It must do more than protect the individual from hazards. It must teach him to recognize, respect, and know how to conduct himself in dangerous situations. It must be of such a nature that it will carry over into life situations long after the individual has left the course in which instruction was given. It must be of the type that will command the respect of the individual student at an age when adventure is a part of his life.

13. HOW CAN THE TEACHERS COLLEGE BEST PREPARE TEACHERS WHO ARE CAPABLE OF PROMOTING A SAFETY PROGRAM?

If there is to be any appreciable improvement in the accident record of the secondary school shop, it will have to be brought about through efforts of the newly trained teachers. Numerous studies revealing accident causes and suggesting remedies have been made and are available to all; yet there is no evidence to show that in-service teachers have made any effort to profit by these data and suggestions. New teachers can and will effect improvements provided they are adequately instructed in school shop safety.

According to Hughes the teacher training institution is the largest single contributor to the safety training of the industrial arts teacher. If the teacher training institutions must furnish the great share of safety training of shop teachers, then it becomes the duty of those institutions to provide the type of training these teachers need.

The teacher training institutions are doing reasonably creditable work in preparing industrial arts teachers in the skills and subject matter related to the different activity areas in their shop curriculum. In practically every school, however, safety procedures are included only as an integral

part of shop instructions by demonstrations, individual instruction or group instruction. Safety education, in altogether too many instances, is limited to teaching prospective teachers to work safely with tools and machines. [A partial explanation of this restricted safety education program may be due to time limitations made necessary by having to fit the preparation of industrial arts teachers into an over-all program of general education orientation, professional education, major and minor teaching fields.] Another explanation is indicated in a study by Hughes in which he found that approximately 14 per cent of the industrial arts teachers in the teacher training institutions either had no training in school shop safety or attained their training through experience in teaching.

The purpose of a safety program in a teacher training institution should be twofold: first, to instruct the student in correct or safe procedures; and, second, to acquaint the prospective teacher with a wide variety of techniques which might be used in his teaching.

The most effective way to teach shop safety procedures is to include it as part of the instruction in the use of each machine and hand tool. In other words, shop safety instruction should be given on the job, under actual working conditions, and at the time it is to be used. Individual instruction is held to be the most effective means of securing safety in the school shop. Large classes sometimes limit the amount of individual instruction that may be given. In such cases, it is necessary for the instructor to give instruction to small groups of students or even to the entire class at one time; however, under group instruction individual safety needs are likely to be overlooked.

The development of safe work habits by the teacher in training is important and should not be slighted; however, there are other essential knowledges and procedures that should be acquired by the prospective teacher in an overall program of safety education. Selection of subject matter may have to be a compromise, and we are likely to find performance skills receiving greater emphasis.

Also, many related safety knowledges and procedures may be repeated in each of the various shop classes, during the stu-

dent teacher's preparation. Repetition may have learning value, but the teacher trainer is likely to feel that any units which do not affect his immediate problem or which may possibly be taught by someone else will be handled in some other teacher's class.

A possible solution to the problems may be to assign a definite place in each of the prescribed shop courses for different phases of shop safety instruction.

The various shop courses and shops may well be places where safety practices and procedures are functional in their operation. Teaching only safe work practices in the shop will merely restrict the opportunities for safety instruction. Student participation in the safety program, wherever possible, will provide many meaningful experiences which may be drawn upon later. A student personnel program can be organized even among college students and responsibility for the several safety procedures delegated to the members of the class and the duties rotated from time to time so as to give a greater variety of experiences.

Students can be responsible for selecting and changing slogans, posters and other visual aids to be used on the bulletin boards. A student safety foreman may be elected or appointed. Participation can become a device for the student to get acquainted with the duties and the educational values of his office.

A safety committee can also be an integral student organization of the class. One function of the committee ought to be a consideration of shop rules and their use. Shop safety consciousness may also be developed through a survey of shop hazards. Visitation of industrial plants with attention focused on their safety practices can also be a means of emphasizing the importance of a good safety program. Reading assignments and conceptual written assignments also may help to acquaint the prospective teacher with shop safety programs in those cases where limited time allotment will not permit class discussion or other methods of presentation.

Methods of presentation of safety instruction are of vital importance. Insofar as possible, the training situation should duplicate the later teaching situation. This is of significance in those shop courses

where a definite technique is essential for actual safety as well as superior skill, because student teachers will teach, in the main as they are taught. In this way, the content of the course taught and the methods of presenting it are largely given together, and the young teacher will associate the two. One caution the teacher trainer must always keep in mind is not to attempt any short cuts regardless of how skillful he may be because there is always the danger that the student may attempt to emulate the teacher's practice. Another caution is to maintain supervision in the shop at all times. Many accidents occur where there is slack supervision.

First Aid

First aid is an instructional area which should not be overlooked. Inasmuch as the secondary school shop teacher assumes the responsibility of caring for most of the injuries occurring in the shop, his training in this type of work should not be incidental. A common teaching combination is industrial arts, physical education and coaching. A combination of this nature can well justify an approved two-semester-hour course in first aid.

Separate Safety Courses

Many topics of a shop safety instruction program are of common interest to all prospective industrial arts teachers, regardless of their areas specialization. From the standpoint of subject matter, shop safety could be taught efficiently in a separate course. It would seem that separate supplementary safety courses of this nature would reinforce the individual shop safety instruction and would have many advantages. Aside from the time element which might make it impossible, in some cases, to incorporate such a course into the industrial arts curriculum, there is some question that, since the period of application of these practices is so remote, the attitude of the student may be even more indifferent than in a methods course in the junior year which then is followed by student teaching in the senior year. No doubt, there is sufficient content and a need for such a supplementary course, but too many prospective teachers will not recognize that need until later when they are faced with the problem in their own teaching. Nevertheless, there may still be a

the need for and the contents of a well-equipped first-aid cabinet.

Any shop teacher must be adequately prepared in the safety practices related to his teaching activity, if his safety program is to be effective.

Safety education must be effective in its nature. It must not be merely an attempt to prepare an individual to pass a given course or to write a successful examination. It must do more than protect the individual from hazards. It must teach him to recognize, respect, and know how to conduct himself in dangerous situations. It must be of such a nature that it will carry over into life situations long after the individual has left the course in which instruction was given. It must be of the type that will command the respect of the individual student at an age when adventure is a part of his life.

13. HOW CAN THE TEACHERS COLLEGE BEST PREPARE TEACHERS WHO ARE CAPABLE OF PROMOTING A SAFETY PROGRAM?

If there is to be any appreciable improvement in the accident record of the secondary school shop, it will have to be brought about through efforts of the newly trained teachers. Numerous studies revealing accident causes and suggesting remedies have been made and are available to all; yet there is no evidence to show that in-service teachers have made any effort to profit by these data and suggestions. New teachers can and will effect improvements provided they are adequately instructed in school shop safety.

According to Hughes the teacher training institution is the largest single contributor to the safety training of the industrial arts teacher. If the teacher training institutions must furnish the great share of safety training of shop teachers, then it becomes the duty of those institutions to provide the type of training these teachers need.

The teacher training institutions are doing reasonably creditable work in preparing industrial arts teachers in the skills and subject matter related to the different activity areas in their shop curriculum. In practically every school, however, safety procedures are included only as an integral

part of shop instructions by demonstrations, individual instruction or group instruction. Safety education, in altogether too many instances, is limited to teaching prospective teachers to work safely with tools and machines. [A partial explanation of this restricted safety education program may be due to time limitations made necessary by having to fit the preparation of industrial arts teachers into an over-all program of general education orientation, professional education, major and minor teaching fields.] Another explanation is indicated in a study by Hughes in which he found that approximately 14 per cent of the industrial arts teachers in the teacher training institutions either had no training in school shop safety or attained their training through experience in teaching.

The purpose of a safety program in a teacher training institution should be two-fold: first, to instruct the student in correct or safe procedures; and, second, to acquaint the prospective teacher with a wide variety of techniques which might be used in his teaching.

The most effective way to teach shop safety procedures is to include it as part of the instruction in the use of each machine and hand tool. In other words, shop safety instruction should be given on the job, under actual working conditions, and at the time it is to be used. Individual instruction is held to be the most effective means of securing safety in the school shop. Large classes sometimes limit the amount of individual instruction that may be given. In such cases, it is necessary for the instructor to give instruction to small groups of students or even to the entire class at one time; however, under group instruction individual safety needs are likely to be overlooked.

The development of safe work habits by the teacher in training is important and should not be slighted; however, there are other essential knowledges and procedures that should be acquired by the prospective teacher in an overall program of safety education. Selection of subject matter may have to be a compromise, and we are likely to find performance skills receiving greater emphasis.

Also, many related safety knowledges and procedures may be repeated in each of the various shop classes, during the stu-

dent teacher's preparation. Repetition may have learning value, but the teacher trainer is likely to feel that any units which do not affect his immediate problem or which may possibly be taught by someone else will be handled in some other teacher's class.

A possible solution to the problems may be to assign a definite place in each of the prescribed shop courses for different phases of shop safety instruction.

The various shop courses and shops may well be places where safety practices and procedures are functional in their operation. Teaching only safe work practices in the shop will merely restrict the opportunities for safety instruction. Student participation in the safety program, wherever possible, will provide many meaningful experiences which may be drawn upon later. A student personnel program can be organized even among college students and responsibility for the several safety procedures delegated to the members of the class and the duties rotated from time to time so as to give a greater variety of experiences.

Students can be responsible for selecting and changing slogans, posters and other visual aids to be used on the bulletin boards. A student safety foreman may be elected or appointed. Participation can become a device for the student to get acquainted with the duties and the educational values of his office.

A safety committee can also be an integral student organization of the class. One function of the committee ought to be a consideration of shop rules and their use. Shop safety consciousness may also be developed through a survey of shop hazards. Visitation of industrial plants with attention focused on their safety practices can also be a means of emphasizing the importance of a good safety program. Reading assignments and conceptual written assignments also may help to acquaint the prospective teacher with shop safety programs in those cases where limited time allotment will not permit class discussion or other methods of presentation.

Methods of presentation of safety instruction are of vital importance. Insofar as possible, the training situation should duplicate the later teaching situation. This is of significance in those shop courses

where a definite technique is essential for actual safety as well as superior skill, because student teachers will teach, in the main as they are taught. In this way, the content of the course taught and the methods of presenting it are largely given together, and the young teacher will associate the two. One caution the teacher trainer must always keep in mind is not to attempt any short cuts regardless of how skillful he may be because there is always the danger that the student may attempt to emulate the teacher's practice. Another caution is to maintain supervision in the shop at all times. Many accidents occur where there is slack supervision.

First Aid

First aid is an instructional area which should not be overlooked. Inasmuch as the secondary school shop teacher assumes the responsibility of caring for most of the injuries occurring in the shop, his training in this type of work should not be incidental. A common teaching combination is industrial arts, physical education and coaching. A combination of this nature can well justify an approved two-semester-hour course in first aid.

Separate Safety Courses

Many topics of a shop safety instruction program are of common interest to all prospective industrial arts teachers, regardless of their areas specialization. From the standpoint of subject matter, shop safety could be taught efficiently in a separate course. It would seem that separate supplementary safety courses of this nature would reinforce the individual shop safety instruction and would have many advantages. Aside from the time element which might make it impossible, in some cases, to incorporate such a course into the industrial arts curriculum, there is some question that, since the period of application of these practices is so remote, the attitude of the student may be even more indifferent than in a methods course in the junior year which then is followed by student teaching in the senior year. No doubt, there is sufficient content and a need for such a supplementary course, but too many prospective teachers will not recognize that need until later when they are faced with the problem in their own teaching. Nevertheless, there may still be a

learning residue that will function in the situation which will justify the instructor's efforts.

Safety Unit in a Methods and/or Problems Course

The plan of devoting a unit of the methods course to the subject of safety and/or a unit on the same subject in a problems or organization course is rather common among the teacher training institutions. Under this plan, safety topics of common interest may be studied and discussed by the group. However, the plan has limited value for the maximum number of class periods devoted to the unit may not exceed three. An additional unit can be included in an organization or problems course without any danger of duplication, thereby greatly extending the study of safety practices.

Several units in a methods course can be altered slightly in order to give emphasis to safety teaching techniques and, at the same time, to fulfill the purposes of a course dealing with teaching methods and devices of industrial art. Written assignments illustrating the principles of the demonstration, instruction sheets and tests can well find their content in the subject matter of safety instruction. The sources, selection, use and evaluation of posters, slides, films, and slogans for use in safety education can also receive consideration when the unit on visual aids is being presented. Although only a limited number of topics can be treated during the course, the materials presented can supplement and expand the safety instruction offerings of the school shop activities.

Several safety program topics bear a natural relationship to the units of a course in Problems of Industrial Arts Education. Prominent among these is the unit on shop planning. After the prospective teacher has had the opportunity to study and discuss arrangement of equipment, safe working space, aisles of travel, illumination, temperature and ventilation controls, tool and material storage, types of floors, fire protection, power protection,

and similar items, he will recognize that a safe, well planned shop is not something that just happens. The topic on selection of shop equipment provides an excellent theme for the introduction of machine guards and their use. Study, discussion and development of a pupil-personnel organization offers an excellent opportunity to present the place and duties of the student safety foreman. During the study of shop record forms, accident report forms can be discussed and developed. How much of this information will carry over to the later teaching situations is problematical. It can, however, open up vistas which may eventually bring about a desirable safety awareness on the part of the student.

Student Teaching

The period of student teaching must not be lost sight of as an ideal time for the student teacher to synthesize and apply the safety theories and practices that he has learned. This period also offers an opportunity to introduce some additional safety instruction topics which may be more meaningful because the student teacher is nearing the day when he will be inducted into the teaching profession, at which time full responsibility for the pupils' welfare will be his. During this period he can gain first-hand information about the practices of parental permits; development and use of shop rules; discipline; safety pledges; accident reporting and analysis. This may also be an auspicious time to acquaint the student teacher with labor and legislation regulation affecting school shop procedures, as well as teacher's liability for accidents as it may affect the teacher in his own state.

Teacher training institutions have an important role in the shop safety program. Not only must they train safe, intelligent workers who have an understanding of the hazards of a job, but also they must prepare prospective shop teachers who will have an adequate appreciation of the place of safety in the school shop program plus the initiative and ability to operate a safe shop for the development of safe workers.

WEDNESDAY AFTERNOON SESSION

October 9, 1946

General Session

Presiding: IRMA GENE NEVINS, Nat. Dir., Accident Prevention, American National Red Cross.

Development of Safety Instructional Materials in School and Industry

By W. E. STIRTON

Principal Cass Technical High School, Detroit

(Presented by Arthur Stenius, Head, Dept. of Visual Aids & Safety and Gordon C. Graham, Supvr., Safety Education, Detroit (Mich.) Public Schools.

We were interested in developing in Detroit, a co-operative program between the Chrysler Corporation, Dodge Division, and Cass Technical High School Commercial Art Curriculum. The values for Safety Education which will be demonstrated to have resulted from the establishment of that program actually were an incidental and unexpected by-product. But I hope to show them as very real and very practical values.

Actually there is real merit in considering the values of co-operative or work-experience programs in implementing a realistic program of Safety Education. I am of the opinion that most educational administrators are broadly "sympathetic" to the interests of Safety Education. They are impressed with the statistics which reveal the loss of productive man hours, the frequency of home accidents, and that the causes of such accidents are so elementary that they could obviously be removed by very elementary education and information. Schoolmen join forces with the late Calvin Coolidge in his stand of being "against sin."

But the fact that educators know such things does not mean that the remedial program will be implemented and effective. There are a lot of other items in the school program which require attention. They are for the most part requirements and objectives which are equally meritorious and they are more tangible in their attainment. Or they have the added drive of being necessary as entrance requirements, as accrediting conditions, or necessary conditions in obtaining financial reimbursement or subsidies of various forms.

Safety engineers are of course valuable in obtaining new or replacing antiquated equipment. But basically there is little of the practical incentive that makes Safety Education a must for a busy, harassed school administrator when confronted by the constantly increasing time consuming demands of the expanding curriculum. My sole point in this seeming digression is that any means or devices, however devious, which achieve the objectives of Safety Education, should be of practical concern.

Therefore I call to your attention co-operative and work experience programs which I believe to be an avenue of increasing expansion in school programs. I am not so much concerned with established apprenticeship programs since they are bound even by precedent and tradition to be rich in values to Safety Education. The specialized educational avenues for operating such programs, the interests of the kind of schoolmen operating them, plus the participation of joint management-labor committees provides adequate incentive for implementation of Safety Education within such programs.

And now to our particular co-operative programs in commercial art. Cass Technical High School is not a "co-operative" school. It is a technical high school (10th through 12th grades) terminal in objective, but fully and completely accredited by the North Central Association of High Schools, Colleges and Universities. It offers eighteen different curricula, ranging from Aeronautics, Electrical, Mechanical Arts, etc. through Institutional Home Economics, Music, Science and Metallurgy, Commercial Art and Printing. It is co-educational

but restricted in enrollment to pupils who have demonstrated average or better intelligence and aptitude and who have been recommended by the counselors in their previous schools.

Some of the pupils enrolled in the Commercial Art Curriculum have a primary interest in Costume Design and Illustration. Others desire to find placement in Industrial Commercial Art. In order to create the maximum opportunity experience for such pupils we established a co-operative program with the Visual Aids Department of the Dodge Division of the Chrysler Corporation. This co-operative program is absolutely distinct from the co-operative program we operate jointly with Chrysler for pupils of the Mechanic Arts Curriculum in the machine tool field.

The pupils work in pairs on a two weeks-two-weeks alternating basis. Whether such a time arrangement is the most desirable is debatable. In many circumstances a split day basis has real advantage but such discussion is irrelevant here. Enrollment is made on a basis of joint selection by the school and by the Chrysler Corporation.

A carefully established sequence of operations from "lettering" through "air-brush" was first mutually agreed upon. The basic interest of the Chrysler Corporation in educational values has made such co-operation highly effective and dispelled the bug bear of exploitation. The accrediting standards of the North Central Association are fully maintained, and the resulting high school diploma is acceptable as "college entrance" just as are all Cass Technical High School diplomas. The pupils are paid by the corporation on an established prevailing hourly rate basis which yields the pupil a substantial income. The Chrysler-Dodge staff in the plant are highly competent craftsmen in commercial art, and blessed also with a real appreciation of our educational objectives.

The productive work performed by the pupils while employed is determined jointly by the instructional values accruing and the needs of the corporation. Recently the group completed a series of 92 plates in the Dodge plant. These plates are in full color, approximately 20" x 30", and have been commercially photographed in full color. They comprise a 16 mm slide film strip on Industrial Safety. This slide film is used throughout the corporation as an

integral part of its safety program. Included in the 92 frames are some of a "general safety" nature, some primarily lettered instructions or precautions, some of the "cartoon" type with caricatures and exaggerations. The majority are replicas of on-the-job operations of various machine tools, such as lathes, shapers, milling machines and grinders emphasizing the hazards in their operation. This series of 92 frames is merely one of a series of similar films planned to implement the Industrial Safety program of the Chrysler Corporation, particularly on induction and upgrading programs for workers, apprentices and foremen.

In some safety situations several of the Art "Co-ops" were simultaneously commissioned to illustrate the particular point in the safety program. These ideas of the treatment of the topic are then reviewed by the Chrysler staff and freely criticized. The "Co-op" must explain, justify and defend his interpretation. This practical criticism by the "buyer" has incidentally proven to be one of the most consequential instructional experiences for the "Co-op" pupil. After the sketch has been approved the "Co-op" proceeds to the finished plate. The sketches and general drawings are actually made right in the shop, on-the-job where "the wheels are turning." For our purpose this type of environment is perfect.

It is not my thought at this time to discuss the instructional values in Commercial Art obtained through this co-operative arrangement. Neither would I imply that all of the pupil's time in the plant is devoted to producing color plates for slide films on "Industrial Safety." The pupils are assigned to many and varied art projects of instructional value and necessary in the plant.

The art work of the pupils has been of such high caliber that the original panels have been exhibited at the Detroit Institute of Arts. Their work has been reviewed by professional artists and slide film companies and been called of "superior professional caliber." The Chrysler Corporation, Dodge Division, is more than satisfied with the work. We in Cass Technical High School are certain that these pupils are receiving instructional values and practical experiences in the plant which form

the perfect complement to their high school instructional program. I hope that your appraisal of the film as you see it projected, and your reactions as you survey the exhibit of panels and the steps by which they are produced, will lead you to the same appraisal of their quality.

But may I point out that we have achieved far more than the production of a slide film on Industrial Safety. Think of the impression the production of such a film has made on the "Co-op" Commercial Art pupils. They in turn carry the message of Safety to their fellow pupils in their other classes, and to their teachers. They know, and tell their associates, that a very large corporation is enough concerned about safety to spend time and money in having a family of slide films produced on the subject!

Other channels for the expansion of Safety Instruction lead from this experiment. A major factor is the tremendous value of a Co-Operative program, or a well coordinated Work-Experience program, in giving Safety Instruction in a positive fashion by virtue of the environ-

ment of the pupil. I firmly believe that safety taught in the work environment is lasting and effective. I do not feel that strongly about the class room situation.

The other channel for enhancement of a Safety Instruction program is to harness apparently unrelated pupil abilities to the program. Even if a community were not as fortunate as we are in having a co-operative corporation such as Chrysler near at hand, art talents of pupils could still be directed toward the production of safety slide films, as well as other visual aids. The pupils could, under supervision, produce panels in the school shop, and there are an increasing number of pupils interested in color photography.

An additional value of Safety Instruction by indirection is that it is effective with instructors, especially in other than the manipulative fields. To such teachers a formal program of safety is often not very real and may be so transmitted to pupils. And such a program yields desired instruction in Safety without an addition to the curriculum. School administrators like that!

Report of Joint Safety Committee of the AVA and NSC

By MATTIE PATTISON

Assoc. Prof., Dept. of Home Economics, Iowa State College

In the spring of 1944, a committee was appointed to study problems of safety education, especially as those safety problems were evident in schools reimbursed by federal vocational funds. Members of the committee represented either the National Safety Council or the American Vocational Association and were specialists in one of four fields—trade and industry, business, agriculture or home economics.

Even though safety had always been an integral part of vocational education, accident data indicated that more effective safety teaching was necessary, if the annual toll of deaths and disabilities from preventable accidents was to be reduced. Informal education through newspapers and radio must be supplemented by education in schools and colleges in order to change unsafe practices and to remove hazards in the environment of homes, factories, schools, farms, and other places of business.

Vocational education teachers have opportunities to teach safety because students are supervised in activities that require use of the same tools and equipment as are used in homes or factories, and activities are similar to those of adults. Safe habits of work can be formed under supervision of a teacher so that safer practices will result when activities are repeated outside of school. Furthermore, the environment of the shop or laboratory itself can be a means of teaching safety, if principles of safety are applied at the time buildings are planned and furnishings or equipment selected and arranged. Even when shops or laboratories cannot be made ideally safe, they can be improved if administrators, teachers and pupils are aware of and know how to apply desirable standards. This ability to create a safe environment in the school is especially important at present; schools have been unable to secure building

materials and equipment for so many years that it is reasonable to expect an expansion of facilities as soon as purchases can be made. Since part of the new federal appropriations for vocational education can be used for the purchase of equipment, improvement of shop and laboratory facilities will be stimulated. Since changes in facilities tend to become permanent, standards for safe school environments should be accepted by educators now so that students will learn safety by example. Talking about safety will have little effect in an environment where safety principles are violated. Two projects are needed in this connection: (1) the development of standards for safe rooms and equipment; and, (2), the explanation of these standards to educators responsible for school buildings and equipment.

Teachers working under the supervision of State Boards for Vocational Education are potentially an important group in safety education. In 1945, 2,002,895 students were enrolled in agricultural, distributive, trade and industrial, and home economics education classes. This figure includes all types of students—evening, part-time and full-time. Students enrolled in schools that did not receive federal reimbursement are not included in this figure. In all fields of vocational education, except home economics, most students are in reimbursed classes but there are more students in nonvocational home economics than in vocational classes. Thus, the influence of teachers trained to teach agriculture, trade and industry, business and home economics is greater than the figures given above would indicate.

Another group not included in the 2,002,895 total is made up of college students preparing for occupations related to these four fields of vocational education. The total number of college students enrolled in vocational courses was not known, but the 1945 report showed 20,645 students enrolled in federally-aided teacher training courses.

With these facts in mind, the Joint Committee of the American Vocational Association and the National Safety Council met in May, 1944, to plan a work program. The purposes that guided the work of the committee were:

1. To bring together the facilities of the National Safety Council and the American Vocational Association to improve

the program of safety education in the various fields of vocational education;

2. To determine the safety needs of vocational education and to set up a program and schedule of work which would meet those needs;
3. To review work already under way and to consider tentative plans for the future;
4. To determine groups, organizations and agencies through which the committee might work.

The committee prepared a general outline of projects to guide the individual members in preparing specific plans for projects in their respective fields.

1. Determination of the causes of accidents in the various places of concern to vocational education, such as in school shops and laboratories, in homes, on farms and in places of business was considered a matter of prime importance in the development of an educational program. New standard student accident reporting forms and procedures for collecting and summarizing facts were reported yesterday at the first session of the School and College division. Two members of the joint committee, Gordon Graham and Wayne Hughes, worked with other groups interested in the revision of the standard student accident reporting form.

The need for data concerning the causes of accidents, not only in school shops and laboratories but also in situations outside of school, was evident when committee members discussed this project. Every member of the committee was of the opinion that school accidents should be reported in such a way that specific causes of accidents could be identified. The process of such identification requires detailed reporting and skilled interpretation of data. When such interpretations are available, the first step in the elimination of school accidents will have been taken.

The next step will be to correct conditions which have caused accidents. Probably some accidents are caused by inadequate housing—rooms may be poorly lighted or too small for the size of classes. Other accidents are caused by unsafe equipment or by adequate equipment improperly used or improperly arranged in the room. Possibly poor housekeeping will show up as an important cause of accidents. Such facts

could be used by teachers to convince students that "safety involves a frame of mind or attitude along with habits of carefulness."

Similar reports of accidents on farms and in homes are needed as one basis for deciding how safety should be included in the curriculum of secondary schools or colleges in both agriculture and home economics departments. The real cause of accidents is often difficult to determine. Accidents may have more than the causes which are at first evident. Statistics now available are not detailed enough to indicate all of the factors which contribute to even the most common accidents.

Another item in the program of work that received almost unanimous support was promotion of safety education in teacher training. The problem of promoting in-service education of teachers is somewhat different from that of increasing safety education through courses for undergraduates.

One way of reaching teachers in service is by means of regional conferences of supervisors and teacher-trainers and state conferences of secondary school teachers. Materials that have been prepared by the National Safety Council staff for safety education in home economics were presented at all of the regional conferences last year with the suggestion that time be allowed on state conference programs to present these materials to teachers.

A similar plan for promoting the use of safety materials was made for agricultural education. Since there is no representative of agricultural education on the staff of the National Safety Council to prepare materials, Ralph Howard, a member of the joint AVA-NSC committee, presented materials at our last meeting that he had prepared for use in Ohio. They intrigued the committee and a recommendation was made that he present some of them at regional conferences of agriculture teachers. In the opinion of the committee, the information contained in these bulletins and the general plan for presenting materials would be helpful. This project could not be carried out last spring but the committee believes that such help is needed by supervisors and teachers if secondary and adult education is to make an important contribution to the accident prevention program.

This project carried out for home economics education and planned for agriculture were in line with the first objective—to bring together the facilities of the National Safety Council and the American Vocational Association. Such projects should be continued and expanded to include other fields of vocational education and to include the use of new materials as they are made available.

The situation for industrial arts education is different from that in other fields of vocational education because there are fewer state supervisors and the pre-service education of these teachers is not as well organized. For this reason, the committee suggested the organization of a national committee of industrial arts supervisors, teacher trainers and teachers to identify shop hazards in each area of work and develop standard safe practices which would eliminate them.

These projects were for in-service education of secondary teachers, teacher trainers and supervisors. There is also need for special emphasis upon pre-service education of teachers, especially in fields where teacher turnover is rapid. For example, in home economics there is not time to give adequate in-service education to teachers on-the-job. Another reason why teachers are handicapped, unless their training is adequate before they begin to teach, is that few text books stress the need for safety in the home.

Staff members of the National Safety Council have worked with teacher training institutions to stimulate interest in safety education. Undoubtedly, interest has been increased but there is need in both agriculture and home economics for specific suggestions for ways of teaching safety more effectively through both technical and professional college courses. The home economics representatives on the joint committee recommended that a subcommittee, made up of a supervisor and a teacher trainer from each of three states, be appointed to prepare suggestions for college staffs. This recommendation has not been carried out because funds are not available for the work. Until the pre-service education of teachers provides more adequately for safety education, progress will be slow.

Another project that seemed important to the committee was the preparation of a bulletin addressed to vocational teachers,

supervisors, administrators and teacher trainers which would recall the why, what and how of safety education. When discussing the nature of the bulletin, Dr. Dillon wrote, "It should be written from a functional point of view, or from the point of view of the vocational teacher who needs to have reasons why to guide him in the things he is asked to do in strengthening his teaching. The bulletin should not be too

long and should represent an interpretation of past experience rather than a chronological listing. . . ." The prime purpose would be to recall vocational teachers on doing a part of their job better which they must do anyway. This bulletin has not yet been written but such a publication could help set forth a sound philosophy of safety education through vocational education in secondary schools and adult classes.

Built-in Safety: A Factor in School Building Planning

By H. W. SCHMIDT

Supvr., School Building Service, Wisc. State Department of Public Instruction

In general we may separate the safety factors into four large groups: 1) fire hazards; 2) mechanical hazards; 3) electrical hazards and 4) maintenance hazards. Of course, these groups inevitably overlap and expand their scope but I shall treat them in the order of these groupings.

Among hazards, the fire records are the most spectacular, not excepting those of traffic, and school fires occur at an alarming rate. The National Fire Protection Association estimates that more than 35,000 school fires have occurred since 1930 with a specific record well over the thousand mark. It will be admitted, however, that most fires occur in "older" buildings, but the completely modern school is by no means immune. Fortunately the loss of life except in a few glaring incidents, is not so great as that involved in other directions.

So-called fireproof buildings are the rule today, at least in most communities. Of course, the term is misleading, as probably no building is completely fireproof—fire-resisting is the better term to use. The building properly constructed of fire resistive material does not preclude having combustible materials within its walls, but floors, trim, sash, etc., can be constructed of highly fire resistive materials and the modern steel furniture reduces inflammable furnishings and materials to a minimum.

Of primary importance is the design and arrangement of stair wells or shafts; these should be of four-hour rating materials, at least, and be so located and protected to prevent the spread of flames, smoke and gases from one floor to another—it goes

without saying that the latter two are just as dangerous as the flames themselves. This then calls for automatic self-closing fire doors. That the corridors leading to these stair wells should be enclosed by fire walls goes without saying.

No matter how small the building, there should be at least two exits, remote from each other, from every floor. Too frequently we find two stairways, it is true, but with a common landing. This is especially true in older schools but I have found it in even a modern one—a so-called economy measure. All exit doors should preferably lead to the street or sidewalk. They should of course be provided with panic hardware and safety glass and should swing outward. Door checks of the proper kind, which may remain in the open position at the end of the extreme swing of the door, are acceptable. The fire escape on the outside of a school building is to be considered as indicative of improper planning; it has no place on a modern building but may be necessary, and is found, on old buildings.

There are certain quarters within a building which have special fire hazards, therefore such quarters—science laboratories, shops, cooking laboratories, maintenance shops, etc.—require special care in planning. There is being exhibited a tendency to segregate all shop activities in either quarters separate from the main structure or planned in sections which may definitely be isolated from the academic portion of the school. That heater and boiler rooms should be located outside and

away from the school structure itself seems self evident, yet for some reason or other we still find them in the main building. Why? I don't know. The storage of solid fuel should be carefully considered and heater rooms provided with automatic closing fire doors.

The matter of storage space needs more attention paid to it than customary. Plan after plan examined shows some left-over space which is designated as storage space. Because inflammable material is often stored in such spaces special attention needs to be paid to the fire hazards involved. Here is where complete fireproof construction is indicated.

One feature found in many modern schools is that of air distribution, both for heating and ventilation, through duct systems. Even when the later are of non-combustible material, they may still be the means of distributing smoke and gases throughout the building. Their location and design is, therefore, of prime importance. Some designers will not consider such ducts at all. They use other means for the above purpose.

Roof construction is also of importance. Of course, one does not expect combustible roof coverings, though we do find wood shingles in rural areas and small schools, but other roof coverings are by no means fire-resisting; the best appears none too good. Even if an external source of fire at this point is not very common, it has caused some serious losses.

Fire protection devices, though not all built-in, need careful consideration. In large schools the automatic sprinkler system is a desirable feature and is being planned for in increasing numbers. In some cases, only part of the school exhibiting special fire hazards is so equipped. Standpipes and hoses are more commonly found but should be more prominently displayed and more strategically located—out of sight is out of mind. Fire extinguishers should be provided even in fireproof structures; like the standpipes they should be located where readily seen and available. The type should depend upon the kind of fire which may be anticipated—all types do not smother or extinguish all kinds of fire. This is especially true in certain areas, such as laboratories and paint shops, etc.

Fire alarm systems may be of any signal type; break-glass stations are preferred to

prevent unauthorized operations, but, like the above, these stations should be in conspicuous locations. Connection with the local fire department is a good feature. In this case, the practice alarm button operates the system separately from the public alarm.

When we look over our accident statistics, we find many more accidents attributed to mechanical hazards than to fire. Mechanical hazards are similar to home hazards and exhibit similar features and causes.

Let us start with the entrance to the building which, in many cases, has stairs. Why design an entrance which calls for a monumental outside stair way, subject to all kinds of inclement weather—snow and ice included. In the South, you say, we do not have such conditions. Several years ago, I almost wrecked myself on such a monumental stairway at a large southern high school, because of an accumulation of leaves and debris, which, after a rain storm, were as slippery as ice. Yes, we know such stairway treatment is architecturally pleasing, but we suspect there is no incompatibility between design and inherent safety. Cover these stairways, or put them inside, where they really belong.

While we are "on the stairs," we find too many cases of risers too high, treads too narrow, some even having a forward slope, and insufficient allowance for the run and width of stairs. Long, unbroken runs are fatiguing, and stairs too narrow lead to crowding and incident accidents. Will it be necessary to mention the matter of safety treads, inherent or provided with nonslip nosings? I have been on many stairways which have treads that slope forward as well as uneven risers; if there is anything which gives more insecure footings, I should like to know what it is.

Now we come to the matter of handrails. If only one is provided, though we see no real reason for such economy, then it should certainly be on the right side when going down—falling upstairs are not so common. Also handrails should be of proper height and they should extend the full length of the stairway. A certain school board "contributed" nearly \$5,000 to a lady who fell because the handrail ended several feet from the end of the stairway. If there is an open stairwell with a solid balustrade which is wide and

smooth, boys will use it for a slide. This had better be converted into a rail with high, sharp knobs at close intervals. While we are talking about balustrades, these had better be made plenty high, especially over large open wells—breast high is recommended and even then a knobby top or some other means of discouraging sliding is in order. It is interesting to note the outlandish places young people choose for their, shall we say, conferences; one hates to discourage the meetings but, after all, there are more suitable places than stair rails or balustrades.

The students, of course, have to travel through corridors which have no hazards. Or do they? How about protruding radiators, drinking fountains, lockers, statuary on pedestals and the like? Corridors should be free from all projections and everything may be recessed.

Building exit doors should swing outward, of course, and the same should be the rule for classroom doors. But here we frequently run into a hazard because the doors do not fold back about the corridor wall. With deep breather walls, doors are frequently hung on the inside, thus causing the open doors to project into the passage way. Doors may easily be hung on the hallway side, leaving the corridors free from projections. Of course, several recessed locker spaces will be sacrificed but that is negligible.

The regular classrooms usually are free from hazards except those due to movable furniture which can hardly be avoided. On the other hand the various shop areas are not so free from hazards. However, many of the shop hazards are not of the type which are due to faulty construction. Most shop hazards are those due to machines, equipment, and improper manipulation. But the woodworking shop presents a health hazard because of the sawdust generated. Sawdust should be removed by an exhaust system. Similar hazards are met in forge, auto mechanics, paint shops with spray booths, and welding shops where exhaust systems should be used to remove fumes. The chemical laboratory should, likewise, be provided with an efficient exhaust system. Though one may argue that such systems are to be considered as equipment, yet most must be the built-in kind. If we were to discuss all safety measures in con-

nection with shop activities, we could spend considerable time on this feature alone.

Gymnasiums are by no means always safe places and aside from slippery floors, which can be eliminated, the matter of construction is important. Walls should be of a material which does not lead to impact injuries and abrasions. Walls should be of surface, and easy to clean. Backstops for doors, or other irregular surfaces, should not be permitted. The playing floor should be wide enough to permit plenty of space beyond its limit—students are often injured by being thrown into the bleachers. If there are balconies, usually considered a nuisance, the railing and protecting steel netting should be high, to prevent spectators leaning over too far.

Lighting is, of course, an important factor and there should be plenty of outlets and wire capacity. Most gymnasiums are poorly lighted, yet rather high illumination is necessary.

Swimming pools are also hazards causing student injuries, but, by its very nature, the pool cannot be entirely free from hazards. Slippery floors are difficult to prevent. Frequently the floor surrounding the pool is narrow; it has been suggested that a low curbing be built around the pool. Recently I saw several exposed radiators in a pool area; they should be recessed or other means used to heat the space. Good light both for the pool and underwater should be an important feature.

The electric wiring in many of the older schools leaves much to be desired. Open, knob and cleat work, metal switch covers, outlets without steel or porcelain boxes, metal switch handles, unprotected drop cords, metal shell sockets, frayed and cotton covered cords draped over nails and water pipes are just a few of the hazards encountered. With the demands for better illumination, the old wiring is often found too small to carry the new loads, and oversize fuses in such cases are common. So we have "Fire caused by defective wiring."

Not only is the fire hazard evident here, but the hazards causing burns and even electrocution are by no means to be minimized, to say nothing of those causing slight or even severe shock. One custodian told me recently that he had been laid up for hours because of a shock received when

when he turned on a switch which had metal cover—and the floor was wet!

All machines with self-contained motors should be well grounded, operating handles well insulated, and wiring in steel conduit or similarly protected.

One hazard frequently encountered is that on the stage of the auditorium. The amateur-stage-electrician may have to make additional installations—wiring, new outlets, home made spot lights and similar devices—and he may frequently add hazards, both to life and limb, and cause fires.

Not only is the eye affected by poor lighting, which in itself is a serious matter, but, in many instances, poor lighting is a hazard to life and limb. Too many corridors have virtually no natural lighting, and depend upon tiny ceiling lights, because "they are used only part of the time anyway, so why use large lamps?" Then we have poorly lighted stairways, basements, closets and heater-rooms, etc. All are hazardous and lighting economy is poor economy. A teacher collected \$3,800 damages from her board when she ran into a dark projection in the basement of her school; she also lost her job at the end of the school year. I myself lost a small part of my scalp and some precious hair when I ran into an unlighted area containing an unprotected drive belt. I was young and enthusiastic—I did not ask for damages, but I have learned better since then!

As to classroom lighting, both natural and artificial, we are doing better today and eyesight conservation is beginning to take its rightful place in our thinking about the schoolhouse. But, hear the local howl, even now, when we mention 30 or even 20 foot candles of illumination. We hope the constant dripping of the water of enlightenment will wear away the stone of indifference or ignorance.

There are many angles to operation and management which have a definite bearing upon the subject of safety. Built-in features may be okay when installed, but deterioration and improper maintenance may reduce the safety factor. For example, waxed and polished floors, wood, linoleum, terrazzo, etc., present a good appearance but are very dangerous. The filters in air ducts, which are out of sight are not often renewed; I have even found too many entirely removed, for reasons not too

obvious. Vent ducts in toilet rooms are frequently closed off, and in classrooms too, because, "they reverse at times." When odors begin to intrude themselves in the toilet rooms, we place a cake of something or other to substitute one smell for another. Storage rooms are often packed to the ceiling with such combustibles as baled paper, because "We have that stuff hauled away once a year."

Lighting fixtures are not cleaned as often as they should be, and lamps are not replaced when they become blackened—a 30-40 per cent reduction in illumination is quite common under these circumstances. I found a safety valve on a boiler removed because "it doesn't work anyway." It had been off several years—"besides, my steam gauge shows how much pressure there is." Fortunately, it was a low pressure outfit, but even that can blow up. Of course, in a large, well staffed school such things inimical to the health and safety of the children are not found—or, are they?

Although you may not consider sites and playgrounds, technically speaking, a subject under our title of "built-in," let us stretch our imagination to include the subject of sites and playgrounds. I am sure a few comments will not be amiss.

We assume that the selection of a school site has been judicious; that traffic hazards have been considered; that proper drainage is available, that the site is removed from railroads, factories and other disturbing influences; that the site is fairly level, does not call for dangerous embankments or retaining walls, and is large enough to permit sufficient space for play areas, athletic fields, etc.

The surfacing of the play areas is also important, because many injuries are directly traceable to improper surfacing. Play areas should be fenced in to prevent children, from running into streets, in the enthusiasm of their play. Play apparatus should be of the best, purchased with a view to its safe construction. It should be carefully and securely installed, and constantly inspected and maintained. My observations lead me to the conclusion that after apparatus is once installed it is forgotten until a swing breaks or the merry-go-round collapses.

My allotted time is about up but although I have only scratched the surface of this interesting and important subject,

I hope I have at least called your attention to many matters of safety and health which are frequently found neglected in most

schools. If you ever find a school which is 100 per cent perfect in "built-in safety," then you will have seen Utopia.

THURSDAY MORNING SESSION October 10, 1946

Group Meeting on Driver Education and Training Conducted by the National Driver Education and Training Committee, N. S. C.

Presiding: FRANCIS L. BACON, Supt., Evanston (Ill.) Township High School.

Driver Education in the California High Schools

By EVERETT V. O'ROURKE

Dir. of Curriculum, Yolo County Schools, Calif.

(Paper presented by Herbert J. Stack, Dir., Center for Safety Education,
New York Univ.)

California was the fabulous land by the western sea that beckoned many Spanish conquistadores and many hardy American pioneer over uncharted trails to continued happy life or untimely death in search of fame and fortune. California is the state by the Pacific Ocean where there are 100,000 miles of state highways and county roads on which 3,000,000 motor vehicles, innumerable bicycles, a few horse drawn wagons, and 9,000,000 pairs of legs involving 9,000,000 brains vie with one another for space and time. In California as elsewhere in these United States all activities operate on schedule to such an extent that everybody is behind schedule and must get someplace ahead of time in order to be there on time. In an effort to get someplace ahead of time, or on time, in California in the year 1945, there were 67,269 accidents; of these, 4,246 were fatal. The rugged individualism of the far west pays off in one kind of dividend or another.

Many plans have been proposed to prevent the occurrence of accidents on California roads as well as roads in other parts of the nation. One of the plans to prevent accidents has been an attempt to make youth more conscious of the values of the sensible use of automobiles. Driver education and driver training classes have been instituted in various high schools in order to inculcate these values into the learning of individuals.

We recently conducted a questionnaire survey to discover certain pertinent facts about the status of driver education and driver training in the secondary schools of California. We discovered that 200 of the 435 high schools were teaching driver education, and that 35 of the 435, scheduled classes in driver training. Table I shows the relationship between driver training courses and driver education courses in the high schools of California. We have listed the schools according to enrollment in order to ascertain whether or not there was a tendency for schools of a given size to schedule the courses. You will note that the size of the school is not an appreciable criterion in scheduling a course in driver education or in driver training. In this table, the schools scheduling driver training are included in the tabulation of those giving driver education. You can note the meagerness of the driver training program in relation to the driver education program.

Both large and small schools have found it difficult to conduct driver training courses because of the cost of the training automobile, the per capita cost of the program, insufficient training personnel, and difficulty of scheduling the training period. Some of the administrators have objected to scheduling driver training during the school day because of the hazards involved and other factors for which they

feel that the school should not be responsible.

The enrollment in driver education classes, in the majority of schools, is in direct ratio to the enrollment of the school, regardless of whether the course is elective or required. Table II shows the actual state enrollment in driver education and driver training according to questionnaire results. Approximately 5 per cent of those enrolled in driver education are enrolled in driver training. There are approximately 300,000 enrollees in California secondary schools each year; of these 7 per cent are enrolled in driver education classes and less than 1/4 of 1 per cent are enrolled in driver training. While these percentages are relatively low, they, at least, show a forward movement which we hope will continue. The administrators of the schools which teach driver education are in almost total agreement that the program produces desirable results in the communities in which the schools are situated.

Both boys and girls are enrolled in the classes with very few schools attempting to segregate according to sex. Those schools which do indicate that they have made segregation in driver education classes are usually the one that offer driver education as a part of the shop classes, have driver education taught as a separate class by the shop teacher, or have an enrollment of more than 1,000.

One hundred fifty-seven schools responded to the question in the survey concerning driver education as a separate course or a part of some previously established course. One hundred fourteen schools offer driver education as a part of some established course while 43 offer it as a new course. Table III shows the breakdown according to size of school and course offering. It will be noticed that more driver education is taught as a part of social studies courses than as a part of any other course in the school curricula. If one considers orientation as a social studies course too, 63 per cent of the driver education units are included in the social studies departments of the high schools. Under the item "miscellaneous" are listed homemaking, commercial, physical education, music, and other departmental offerings.

The methods used by the instructors are, for the most part, either technological or sociological depending upon the training and imagination of the teacher, the course in which the unit of driver education is included, the stress and value placed on the course by the instructor, the availability of learning materials, whether the school is rural or urban, and other pertinent factors. More than 50 per cent used the sociological approach, about 30 per cent use the technological approach, while 20 per cent use a combination of the two or some other means based on their definition of the purpose of the program.

In an attempt to provide some uniformity of method and direction of purpose, driver education institutes have been held at two California Universities during the summers of 1944 and 1945. During the summer of 1946 a regularly established course in driver education was conducted at the University of California, Berkeley, and another at the University of California in Los Angeles.

While the enrollment in these classes was not outstanding in quantity it was superb in quality, and a nucleus of such fine people will certainly be an inspiration for other instructors to receive training during future summer sessions. Results of the questionnaire survey indicate that the classes for driver education trainees would be large at both universities. However, most of those who indicated a desire for summer session training failed to arrive for instruction. It is sincerely hoped that such an interest will be shown in driver education and driver training, that classes will be conducted during the regular sessions at some of the universities of the state.

The number of hours that driver education and driver training are offered varies in relation to whether or not the course is separate, or a unit of another course. From 10 to 90 hours per semester are devoted to the course in the various schools.

The contribution of driver education classes to the complete training of the students is shown in Table IV which indicates that school paper publicity and school poster campaigns are used in more instances as extra-curricular activities connected with driver education than are the other types of experiences. Student

safety councils are not as prominent as they should be in the general scheme of education throughout the state. There is a possibility of organizing the student safety council as part of the student body government in such a manner that it is a functioning, valuable contribution to the life of all of the enrollees of the school. In too many instances the safety council becomes a traffic council and overlooks the other factors of safety around the school and community. Driver education conferences are not as prevalent as they should be. They could be organized in such a manner that students from several schools meet together once or twice a year to compare notes and review demonstrations presented by the various schools. The copy of the *Driver Education Conference Bulletin* which is available to you depicts the type of organization which was scheduled in Yolo County, Calif., to engender new interest in some schools and continuing interest in others. I have never seen greater continued interest by high school students during an entire day of activity than that which was evidenced during the day of the conference.

The optimum grade placement of driver education and driver training is a problem which is causing considerable discussion. The courses are scheduled for classes for all grades of the junior and senior high schools. There have been some hot and heavy arguments among administrators and teachers concerning the placement of the subject, but there has been no majority agreement. Twenty seven per cent of the schools teach driver education in the ninth grade; 10 per cent of the schools offer the course in the twelfth grade, and an additional 10 per cent schedule instruction in both the eleventh and twelfth grades. Some schools require all enrollees over 16 years of age to register for driver education, while in others it is an elective for all those over 14 years of age.

Table V indicates some techniques of instruction used in driver education classes.

It will be noted that audio-visual aids are used twice as much as either of the other two techniques of instruction. Student projects are used more than traffic surveys. Other techniques of instruction suggested as being used by some schools are demonstration, lecture, discussion, use of miniature autos, and blackboard diagrams.

Table VI shows the units of instruction used in the driver education classes in California. In this table, items 2 and 3 should have a higher statistical correlation with item 4 than is indicated. If there is to be discussion and data concerning physical and psychological differences, then it would seem to follow that the students should have an opportunity to use the psycho-physical testing devices in order to discover their own strengths and weaknesses. Demonstration road tests are not outstanding in the units of instruction. This seems obvious in view of the information presented in Table I, showing the relationship of driver education to driver training offerings. It is gratifying to note that bicycle safety and pedestrian safety occupy a prominent place in the course offerings.

There is much more reading and discussion than actual practical experience in driver education classes. While approximately three dozen books, pamphlets, and periodicals are used in the various high schools, only three seem to be outstandingly mentioned by nearly all schools. The three used more than any other are *MAN AND THE MOTOR CAR*, the *STATE OF CALIFORNIA VEHICLE CODE*, and the *SPORTSMANLIKE DRIVING SERIES*.

Indications are that those high school students, who enroll and study driver education, receive a Department of Motor Vehicles Certificate as a direct result of the training received.

All in all, we feel that driver education has proven its value and worth; that more driver education is needed; and that a concentrated program for instructors should be instituted in California and the nation.

Table I—Grouping by Enrollment of 332 Schools to Show Those Offering Driver Education and Driver Training

High School Enrollment	Driver Education	Driver Training	No Course Offered	Total Responding
0- 100	22	6	29	51
101- 300	57	9	36	93
301- 500	37	8	11	48
501-1,000	41	8	26	67
Over 1,000	43	4	30	73
Totals	200	35	132	332

Table II—Per Semester Enrollment in Driver Education and Driver Training Classes in California Secondary Schools

School Enrollment	Enrollees in Driver Education	Enrollees in Driver Training
1- 100	292	82
101- 300	1,761	146
301- 500	2,242	224
501-1,000	4,022	459
Over 1,000	12,802	155
Totals	21,119	1,066

Table III—Driver Education Course Offerings in California Secondary Schools

Course	101	101-300	School Enrollment 301-500	501-1000	Over 1000	Totals
Driver Education as a Separate Course	7	8	8	8	12	43
Unit of:						
Social Studies	7	15	11	12	12	57
Shop	2	2	6	3	6	19
Science	4	3	1	0	0	8
English	1	3	1	0	1	6
Orientation	0	9	1	3	2	15
Miscellaneous	1	5	3	0	0	9
Totals	22	45	31	26	33	157

Table IV—Extra-Curriculum Activities Promoted by Driver Education Classes

School Enrollment	1-100	101-300	301-500	501-1000	Over 1000	Totals
Driver Problems Assembly	8	11	9	8	6	42
Driver Education Conferences	2	5	2	5	7	21
Student Safety Councils	1	7	5	8	7	28
School Poster Campaigns	10	14	6	13	14	57
School Paper Publicity	14	27	17	18	21	97
Totals	35	64	39	52	55	245

Table V—Some Techniques of Instruction Used in Driver Education Classes

School Enrollment	1-100	101-300	301-500	501-1000	Over 1000	Totals
Traffic Surveys	4	15	9	14	20	62
Audio-visual Aids	18	46	29	32	35	160
Student Projects	12	28	9	18	17	84
Totals	34	89	47	64	72	306

Table VI—Units of Instruction in Driver Education Classes in California

	1-100	101-300	301-500	501-1000	Over 1000	Totals
School Enrollment						
History of the Automobile	12	36	22	25	26	121
Physical Differences of Drivers	23	47	26	32	38	166
Psychological Differences of Drivers	20	45	26	29	36	156
Psycho-physical Tests	7	22	16	17	20	82
Demonstration Road Tests	9	12	16	14	14	65
Rules of the Road	24	52	29	35	42	182
Automotive Maintenance	13	33	23	23	38	130
Pedestrian Safety	22	53	30	35	41	181
Bicycle Safety	20	48	24	29	35	156
Insurance	18	35	21	28	28	130
Totals	168	383	235	267	328	1,369

THURSDAY MORNING SESSION

October 10, 1946

Group Meeting on Preparing Safety Engineers in Engineering Colleges

Presiding: WALTER S. PAINK, Mgr., Engineering and Inspection Dept., Aetna Casualty and Surety Co., and Chm., Executive Board, N. S. C.

Uniformity in Training Safety Engineers

By R. P. BLAKE

Acting Chief, Safety & Health, Div. of Labor Standards, U. S. Dept. of Labor

One of the most serious needs in the field of industrial safety today is to develop adequate standards for the professional practice of accident prevention. At least a reasonable degree of uniformity is implicit in the word "standards." I believe, however, that before we can go very far in developing uniformity in safety training courses, we must develop a definite program and resolve certain differences in opinion as to just what the fundamentals of accident prevention really are.

In appraising my viewpoint in this matter, I ask you to keep clearly in mind the fact that in the educational sense there is no such profession as safety engineering. As compared to the established engineering professions, no man has the right to call himself a safety engineer because no accredited course of instruction leading to a degree in safety engineering, has, as yet, been set up. Whether or not it should be is highly debatable. The art and science of accident prevention is a new and developing branch of industrial effort. The work of organizing the information already gained so as to make it teachable has only begun.

Accident prevention in productive industry is primarily an operating function. We prevent accidents by incorporating safety as intimately as possible into every activity, operation, or process in each undertaking, or establishment. We know that two factors are necessarily present in every case of accidental injury, namely, there must be some degree of hazard and there must be faulty behavior. Therefore, in order to achieve the maximum in accident elimination, we must do everything possible to reduce the factor of hazard and also—and with similar thoroughness—use every practicable means of developing safe and adequate behavior. All of this means that accidents are prevented on the "firing line," and that the actual job of preventing them belongs primarily to those who plan lay-out, organize, supervise, or direct industrial operations. The professional accident preventionist must work with and through such personnel. He must be consultant, advisor, and, in a sense, errand boy and servant to them. His training and experience must be such as to give him a thorough knowledge of the methods and techniques of accident prevention and

he must also know operating methods and procedures well enough to advise soundly as to the specific ways in which safety may be incorporated into each operation or procedure. His understanding of human nature and his approach and conduct must be such that his ideas will be well received and used to the full extent of their value. It is obvious that only very broadly and thoroughly trained men can meet these requirements.

Another very important point should be brought up here, namely, that the key planning, designing, supervising, or operating personnel already referred to, need organized safety training to give them the knowledge of safety necessary to their adequate performance in "firing-line" accident prevention. Giving them this knowledge and the will to use it has generally been considered to be a part of the safety director's job. One commonly hears it expressed as "Selling the Foreman." Many safety men have done an excellent job at this, but it should be put on a much more systematic basis and such training should be provided for as a policy of management, preferably through our educational institutions.

If you accept the above as valid, it follows that our problem becomes a two-fold one. We must give certain basic safety training to every person who aspires to any position in industry in which he will plan, design, organize, supervise, or direct operations or the work of others. In addition, we must give a much more comprehensive training to a relatively small group who will wish to follow industrial accident prevention as a profession.

We can all agree, I think, that basic principles require a good degree of uniformity in their presentation even though considerable variation may be permissible, or even helpful in the illustrative detail used. Unfortunately, there is no general agreement as to just what the fundamentals of accident prevention actually consist of. Certain principles and information are definitely established and accepted, but others are under debate. It is my strong belief that much of the philosophy of accident prevention is in error, for example, the use of a ratio in comparing the importance of physical hazard versus unsafe acts as causative factors. Be that as it may, it is clear that every basic course in safety should include uni-

form treatment of the well-established safety fundamentals and a presentation of those under debate with the divergent views objectively described. Also, the presentation of specific safety techniques, such as plant inspection, job safety analysis and accident investigation and such organizational and operational tools as safety committees should contain a large proportion of standardized material as a basis. This would, of course, be supplemented by suitable detail with whatever degree of variation might best suit the nature and purposes of the course in question.

It is well to point out that, while the basic principles of accident prevention are relatively simple and easily understood, the detail involved is tremendous. Any activity that deals intimately with the layout, design, construction, and day-by-day operation of every type of industrial plant and equipment, and with all processes, procedures, and work methods as well, must, of necessity, include infinite detail. No person can possibly master more than a small part of it. However, as already indicated, any person of good intelligence, having a reasonable educational background, can master the basic principles with relative ease and, with the aid of the key personnel in any establishment or undertaking, can develop or guide the development of the necessary detail.

Perhaps I am discussing the subject of uniformity in safety training courses in much too sketchy and general a manner. But, in view of the existing situation, I don't know how I can be more specific. Let us look at the picture for a moment. Industrial safety training courses before the war were limited to a very few short elective courses, none of which proved to be sufficiently popular to justify expansion or, in most cases, continuance. The most ambitious undertaking was that of the Center for Safety Education of the School of Education of New York University. It was financed through a grant by the National Conservation Bureau. However, even this project had difficulty in filling its classes. Its major contribution was in providing research fellowships, which however useful, cannot do much to meet the major need—the development of an adequate system of safety training.

The safety training courses developed un-

der the ESMWT program were hurriedly developed to give a reasonable amount of basic safety knowledge to key personnel in war production. They were not intended to prepare their graduates for responsible full-time safety positions. That many thought otherwise is to be regretted. They presented only a small part of the knowledge a professional accident preventionist must have to be successful. They were a war project and were rightly terminated when the war emergency was over.

It was hoped that these war safety training courses would be revised in the light of the experience gained and included as a standard subject in the curricula of our extension schools at least. However, the demand that would have justified this has not appeared and little has been done.

The engineering schools have not taken the matter up either except in very limited and sporadic fashion. The many problems imposed by the transition from war to peace, plus the currently tremendous flood of enrollees, has absorbed the full energies of every collegiate faculty in the land. It is not surprising that they are not responsive to suggestions for the addition of new subjects to already crowded curricula. The problem of getting the teaching of industrial accident prevention into our educational system is, as yet, largely unsolved, even though encouraging progress is being made.

The most promising advance made is the grant for the collegiate year 1945-6 by the National Safety Council to establish safety professorships at four engineering schools, New York University, Georgia Technical Institute, Illinois Technical Institute, and California University. Much solid progress has already come of this experiment, but it is only a first step. Much more must be done and on a much broader scale before we can reach our goal. I will attempt to explain this.

Since safety must be an integral part of every industrial operation if preventable accidents are to be kept to a minimum, it follows that it should be integrated into every course whose purpose is to prepare its students for participation in industry. Each subject in such a course should include, interwoven into it, at least the more important safety material pertinent to that subject. Moreover, all laboratory, shop, and field work should be taught under all con-

ditions and practices representative of top-rate safety performance as practiced in industry. However, this would not be enough, for it would leave important gaps and inadequacies. Therefore, the senior year of all engineering courses should include a short tie-in course designed to give the graduating engineer a reasonable understanding of the basic principles and methods of accident prevention in industry.

Since college curricula are heavily loaded with subjects and since each subject is crammed, the safety material to be included in each must be carefully and skillfully fitted into the cracks and crevices of each subject. For, surely, each vital bit of information that is left out of a given subject does leave a crevice. The problem is to locate all these openings and shape the bricks and mortar of safety to fit into them properly and, thereby, add strength to the structure.

We now come to the training needs of those who wish to prepare themselves for the practice of industrial accident prevention on a professional basis. They should certainly have the objective approach of the trained engineer. It is equally certain that they should have, at least, a reasonable grasp of the industrial methods and processes with which the industrial engineer works. Therefore, it seems only reasonable to conclude that an engineering degree from an accredited course into which safety has been integrated in the manner already touched upon should be a prerequisite for a degree in safety engineering. If this viewpoint is sound, we should urge and in every way possible aid and persuade the colleges to include safety through a process of integration. With the work of integration well underway and widely accepted, we can begin adequately to plan the degree course. How can we decide what to include in a degree course until we have determined what our safety fundamentals are and what can be included in the various subjects through integration?

In summary, I wish to emphasize the following:

(a) A reasonable degree of uniformity in the presentation of safety material is desirable.

(b) Such uniformity is not attainable until there is more general agreement as to

just what the fundamentals of industrial accident prevention actually are.

(c) Available safety material is for the most part unorganized, sketchy, inadequate, scattered and often contradictory, unreliable or superficial.

(d) Basic decisions of policy as to the teaching of safety are yet to be made by our education institutions and authorities.

(e) There is a serious need for much more carefully organized comprehensive and detailed material prepared for use as text.

(f) There should be a well organized continuing program developed for the purpose of bringing the loose ends together, filling in the vacant spaces and, in general, promoting the teaching of safety on an adequate scale.

To What Extent Should Courses in Safety Engineering Be Provided on the Undergraduate Level?

By R. V. JAMES

Dept. of Mechanics, College of Engineering, University of Oklahoma

We all know that engineering programs are seriously overcrowded. Modern engineering practice is making advances in technical training necessary. Scientific advances have a tendency to make necessary more careful fundamental preparation and also require that additional time be found in order to incorporate the advance into the subject matter of the engineering course. In addition, there is a constantly increasing pressure for introducing other courses—often non-technical—into the curriculum. For example, a recent state law requires that our engineering graduates have six hours credit in history or government. Some other engineering school may have to include Elizabethan drama for "culture's sake."

In order to avoid introducing new course requirements for the already overburdened engineering student, the excellent suggestion has been made that the colleges teach safety by precept and example, that students be made safety conscious by "integrating" material on safe practices in regular engineering courses and by making laboratories, shops, and university buildings outstanding examples of Safety Engineering. This plan, by the way, calls for a Safety Engineer or Safety Director who will initiate and coordinate the program. Here again, every engineering teacher knows the objections that will be raised wherever this program is proposed.

The classroom instructor will say, "I can't cover all of the material that should be presented in this course now. If safety material must be included, other essential

technical phases of the subject must be omitted." The laboratory instructor will say, "we have never had an accident here. We display the safety chart and explain the hazard if any exists in the assignment. But we simply do not have time to go into detail on the safety phases beyond those immediately applicable." The administrator may say, "The plan looks good, but it takes money to hire a specialist to direct it. Even if we could get the money, where can we find a man to meet these specifications?"

Safety Training Objectives

Replies from men in industry, insurance company representatives, and members of the National Safety Council, have agreed that a considerable amount of safety training should be included in the undergraduate engineering program. Most of them believe that the manner in which the material is incorporated should be left to the individual schools. There is a considerable difference of opinion as to the subject matter that should be included in the safety training.

At this point we may inquire as to the objective of the safety training to be given engineering students. Is it intended that every graduate engineer should be trained as a potential Safety Engineer or Safety Director? Would complete indoctrination of all engineers be particularly helpful either to the man or to industry? As each college analyzes its problem and outlines its objectives, I believe the most common answer to both questions will be, "no." A

comparatively small number of graduate engineers will always devote the major portion of their time to safety work or will bear the title, Safety Engineer.

Yet, I believe we will all agree that it is very desirable that every engineer be "safety conscious." He has always been drilled on one sort of safety program; i.e., there must be no structural failure or faulty operation of the things he designs. This, of course, is not sufficient. He must be brought to realize that a design is not a good one unless it can be constructed, used and maintained without undue hazard. The design may be quite satisfactory from the standpoint of applied forces and strength, and yet be unsatisfactory from the standpoint of safety and convenience for the users and the more or less innocent bystanders. He needs to acquire an appreciation for the economic aspects of the safety problem.

The rather common engineering attitude that this or that safeguard or change in design is unnecessary "because common sense ought to keep any one from getting hurt that way" needs to be changed. He should be brought to the frame of mind that strives to make the accident impossible. Let me illustrate: I saw a bystander toying with a small tilting concrete mixer that was standing idle; the gears were shielded by a short, flat strip of metal covering the faces for a few inches on each side of the point of meshing; a young man, while looking into the drum of the mixer, put his fingers in the teeth of the large gear and gave it a spin; with the result that his fingers were painfully bruised by passing under the shield and through the meshed gears. A shield making such an act impossible would have been necessary to prevent the injury.

Safety Starts with Design

I believe a great deal can be done in design, laboratory and shop courses to arouse the safety consciousness of the student. Design problems may easily be presented so as to involve the safety of the user as well as the structure or machine. Once his interest in safety is aroused, it is desirable that he receive a more general introduction to the safety problem and be acquainted with some of the methods of attack and the aids already developed for eliminating hazards.

It is the problem of the school administrators to determine how much indoctrination can be efficiently accomplished in regular classes and how this may be supplemented. In most cases I believe the "integration" plan will fall short of the goal. In too many courses safety topics will seem irrelevant. In most cases the presentation must be specific and brief. This will be true even where the instructor is conscientiously cooperating. The mechanical engineer will learn that there is an A.S.M.E. "Boiler Code," and perhaps that there is one for "Unfired Pressure Vessels." But the chances are against his finding out what the provisions are; how, why and by whom they were formulated; how the limitations were determined; or whether or not the provisions satisfactorily accomplish the purpose for which they were intended. A great deal of other safety information will not be called to his attention because it is in no way connected to the subject.

A supplemental method of indoctrination being used in some places involves a course of special lectures and demonstrations usually put on by people outside the college. Industrial Safety Engineers, Mines Bureaus, Public Health Departments, Fire Fighters, manufacturers of safety equipment and highway patrol organizations are very liberal in the matter of cooperating in such programs. These may be organized as two or three-day short courses or as a series of lectures distributed through the school year. Some of these programs have been very successful. Others have been disappointing. Some of the causes of failure involve tendency on the part of each succeeding speaker to repeat a considerable part of the material already given. Quite frequently there is no apparent connection between the subject under discussion and engineering practice. The speakers sometimes appear to be principally interested in advertising a product or a company. It is quite difficult to secure full attendance by the students.

Safety Course in the Curriculum

The alternative method of supplementing safety indoctrination is the one engineering educators most violently oppose: that is the introduction of a safety course or courses into the curriculum. In most cases this will be very difficult; but I do not believe it is impossible. A study of the

curriculum of schools of approximately equal standing shows considerable variation in the time allotted to standard courses and even more variation in the time devoted to non-technical subjects. Thus, the material to be added and the subjects to be abbreviated or deleted are a matter to be decided by the curriculum committee and the administrators.

After the idea is sold to the administration, and—for example, a three hour course is decided upon—two important problems remain to be solved. It is necessary to decide the type of course and the material to be included. Equally important, is the selection of an instructor with the experience and personal qualifications to put the subject over. Both of these factors have a definite bearing on the place the subject has in the curriculum. Time and money will both be wasted if the course is assigned to an instructor who simply makes text assignments and conducts recitations on the assigned material.

I remember from my own college days a course in Fire Prevention in which part of the reading assignment was from the National Fire Underwriters Manual. I also remember that I did not read the material until many years later. The instructor must not only have the engineering view point and training, and be able to connect his subject with engineering practice; but, he must also be somewhat of a crusader. He has a big evangelistic job to do with his students as prospective converts. Such men seem to be very rare.

A large amount of literature on safety subjects is available. Most of it is very well prepared for its intended purpose, that is, for use in employee training. I have found very little available material satisfactorily organized for presentation as an engineering course. The student's question "What has all this to do with my work?" is valid. It is a question that must be answered, if his interest and cooperation are obtained. A large part of the responsibility for the choice and organization of material will fall on the instructor.

As indicated earlier, I do not believe it should be the objective of the engineering college to make every graduate a potential safety engineer. In some localities there may be a demand for men who plan to become safety engineers. There may also

be students who aspire to a career in that field. It seems that those who wish to make a safety work a career should be given an opportunity for a college program with some special aim in that direction. I am not at all convinced that a degree of B.S. in Safety Engineering is advisable. I feel quite sure that it will be very difficult to secure approval by the Engineering Council for Professional Development for such a curriculum. So long as the degree carries an engineering label, the engineering colleges will guard the curriculum jealously to insure its being worthy of the name.

Nine Credit Hour Course Indicated

A number of schools already have a curriculum in either Industrial Engineering or General Engineering. These seem to offer an ideal solution for those intending to go into safety work. Most of these have the basic requirements of all engineering programs and a considerable amount of specialized engineering material. They also require courses in accounting, industrial management, personnel management, etc. In addition, provision is made to allow from six to 15 hours of technical and non-technical electives. Some of these may well be devoted subjects that will be of value in the preparation for a safety career. Such courses as safety design, or, more properly, design of equipment for safety, and those dealing with the critical study of engineering safety codes are eligible for consideration as technical electives.

Perhaps, even in this program, other labeled safety courses should be limited to not more than nine credit hours. Care must be taken to avoid encroachment on the engineering content of the curriculum. Since the important objective is to arouse in the student an awareness of the problem and to excite his interest in some of the available methods of attack, it seems this allotment of time should be ample. Beyond this point his interest and initiative should carry him through. The literature on the subject is comparatively simple. There is little need to sit through numerous class sessions in order to become familiar with it. A considerable portion of the students' specialized safety training must be gained after graduation and a great deal of it will be peculiar to the organization employing him.

comparatively small number of graduate engineers will always devote the major portion of their time to safety work or will bear the title, Safety Engineer.

Yet, I believe we will all agree that it is very desirable that every engineer be "safety conscious." He has always been drilled on one sort of safety program; i.e., there must be no structural failure or faulty operation of the things he designs. This, of course, is not sufficient. He must be brought to realize that a design is not a good one unless it can be constructed, used and maintained without undue hazard. The design may be quite satisfactory from the standpoint of applied forces and strength, and yet be unsatisfactory from the standpoint of safety and convenience for the users and the more or less innocent bystanders. He needs to acquire an appreciation for the economic aspects of the safety problem.

The rather common engineering attitude that this or that safeguard or change in design is unnecessary "because common sense ought to keep any one from getting hurt that way" needs to be changed. He should be brought to the frame of mind that strives to make the accident impossible. Let me illustrate: I saw a bystander toying with a small tilting concrete mixer that was standing idle; the gears were shielded by a short, flat strip of metal covering the faces for a few inches on each side of the point of meshing; a young man, while looking into the drum of the mixer, put his fingers in the teeth of the large gear and gave it a spin; with the result that his fingers were painfully bruised by passing under the shield and through the meshed gears. A shield making such an act impossible would have been necessary to prevent the injury.

Safety Starts with Design

I believe a great deal can be done in design, laboratory and shop courses to arouse the safety consciousness of the student. Design problems may easily be presented so as to involve the safety of the user as well as the structure or machine. Once his interest in safety is aroused, it is desirable that he receive a more general introduction to the safety problem and be acquainted with some of the methods of attack and the aids already developed for eliminating hazards.

It is the problem of the school administrators to determine how much indoctrination can be efficiently accomplished in regular classes and how this may be supplemented. In most cases I believe the "integration" plan will fall short of the goal. In too many courses safety topics will seem irrelevant. In most cases the presentation must be specific and brief. This will be true even where the instructor is conscientiously cooperating. The mechanical engineer will learn that there is an A.S.M.E. "Boiler Code," and perhaps that there is one for "Unfired Pressure Vessels." But the chances are against his finding out what the provisions are; how, why and by whom they were formulated; how the limitations were determined, or whether or not the provisions satisfactorily accomplish the purpose for which they were intended. A great deal of other safety information will not be called to his attention because it is in no way connected to the subject.

A supplemental method of indoctrination being used in some places involves a course of special lectures and demonstrations usually put on by people outside the college. Industrial Safety Engineers, Mines Bureaus, Public Health Departments, Fire Fighters, manufacturers of safety equipment and highway patrol organizations are very liberal in the matter of cooperating in such programs. These may be organized as two or three-day short courses or as a series of lectures distributed through the school year. Some of these programs have been very successful. Others have been disappointing. Some of the causes of failure involve tendency on the part of each succeeding speaker to repeat a considerable part of the material already given. Quite frequently there is no apparent connection between the subject under discussion and engineering practice. The speakers sometimes appear to be principally interested in advertising a product or a company. It is quite difficult to secure full attendance by the students.

Safety Course in the Curriculum

The alternative method of supplementing safety indoctrination is the one engineering educators most violently oppose: that is the introduction of a safety course or courses into the curriculum. In most cases this will be very difficult; but I do not believe it is impossible. A study of the

curriculum of schools of approximately equal standing shows considerable variation in the time allotted to standard courses and even more variation in the time devoted to non-technical subjects. Thus, the material to be added and the subjects to be abbreviated or deleted are a matter to be decided by the curriculum committee and the administrators.

After the idea is sold to the administration, and—for example, a three hour course is decided upon—two important problems remain to be solved. It is necessary to decide the type of course and the material to be included. Equally important, is the selection of an instructor with the experience and personal qualifications to put the subject over. Both of these factors have a definite bearing on the place the subject has in the curriculum. Time and money will both be wasted if the course is assigned to an instructor who simply makes text assignments and conducts recitations on the assigned material.

I remember from my own college days a course in Fire Prevention in which part of the reading assignment was from the National Fire Underwriters Manual. I also remember that I did not read the material until many years later. The instructor must not only have the engineering view point and training, and be able to connect his subject with engineering practice; but, he must also be somewhat of a crusader. He has a big evangelistic job to do with his students as prospective converts. Such men seem to be very rare.

A large amount of literature on safety subjects is available. Most of it is very well prepared for its intended purpose, that is, for use in employee training. I have found very little available material satisfactorily organized for presentation as an engineering course. The students question "What has all this to do with my work?" is valid. It is a question that must be answered, if his interest and cooperation are obtained. A large part of the responsibility for the choice and organization of material will fall on the instructor.

As indicated earlier, I do not believe it should be the objective of the engineering college to make every graduate a potential safety engineer. In some localities there may be a demand for men who plan to become safety engineers. There may also

be students who aspire to a career in that field. It seems that those who wish to make a safety work a career should be given an opportunity for a college program with some special aim in that direction. I am not at all convinced that a degree of B.S. in Safety Engineering is advisable. I feel quite sure that it will be very difficult to secure approval by the Engineering Council for Professional Development for such a curriculum. So long as the degree carries an engineering label, the engineering colleges will guard the curriculum jealously to insure its being worthy of the name.

Nine Credit Hour Course Indicated

A number of schools already have a curriculum in either Industrial Engineering or General Engineering. These seem to offer an ideal solution for those intending to go into safety work. Most of these have the basic requirements of all engineering programs and a considerable amount of specialized engineering material. They also require courses in accounting, industrial management, personnel management, etc. In addition, provision is made to allow from six to 15 hours of technical and non-technical electives. Some of these may well be devoted subjects that will be of value in the preparation for a safety career. Such courses as safety design, or, more properly, design of equipment for safety, and those dealing with the critical study of engineering safety codes are eligible for consideration as technical electives.

Perhaps, even in this program, other labeled safety courses should be limited to not more than nine credit hours. Care must be taken to avoid encroachment on the engineering content of the curriculum. Since the important objective is to arouse in the student an awareness of the problem and to excite his interest in some of the available methods of attack, it seems this allotment of time should be ample. Beyond this point his interest and initiative should carry him through. The literature on the subject is comparatively simple. There is little need to sit through numerous class sessions in order to become familiar with it. A considerable portion of the students' specialized safety training must be gained after graduation and a great deal of it will be peculiar to the organization employing him.

In summary, I believe most of us agree upon the desirability of making all graduate engineers safety conscious and of awakening their interest in safety problems. It seems to me equally desirable that the time devoted to safety courses in the undergraduate curriculum should be held to a minimum. If the objective can be accomplished without the inclusion of additional courses, that solution is ideal. Some

supplementary work will probably be necessary. In that case, I believe that a special course—probably three semester credit hours in the senior year—will prove most efficient. For those who intend to make safety a career, a more comprehensive program should be provided. But even for these students the special courses should be limited, leaving specialization for post graduate study and industrial experience.

Progress Report on the Safety Engineering Program at Georgia School of Technology

By W. N. COX, JR.

Head, Department of Safety Engineering, Georgia School of Technology

On many occasions thru past years, we have recognized and expressed the need for better trained safety personnel. We have fervently hoped that the American engineering college would accept this responsibility—but to no avail.

However, had the War not forced the cancellation of the 1945 Congress, I should have been pleased to announce to you, one year ago, that the Department of Safety Engineering had been created at Georgia Tech on July 1, 1945, and that a comprehensive study program to satisfy the needs of industry for trained safety personnel had been developed.

Now, as the Department is well into its second year, I can state that, without exception, each of the several program activities as outlined in the prospectus which served as a basis for the National Safety Council grant has been initiated at the Georgia School of Technology. Further, I can state that the development of these activities has proceeded steadily and to an extent beyond the expectations of those who shared in the preliminary planning of this endeavor.

In the forefront of our aims has been the desire that each Georgia Tech graduate develop an awareness of the accident problems in his chosen field, and that he weigh safety considerations with those of strength, efficiency and economy in his problems of design, construction and operation.

Likewise, a number of the laboratories and shops have already called upon the Department to help them in reorganizing their layouts to incorporate true safety practices which will serve as proper examples to all students. Safety lectures have also been incorporated as a part of other courses.

It has proved desirable to provide a senior course for the purpose of crystallizing and supplementing the safety information obtained through the integration process.

In the graduate division, we have accepted a two-fold responsibility. First, the needs of industry and government for trained safety engineering specialists have been acknowledged, and a comprehensive program of advanced courses at the graduate level is offered to answer these needs. The courses are sufficiently varied in number and content so as to afford, in combination with related courses of other departments, a high degree of flexibility to accommodate the particular requirements of the graduate student in safety engineering. The degree of Master of Science in Safety Engineering is now offered for the completion of a minimum of one academic year of satisfactory graduate study and other requirements consistent with those of the degree of Master of Science in other departments. Second, the graduate programs of other departments, such as Industrial Engineering, Mechanical Engineering, Textile Engineering and the

etc., offer one or more advanced courses in industrial accident and health control as a logical segment of a broad consideration of the major subject.

The closely related activity of research, both academic and industrial, through the Georgia Tech Research Council, is receiving the attention of the Department, so that one or more extensive research projects in safety engineering is expected in the near future. In addition to those student projects now in progress.

It is recognized that a large number of those persons on whom industry depends for safe operation cannot be available except for evening or extension courses. Thus, it is essential that the development, administration and instruction of such courses receive the same careful consideration accorded other levels of engineering education. Individual courses in the Evening School of Applied Science are now available, but emphasis has been directed toward a Safety Technician's Course of 990 hours duration, extending over nine school quarters, and providing a foundation of mathematics, physics, chemistry, drawing, elementary electricity, applied mechanics and other subjects in addition to the more specialized safety courses.

The Extension Division activity has already included the very successful Annual Southeastern Motor Vehicle Supervisors' Training Course for several years, while insistent demands for a short, intensive Institute of Industrial Safety have resulted in the organization of a 50-hour institute course to which experienced safety supervisors and inspectors from industry and selected representatives of casualty insurance companies will be invited. This course provides for the segregation of particular industries during certain sessions for consideration of their peculiar problems. A similar arrangement will be made for novice personnel in a separate institute. Negotiations are under way for the establishment of evening classes and in-plant training at locations away from Atlanta. It is expected that this activity will be arranged at many industrial centers in the Southeast in the near future.

Of late, it has been evident that many engineering schools and colleges throughout our nation have been giving serious thought to the inclusion of safety in their

undergraduate study programs, and many have made some hesitating steps in this direction. In the belief that we at Georgia Tech had an obligation to encourage and assist in these efforts, we held the first Southern Safety Conference of Engineering Colleges in September, 1946. In a three-day conference, the selected representatives of the president and deans of engineering met for the discussion of procedures and problems involved in the inclusion of safety in undergraduate curricula of engineering colleges. Shares of this tremendous task, with its many ramifications, have been allotted to the various schools, and already we are receiving materials from them to be edited and distributed to all interested parties.

The success of our new activity requires a generous share of promotion and publicity. Here again, the Department, with the able assistance of our Director of Public Relations, has demonstrated its ability to carry on an impressive promotion program with industry, business, the engineering profession and the general public. The ambitious schedule of lectures, the descriptive literature, the participation in safety conferences and technical society programs, the exhibit at the Southern Machinery and Metals Exposition, and the frequent news and periodical releases have all contributed to a better understanding of the scope of safety engineering and the benefits to be realized through a closer combination of the facilities of college and industry for the reduction of accidents.

The Library of the Georgia School of Technology now includes a sizable collection of textbooks, reference books and pamphlets on safety and related subjects. Regular subscriptions to leading safety engineering and trade publications are maintained, and bound editions of safety periodicals for many years past are available for use. Through the interested cooperation of our librarian, the safety engineering library at Georgia Tech is now second to none in the South.

A campus safety program was one of our earliest activities. This included consideration of alterations, new construction, purchase of equipment and machinery, investigation of campus accidents, while detailed surveys of buildings and campus areas and the resultant recommendations have assisted in the proper use of Georgia

Tech facilities so badly overtaxed by the influx of war veterans.

Gentlemen, your wishes—your ideas are bearing fruit. Your fond hopes are no longer in the future, they are realities today—here—now! The future can now be relied upon for extension, for adjustment, for beneficial results.

May I borrow for you from Col. Blake R. Van Leer, President of the Georgia School of Technology, in his first Annual Report to the National Safety Council,

this message—"I relate these accomplishments of the Department of Safety Engineering at the Georgia School of Technology with justified pride, and a profound sense of gratitude, to those whose vision and energy and financial sponsorship have made the accomplishments possible.

"It is regrettable that the beginning of this activity should have been so long delayed, but the rapid pace of the first year betokens real progress in the conservation of life and property in the years ahead."

Progress Report on the Safety Engineering Program at New York University

By WILLIAM F. O'CONNOR

Professor of Safety Engineering, New York Univ.

This report covers the eight month period from November 1, 1945 when Dr. William F. O'Connor was appointed Professor of Safety Engineering.

Because of the newness of the field and the novelty of approach it was necessary to spend the first few months in orientation and contact work. This was carried on simultaneously on the campus, in industry and in the insurance field.

On February 13, 1946, at the meeting of the executive committee comprising all the administrators and heads of departments, Dean Saville announced the Safety Engineering program to be established at New York University. It consists of three distinct areas, undergraduate, graduate, and research.

The safety organization, accepting the pattern of successful programs in industry, follows the existing line organization. The executive committee, with Dean Saville as chairman, is composed of all administrators and Department heads. Policy is established by this committee, and the progress of the program is reviewed at regular meetings.

Department heads have the responsibility of developing the departmental safety program. They will decide the nature and extent of the safety material to be included in the various courses in their departments. Safety material, techniques and procedures will be taught by the regular instructors as part of the regular subject matter in the

various parts of the courses where safety has been indicated.

An interdepartmental safety committee, composed of departmental representatives with the membership rotating, meets monthly. This committee follows the departmental developments in detail and exchanges information among its members so as to improve their own work.

The Professor of Safety Engineering is a staff man, and as such he acts in an advisory capacity. He is advisor to the executive committee and the interdepartmental safety committee on matters of fire and safety. He assists department heads, professors and instructors in every way possible in their efforts to incorporate safety and safety engineering principles and practices in their lectures, their demonstrations and laboratory work. He will develop and recommend a program for graduate study in safety engineering. He will develop, in cooperation with the Director of Research, a program of academic research and sponsored industrial research in the fields of fire protection and safety engineering along the lines for which the University Staff, facilities and equipment are best suited.

In keeping with good industrial practice and following the recommendations of the various committees mentioned before, we have already started to integrate safety into all the undergraduate engineering courses.

In late 1945 and early 1946 there were three different engineering programs in operation at the same time on the campus, namely: The Army Specialized Training Program (ASTP), the accelerated day program with four 12-week terms per year and the regular day program with two 16-week terms. The courses of all these programs were very carefully organized with due regard for the immediate need. Since these courses were soon to be discontinued or changed nothing would have been gained had we attempted the safety integration process at that time. The time was utilized in preparing the way for more intensive work in this part of the program starting September 1946 when all the accelerated programs will have been completed and the regular semester program will be under way.

Some preliminary efforts were made by personal contact, by reviewing course outlines, and by supplying supplementary material, to incorporate safety into the following courses:

- A.E. 70 Aircraft Design
- A.E. 84 Air Transportation
- Ch.E. 51 Organic Technology
- Ch.E. 85 Chemical Plant Design
- M.E. 40 Shop Practices and Equipment

The following question is taken from the final examination in Ch.E. 51, Organic Technology:

No. 7 In tabular form compare the following items:

- Materials of construction
- Safety Precautions
- Health Hazards
- Fire Hazards

as they apply to each of the following:

- Sulfonation
- Nitration
- Diazotization

The idea of putting safety questions into the examinations is a means of assuring grasp of the subject matter by the students.

Safety is taught as an essential part of each course by the instructor of that subject, not as an isolated instance or as a separate course by a different instructor, or for that matter by the professor of safety engineering. If safety is part of doing a job right then safety is part of teaching a subject correctly. Safety engineering covers

the entire field of engineering, it is just good engineering in all the various branches. An engineer must be safety-minded before he can be a good engineer but in the past the only opportunity he had to develop this safety mindedness was after graduation. We propose to develop this safety mindedness in all our engineering students throughout their entire four years.

Safety should never be something that is tacked on as an afterthought, or something that has to be purchased later on a separate requisition. Safety should be built into every engineering design or creation at the time of designing and by the designer. If at the time our students are learning the fundamentals of a particular branch of engineering they are taught the safe design, the safe layout or the safe requirements in all their work then they will know no way to do it other than the safe way. They will graduate after having had four years of association with the safe way of doing things. We feel that this will make them better engineers, better supervisors, better managers and better executives.

But how are we going to get this information to the engineering student; how are we going to surround him with safe equipment and safe procedures during his four year college course?

We must stimulate an interest in safety on the part of all the faculty and all the student body. This must be done without the assistance of any of the industrial production incentives. We will never be encouraged by a reduction in the frequency rate or severity rate. The accidents that this program will eliminate can never be subjected to statistical analysis. We will never know how many lives are saved or how many millions of dollars are saved because we are preventing not today's accidents but the accidents that might happen 5 years, 10 years or 20 years hence.

Reorganization and re-equipping laboratories and shops so as to surround the student with safe equipment, safe conditions and safe practices is under way. The inter-departmental safety committee, whose chairman is Professor M. C. Giannini, executive assistant, College of Engineering, is planning a thorough inspection of all the laboratories starting the last week in July.

The report of this committee will make recommendations on matters involving fire

hazards and safety hazards and will mark such items:

- A. for immediate attention
- B. for correction before June 1947
- C. for correction before June 1948

The necessary funds to eliminate these hazards and thus have our laboratories and shops conform with accepted safe standards and practices will be included in each departmental budget and will be expended for no other purpose.

Preliminary work has been started on developing Self Inspection Blanks for inclusion in all laboratory experiments and shop work. Safety analysis sheets will be developed for certain experiments and assignments.

Since campus activities and student papers have not recovered from their wartime curtailment, nothing was started here. We intend to develop student projects in safety and to inaugurate safety promotional contests, using campus publications.

An adequate safety section in the engineering library is being developed, the college has subscribed to the best fire protection and safety journals. The National Safety Council donated an industrial membership and the college has taken out membership in the Greater New York Safety Council and the National Fire Protection Association. A very modest start has been made in a collection of reports, papers and pamphlets for reference purposes.

Our graduate program is being developed a bit more slowly. It is generally conceded that graduate study in safety engineering should be given only to engineering graduates who have had at least a year's industrial experience in work where safety is given important consideration.

Graduate study will afford an opportunity for more specialized study in the students' field of major interest. The research work will develop originality, new techniques and perhaps uncover new fields for investigation. The research problems will stress safety matters in the various branches of engineering and will be directed by a research committee under the immediate supervision of the appropriate department head.

It is planned this fall to offer graduate study leading to the master's degree, the

course content of which would be approximately

- 45% Technical subjects
- 40% Safety subjects
- 15% Safety research

We are including a Proposed Tentative Program specially worked out for a number of Air Corps officers who are contemplating graduate work in safety engineering.

Because of the diversity of fields in which the safety engineer finds his problems this program of necessity must be quite flexible, and tailored to the individual needs. To secure this flexibility we are listing related courses given in the proposed curriculum.

Aside from these full programs for graduate study, three new graduate courses are being made available for graduate students generally, as a regular offering of the Graduate Division. These courses are known as industrial safety engineering, industrial hygiene and fire protection engineering.

Proposed Tentative Program for Master's Degree in Engineering (Safety Engineering Major)

FIRST TERM

	Credits
Industrial Supervision	3
Industrial Safety Engineering	3
Safety Engineering Research	3
Cargo Handling	3
Management-Practices & Control	2
Air Transport Operation	2
*Fire Protection Engineering	3
	19

SECOND TERM

Selection & Testing of Employees	3
Industrial Safety Engineering	3
Safety Engineering Research	3
Industrial Hygiene	3
Management-Practices & Control	2
Air Transport Operation	2
*Fire Protection Engineering	3
	19

*Special for Air Corps Officers.

Graduate Program in Safety Engineering Related Courses

- Advanced Applied Meteorology
- Advanced Engineering Mechanics
- Advanced Strength of Materials
- Airline Operation
- Air Transportation Economics

Air Transportation Management
Electrical Transients I
Electrical Transients II
Engineering Thermodynamics
Engineering Statistical Analysis
High Voltage Engineering I
High Voltage Engineering II
Internal Combustion Engines
Materials Testing and Model Analysis
Metallography
Metallurgy
Motion Study
Personnel Administration
Powder Metallurgy I
Powder Metallurgy II
Probability Statistics
Psychological Measurements
Public Health Engineering
Theory of Meteorological Instruments
Time Study and Research
Advanced Industrial Accident Prevention
Basic Theory & Practices in Industrial Accident Prevention
Fire Prevention and Protection
Management & Supervision of Commercial Vehicle Fleets
Psychology of Safety Supervision

Our first year's experience has disclosed a further avenue of development not fully contemplated in the original discussions. This new avenue is research in safety engineering. Not only can a program of sponsored research disclose new knowledge and application in safety; such a program may in addition become the principal means of putting safety engineering on a self-sustaining basis.

With this in mind, some funds from the grant have been used for preliminary surveys and experimental work to develop a few research topics to the point where they might be attractive to industrial organizations and thus secure their support. There is good reason to believe that by October 1947, these research developments will have gone far to place the safety engineering program on a self-sustaining basis.

1. Banana Ripening project

As a result of the writer being retained as an expert in connection with a recent explosion in a banana ripening warehouse, resulting in six fatalities, we became interested in developing a safe method for banana ripening.

Since 1923 ethylene gas has been used to accelerate the ripening of mature bananas before they are put on the market. The bananas when fully grown are packed and shipped green by boat because a green banana under handling, stands up better and tastes better when ripened off the tree. When received, the bananas are put in a room where the temperature and humidity are carefully controlled and ethylene gas, to the extent of one part per thousand is circulated.

There are now several substances on the market known as "plant growth hormones" capable of bringing about similar changes in fruit. One substance in particular, 2,4 dichlorophenoxyacetic acid has possibilities but it speckles the bananas and thus lowers the market value.

There are numerous related compounds that might be satisfactory if they could be made available for study. Many cannot be purchased and so we have two chemists at work preparing these compounds. Progress is invariably slow when new compounds or extremely rare compounds must be prepared. One immediate goal is some 20 organic compounds which we can screen for biological activity. Later the development of a satisfactory method of dispersal for commercial banana ripening rooms can be undertaken.

2. Wet Water Project

It is well known that in fighting fire with water, there results a four to one ratio of water damage to fire damage. The liner Normandie is a dramatic instance.

Two new developments of this past war in fire fighting have been mechanical foam and water fog. In mechanical foam substances are added which entrain air bubbles to form a stable blanket of foam which very effectively puts out class B fires by depriving them of oxygen. In water fog the water is broken up into very fine droplets so as to better absorb the heat by vaporization to steam and thus extinguish the fire by both cooling and smothering.

Water with a surface tension of 72 dynes, the highest of any liquid, has a tendency to form droplets whereas what

is desirable in this case is just the opposite. Chemicals are available today which will counteract this tendency by lowering the surface tension of the water. They are known as surface active agents.

These are available on the market and we are obtaining these, studying their effectiveness and later will undertake the development of a suitable method for using them.

3. Highway Lighting Project

It is well known that street and highway lighting as now practiced is entirely unsatisfactory. Light from oncoming cars as well as fixed illumination always ends up in the driver's eyes. It is proposed to break completely with the past and attempt to develop some method of getting the light onto the highway and onto objects using the highway and still keep the light out of the driver's eyes. This project is still in the library stage.

A separate Research Division, in charge of a Director of Engineering Research conducts high calibre research, under contract for various organizations, foundations, industrial firms and subdivisions of the federal and municipal governments.

Contracts totaling a few hundred thousand dollars are now under way but not one cent of it is for fire or safety research.

As part of the effort to enhance the standing and reputation of the profession in safety engineering and to make better known our program in safety engineering considerable time has been spent in contact work and off-campus activities such as committee work and addresses before different organizations.

This program in safety engineering is entirely new. We are not handicapped by outmoded traditions or prejudices. We do know that if this program is to be successful we will need the cooperation of every one at the university, everyone in the industrial field, in the insurance field and in the professional societies.

Progress Report Illinois Institute of Technology

By JOHN J. AHERN

Dir., Dept. of Fire and Safety, Illinois Inst. of Technology

Illinois Institute of Technology has been operating a Safety Engineering Department for one year. The objectives of this department have been:

1. To indoctrinate as many undergraduate engineering students as possible with the basic fundamentals of industrial safety.
2. To interject into engineering courses material designed to make the student aware of the importance of safety, as well as theory, in basic design.
3. To explore the desirability of instituting work on a graduate level in industrial safety.
4. To activate a campus safety program.

When we embarked upon this program, it became immediately apparent that we had a golden opportunity to contact a very large number of undergraduate engineers at this time, because of the peak load

which has been placed upon our institution. It was obvious, however, that the integration of safety into all courses, while highly desirable in a long-range program, would not develop quickly enough to contact the present large number of students now in school. We, therefore, instituted elective courses for senior and junior engineers in industrial safety. At the present time, we have had an enrollment of some 250 students in these classes—250 engineers whom we know have received definite training in industrial safety. In addition, in our evening division we have trained another 70 men from industry, in this area.

While this class program was proceeding, we have also been moving on the integration program. We have worked in great detail with the machine design courses and feel that substantial results have been obtained. The department has started with freshman students, introducing special lec-

tures in their freshman economics class on the cost of accidents. This has awakened great student interest in the importance of accident prevention in an engineer's program. We have also used the first laboratory period for sophomore electrical engineers, to give detailed instruction on electrical safety in the laboratory and artificial resuscitation, which is of such great importance to all men in the electrical field. The Safety Department has co-operated with all other departments in the school by furnishing standards and other appropriate information useful to that particular department. At the present time, we have a program of driver testing under way with two objectives in mind: first, to eliminate, so far as possible, automotive accidents on the campus; and, secondly, teach our students recommended methods for the selection and training of motor vehicle operators in industry. Our campus safety program has been extremely active, and, of course, has been operating under peak load conditions. The use of temporary buildings and crowded classroom facilities has intensified the problem normally presented in this regard.

The graduate program is developing more slowly. The graduate school at Illinois Tech feels that this type of a program should be based upon a sound undergradu-

ate program. It feels that there is great danger in setting up an elaborate program with no great practical benefits. Plans are under way at the present time for incorporating a great deal of industrial safety work into the graduate work of other departments. In considering further plans, we have become convinced that while the integration program is theoretically the most desirable on a long range basis, it is not the complete answer to the problem of industrial safety in engineering schools. The lack of control over the quality of information disseminated has been of great concern to the department, regardless of the type of material given to another department for inclusion in its courses. The manner in which it is given, the personality of the instructor, and the relative importance which he places upon this material will all have a strong bearing upon the effectiveness of the material presented. It is felt very definitely that a senior course to crystallize the thinking of the student on industrial safety and to make certain that he is talking with him from school those basic principles which we consider important is a necessity. There is a great deal of work still to be done. We do not know all the answers as yet in regard to the best methods by which these objectives can be accomplished, but we are working on it.

THURSDAY MORNING SESSION

October 10, 1946

Group Meeting on Elementary Schools

Presiding: MARY MAY WYMAN, Supvr., Safety & Special Education, Louisville (Ky.) Public Schools, and Chm., Nat. Elementary School Safety Committee and Teaching Techniques Subcommittee.

Calling All Teachers and Pupils

(A Report of the Editorial Subcommittee of the National Elementary School Safety Committee)

By JAMES W. MANN

Chairman of the Subcommittee and Principal, Hubbard Woods School, Winnetka, Ill.

The broad objective of the Editorial Subcommittee of the National Elementary School Safety Committee is identical with the objective of the whole safety program—to reduce the number of accidents among

all people. Its jurisdiction is limited to children of elementary school age; but its long-range ideal is to so guide children that they will live more safely both now and as adults. But it is necessary to im-

prove the immediate environment for safe living, and to promote constant growth among children with respect to any environment in which they find themselves.

This is a highly ambitious idea; and the committee realizes its relative unattainability; yet we can and must move toward that goal. The specific objective of the Editorial Subcommittee is to use or to improve the use of the written word to accomplish that goal. From a practical standpoint it seemed best to do the following things:

1. Supplement the work of the staff of the School and College division of the National Safety Council.
2. Reach out as far as possible among persons identified with the safety movement for suggestions to improve the safety education program at the elementary level and to publicize these as widely as possible.
3. Publicize the work of other subcommittees of the National Elementary School Safety Committee.

In the remainder of this report, I shall detail the accomplishments of the Editorial Subcommittee. The work of the committee has, to an extent, been supplementary and advisory. Busy school people, as you know, find it difficult to take time for detailed work; yet some really exacting editorial work was done by committee members, and for that we are most grateful.

The committee has edited two mimeographed publications during the year. The *Safety Sentinel* is published for child safety organizations, particularly junior safety councils found in a number of schools. One copy is sent to each organization to be posted on the bulletin board or read and discussed in council meetings. In this way interest is aroused, discussion takes place, and action may follow. During the past year, in which three issues were published, two main projects were attempted. The first was a questionnaire designed to show the type of school safety organization prevalent among its subscribers. A composite picture of the results was published in a following issue. The second project was an intergroup unit capable of being integrated with social studies and designed to outline safety aspects of children's environment through comparison and contrast with that of children living in rather different circumstances. The first article was a picture of Chinese

home life and of the safety problems of Chinese children. I was interested to find out how intrigued some of the children in my school were in the topic. The hazards of lamps, stoves, and houseboat living provided stimulating discussion material. The second article on the home life of South-west Indians was equally interesting. This type of material seems to the Committee worth further exploitation, both from the standpoint of safety education and of general cultural integration. The use of related bibliographies and exchange of letters should increase the value of future issues for classroom use.

The *Safety Beacon*, a newsletter for teachers, was also issued three times during the past year. An attempt was made to secure wide participation among its readers by asking for specific contributions. Three somewhat "controversial" topics were set up and written reactions solicited. The first, "How to Teach Safety Habits Without Suggesting to Some Children the Very Actions We Hope to Avoid," elicited some very fine statements. The element of age was stressed as the most important factor. The second question, "Can We Avoid Entirely the Use of the Negative Approach?" aroused little disagreement, but secured some sound psychological suggestions. The final question was, "Wouldn't It Be Well To Teach a Few Fundamental Things Such as Thoughtfulness, Courtesy, and Respect for Regulations and Forget All About the Old Laws of Habit Formation?" We were extremely fortunate in securing, through Sister Mary Carmelyn, who is one of the subcommittee members, the cooperation of students at Mundelein college, who contributed a most thought-provoking symposium.

Committee members furnished valuable aid in evaluating staff publications. The *Sentinel* and the *Beacon* were carefully discussed and evaluated at a meeting last March attended by the members who lived in the Chicago area. At this time plans were laid for the coming issues of these publications.

A final project of the committee was the detailed evaluation of the official publication, *Safety Education*, from the point of view of providing service for its readers among elementary school teachers and principals. Page-by-page criticism and sugges-

tions were made by members of the committee and sent to the secretary, who then made a composite evaluation. This technique of evaluation proved stimulating and helpful to those responsible for the magazine.

One point which came out very strongly in the magazine was the need for more good articles dealing with descriptions of actual classroom projects. This is where members of the National Elementary School Safety Committee and other elementary teachers and principals can be of great service. Have you conducted a safety project which should be reported in *Safety Education*? If so, you will be doing a real service to write it up and submit it. Do you have a problem in safety education which you would like to have answered? Let us know what it is and we shall solicit, through the *Safety Beacon*, the opinions of other elementary teachers. Have you solved one of your problems successfully? If so, let us know and we shall see that your solution is made available to other teachers.

The *Safety Sentinel* and the *Safety Beacon* from time to time ask for reader

response. Watch for these items and see if you do not have something to offer. The *Safety Sentinel*, for example, last spring requested that the boys and girls who read the *Sentinel* send in a list of playground safety rules. These rules would then be turned over to the Indian boys and girls. Some splendid suggestions were received from the pupil readers and, it is my belief, that playground safety meant much more to each boy and girl after he had contributed to helping the Indian boys and girls play safely.

One last point: I believe that I am accurate in saying that the committee agrees on the fundamental thesis that safety education must be an integrated part of the child's life in school, at home, and in the community, and that our efforts toward publicity will be directed toward that general end. If we are wrong, prove us so, and we will change our point of view. If we are right, then support us to the best of your ability in the interests of a safer world for the children of today and the adults of tomorrow.

Working Together for Safety

By MRS. L. K. NICHOLSON

Chairman, Committee on Safety, Nat. Congress of Parents-Teachers

Throughout the years of war, the National Safety Council has performed magnificently in keeping before the people of this nation the lamentable rising toll of death and accidents on the home front with accompanying instruction as to how to reduce it. I am reminded of the Chinese proverb "Caution is the parent of safety. He who will not look ahead must look behind." In not taking heed of the warning of the council we are continuing to suffer consequences.

With all that has been done in this field of accident prevention our record is bad. Where are we failing? In my humble opinion it is not at the national level but in states and local communities.

The problem is inescapably a local one and will only be solved by community action. This means that we must coordinate all safety groups now attempting to promote safety. We must have cooperation in order

to coordinate the program of these groups. We must build on the premise that cooperation, or the lack of it, is the foremost problem in the field of accident prevention.

Safety education, at best, is a cooperative enterprise engaged in by all the constructive forces in the community. It must have its roots in the community but must have the support of the state and the nation. We must have informed and participating community groups supporting the schools' safety program; in other words, organized public support.

Teachers and Parent-Teachers Associations are in a position to interpret the needs of the school to the community, to gain approval and support of all groups.

In order to create a good, wholesome environment in which children are protected from needless accidents, each community must make full use of all its resources. We have just finished a war that brought teen-

ing millions of people together to withstand their common enemy and out of this "togetherness" came a widespread reawakening of what can be accomplished by unity of purpose. This can and must be accomplished in the field of accident prevention if we are to solve the major problem in this nation today. We speak of the housing shortage and it is of major concern but unless we solve the accident menace, housing will cease to be a problem. There will not be any one left to live in those houses we so urgently need.

I hope I shall not sound overly trite in saying that we can keep faith with our boys who so valiantly fought for a cause they believed righteous by fighting, on the home front, for a cause scarcely less worthy—a "fifth freedom"—freedom from preventable accidents that take their toll in human lives. Surely, we can, and must, unite all forces to this end.

The war has made us community conscious. We discovered that to win the war we, at home, had to pool our efforts, combine our forces, act together as community groups. Likewise, we must now unite in coordinating all groups attempting to promote safety education.

The problem of accident prevention being a community project will therefore be solved at this level by united community action. A principal of an elementary school said that he was approached by many groups wanting the school to put on a safety program. When asked what phase of safety they required the reply was, "anything—we have no special program." All groups working in isolation getting nowhere. The modern community, be it that smallest geographical area known as a neighborhood, town or city, thinks of itself as a unit and rightly so, for it has been made a plan to the American people that if we are to have peace, prosperity, health, happiness and freedom of opportunity for ourselves and our children they must secure these blessings for our neighbors and our neighbors' children as well.

Family Safety Training

Each type of community has its specific type of problem and hazard to children but because the center and heart of every community is the home, many of these problems are grouped around the family. How-

ever, homes alone cannot adequately deal with accident prevention. Disease, poverty, poor housing, lack of safe recreation, the exposing of children to traffic accidents—all of these hazards must be controlled by community action if that community is to be made a safe wholesome place for all of its children.

I. The school responsibility to every child is: (a) adequate safety instruction in the elementary grades. (b) safe construction of school buildings. (c) school buildings provided with safety devices. (d) safe school routes. (e) safe playgrounds and equipment. (f) safe school bus transportation.

II. The home's responsibility: (a) a complete knowledge on the part of the parents of all safety requirements. (b) parents' understanding of the school program. (c) parents' education on how to cooperate in the out-of-school activities of school children.

III. Parent-Teacher responsibility.

(a) should provide for a close relationship between the schools and other agencies in the field of safety serving children and youth.

(b) work for adequate financial support for the school safety program.

(c) participate with the school in finding a place for safety education in the curriculum. We can have as much safety as we are willing to pay for.

(d) Parent-Teacher Associations must seek support of the public, realizing that in the thirty million young people enrolled in the schools of the nation lies our greatest hope for the solution to the mounting highway traffic accident toll. Their minds are receptive to new ideas. They are at an age when habits and skills can successfully be established. They are reachable. It is gratifying that schools have included safety in the curriculum more generally at the elementary level than at the secondary.

We must link the school with community life. Our American education system unlike most countries is unique in its purpose and relation to the community and there should be a close relationship between the local school and local community it serves.

I like what Paul G. Hoffman says, "Safety is inclusive and not exclusive." The

school has a distinct opportunity and responsibility in furthering the teaching of safety in cooperation with parents, the fire and police department, all youth serving clubs and groups, boy and girl scouts, camp-fire girls, 4H clubs, future farmers of America, churches, press, radio, all other organized community interests. Teachers should have the opportunity to participate in the actual affairs of the community of which they are a part.

Teachers must know increasingly what services other groups can perform and how they can contribute to the safety program of which children are the center.

Coming out of the education committee of the President's Highway Safety conference are the following recommendations: (1) all school children should have day by day instruction in safety education. (2) a definite program should be established for coordinating the work of school, home and community. (3) support of Parent-Teacher Associations and homes; school groups should be enlisted to recognize the need for

protection, guidance and control of pupils who are learning how to use the streets and highways. A concept of safety for young children should be jointly developed, understood, and practiced in school, home and community. When these youngsters start to school they are a part of the community. All community groups are responsible for their safety.

The call is for community coordination of all forces working together for safety, for the ultimate aim of safety education is the development of intelligent, and responsible persons in the community.

Working together for safety will help to attain this desired end. A feeling of responsibility for the safety of the community is a mark of intellectual maturity.

Let us reach this maturity by working together for safety.

If experience teaches us anything, it is that a spasmodic safety crusade now and then will not bring results. It will take cooperation of all groups and a continuous crusade.

Telling the World

By J. E. WINDROW

Dir., Peabody Demonstration School

The world should be told that America is now confronted with the greatest accident toll in the history of the nation, and this, in spite of the fact that death by accident is almost 100 per cent unnecessary.

The world should be told again and again that while premeditated killing on the battlefield has ceased, unintentional killing by accidents on the home front goes steadily on and up. As a result of accidents in 1945, 96,000 lives came to an unnecessary end.

But, unfortunately, we are not greatly impressed with statistics, and the subject doesn't lend itself to poetry. "The usual thing," we say. Yes, the usual thing for those persons suffering the agony of torn, bruised flesh, broken bones, and mangled bodies. Carelessness, stupidity, indifference, and whatever other causes may be involved are exacting a terrible toll.

The world should be told that the accident death rate increased in all age groups from

1944 to 1945; and during that period a driver or pedestrian who had been drinking liquor was involved in one out of every four fatal accidents. This same driver or pedestrian was likely the product of some elementary school of our nation. Two-fifths of all serious traffic collisions in 1944 occurred at busy crossings amply protected by gates, lights, bells, or watchmen; amply, but for the imperfection of human nature; human nature, which might perchance be changed or at least modified through proper education. The best safety device engineers can construct can thwart the motive that produced it if carelessly used. Engineering, enforcement, and education, therefore, must all come to a focus on the problem. And the American home continues to be the most unsafe place, with a death toll in 1945 of 33,500. Consider that, the American home!

The world should be told that the United States paid more for accidents in the year 1945 than she invested in the total opera-

tional cost of the public schools of America. Her schools cost two and one-half billion dollars, her accidents more than five billion.

Since the National Safety Movement started in 1913, the death rate by accidents of all kinds has been lower than the 1913 rate each year with the exception of the years 1917 and 1936. What the current situation might have been but for this effort one dare not contemplate. The National Safety Council has demonstrated what can be done through intelligent effort and co-operative action, which brings us to the point of our discussion.

A good program of safety education in the elementary schools of our nation is greatly needed. It would help to reduce property loss and to eliminate this unnecessary waste of human life. This does not mean, of course, that excellent programs do not now exist in favored communities throughout the country, but in the light of the job to be done only a small beginning has been made.

The responsibility of the schools to teach safety in its broadest implications is no longer a controversial matter. The issue is, how shall it be done? A well-organized program of safety education in the elementary schools should build individuals into better citizens, create in them a respect for the rights and privileges of others, give them increased recognition of the value of human personality, and, who knows, perhaps a sense of obedience to constituted authority. Since the word "obedience" is obsolete, perhaps I should have used the more progressive term, "willful cooperation."

Such a program should build a safer community in which to live and should contribute to the improvement of all other phases of the school effort. It should be based upon the school and community needs, and should be designed to bring freedom from accident hazards to all the children of all the people. Safety education is not a matter of accident prevention only. It has to do with character and character building. It should be a continuous and cooperative enterprise participated in by the home, the school, and the community. It should accentuate the positive and eliminate the negative forces involved. Naturally if we would save our children from something, it is only in order that we might save them for something else. The late

Mr. Whitney aptly phrases it in these words: "Teach a boy to play football safely or to sail a boat safely, or to use a gun safely. In each case, you are showing him how he can have a good adventure instead of a bad one. Instead of the bad adventure of breaking his collar bone, he can have the good adventure of carrying the ball across the goal line. Instead of the bad adventure of tipping his boat over and ending his adventure entirely by drowning or temporarily by the stupid wait for help, he can have the good adventure of sailing on to a thrilling finish. Instead of ending his hunting adventure with a bullet through his leg, he can have the better adventure of the chase."

Such a program should seek to develop in the child the habits, skills, and attitudes necessary for safe living, and it should become an integral part of the total school program. Because the safety of the individual is so dependent upon such personal qualities as reaction rate, temperament, intelligence, emotional stability, and general physical condition, all members of the instructional staff interested in the study of human growth and development should find such a program stimulating and challenging to their professional zeal.

Such a program will involve a survey of all possible accident hazards in the building, on the playground, to and from school, and in the community. It will take into consideration the child's ability to prevent accidents; his physical handicaps, if any; his knowledge of safety procedures, and, more important, his willingness to practice them. Six thousand, six hundred people were killed last year just crossing the street. Drivers can drive a little slower, watch the lights and observe common courtesy. Pedestrians can look both ways, go with the signs, and never jaywalk. Such lessons must become a part of our educational training if we would prevent the suffering, heartbreak, and tragedy that accidents bring.

Such a program will provide an opportunity for the child to develop a well-conditioned body, knowledge of how to protect himself, safety awareness and interest, sensitivity to the welfare of others, emotional stability, confidence in himself, and an unwillingness to take unnecessary risks. It will be concerned with his capacity to use good

judgment in situations involving accident hazards. It will, of necessity, be based upon an effective system of recording accidents, and an intelligent use of these records.

And this brings us to our second point. Until the teachers and the prospective teachers of our nation understand, accept, and assume their responsibility for safety education, there can be little improvement in the current situation.

The teachers colleges of the nation and all other institutions engaged in teacher education must, therefore, assume the responsibility for placing in proper focus a sound concept for the teaching of safety. These institutions must lead their students to know that safety, like health education, is not an end in itself but is a means to an end. That end may be pleasant recreation, a new adventure, efficient work, or helpful service. The goal of the teaching of safety, therefore, is not to impoverish life by restricting activity and adventure, but to train the individual in the proper and safe way of doing things. It should lead to the enrichment of life.

The teachers colleges should lead their students to understand the substitution concept of safety education; the exchanging of one experience for another, replacing a bad experience with a good experience. They should lead their students to understand that most accidents arise from circumstances inherent in uncontrolled environment. Not always, to be sure, but for the most part, accidents are due to carelessness, absence of foresight, personal incompetencies, and not to uncontrollable conditions. Safety, therefore, implies a plan of living so well ordered that the scene of an accident is rarely set. Safety is synonymous with efficiency. The child should be prepared both psychologically and physically to live in reasonable safety in a potentially dangerous world. This cannot be done until the teacher gets a sound point of view concerning this vital issue. It is too much to expect the child to develop sound habits of thinking toward safety unless the teacher is strong in the faith.

In the very nature of things safety education lends itself to an activity program. Children learn the right and safe way of living through doing. Simply placing the child in an environment relatively free from hazards will not suffice nor will talking

about safety solve the problem. There must be experimental learning. If one would learn to drive an automobile without jeopardizing himself and others, one must practice driving an automobile. If one would learn to swim, he must go into the water. Both activities are hazardous if improperly approached. Activities should be planned, therefore, to permit learning by doing. When this responsibility is fully understood and accepted by the teachers colleges of our nation, an important step will have been taken toward safety—for you and yours.

It is encouraging to know that the Committee on Standards and Surveys of the American Association of Teachers Colleges, working in conjunction with the National Safety Council, is concerned with the type of instruction prospective teachers need to enable them to understand their responsibility toward this problem.

The report of the Public Relation Committee of the National Elementary School Safety Committee should be based, perhaps, upon what it aspires to be, rather than what it is. What it hopes to do, rather than what it has done, and what it would present, rather than what it is presenting. This committee is composed of 56 persons representing 32 states and the District of Columbia. The members for the most part are serving on the staffs of the laboratory schools of the teachers colleges of our country. They were recommended by the president, dean, or some administrative officer of the institution which they represent, on the basis of having manifested concern in the problem of safety education and competency in the field of public relations. They were selected deliberately from the teacher education centers with the hope that they might further stimulate the teachers colleges to a more intelligent awareness of the problems involved in Safety Education. To this moment these institutions have not distinguished themselves in this particular field.

It was further believed that the laboratory schools, which serve as visitation and observation centers for literally thousands of young teachers entering the profession, might make a significant contribution by demonstrating in their own program an intelligent approach to the teaching of Safety. Certainly these schools cannot serve their

dynamic purposes and ignore this important problem.

The Public Relations Committee has sought and shall continue to encourage through the usual means of communication—radio, newspapers, magazines, forums, and the like—discussions and articles which will stimulate interest in Safety Education. No district, state, or national education association meeting should be permitted to ignore this important issue. It has been and shall be the purpose of this committee

to encourage the editors of the educational journals and professional magazines to give appropriate space to this important problem.

As time is reckoned by the National Safety Council it is now 10:30 A.M., Central Standard Time. Since the reading of this paper began three of your fellow Americans have met violent deaths by accident, three hundred others have been injured, crippled and disabled. And if you are dollar minded, it is all at an estimated cost of one hundred and fifty thousand dollars.

Pupils Work for Safety

(Report of Pupil Activities Subcommittee, National Elementary School Safety Committee)

By HELEN HALTER LONG

Principal, Chatsworth Ave. School, Larchmont, N. Y.

Presented by VIVIAN WEEDON

Executive Secretary, National Elementary School Safety Committee

The sub-committee members were given entire free reign as to the selection of committee members. Miss Edwards chose a few persons living in a relatively small geographical area. This made it possible for the group to come together for discussion. Five meetings were held during the year.

Miss Edwards' group of seven comes from the Westchester and Connecticut suburbs of New York. It is composed of two elementary school principals, four grade teachers and an art teacher. There are five women and two men. Five different schools are represented, one is rural and one is private. So it is apparent that this small group has a wide variety of interests.

One of the first tasks the Pupil Activities Sub-committee attacked was that of the posters and lesson units. As you know *Safety Education* has for the past 15 years or more published a monthly poster with a teacher's guide for the study of the subject of the poster. In 1944 the lesson units were changed so that they might be used as a pupil's work sheet as well as a teacher's guide.

One of the decisions that must be made each year is what subjects are to be covered by the monthly lesson unit and posters.

Up until last year this has always been a staff decision and in spite of their long experience in selecting subjects (or perhaps because of it) the members of the staff have always welcomed the opinion of classroom teachers. A tentative schedule was set up by the committee, examined, re-examined and finally recommended to the staff. This schedule is the one on which the elementary lesson units are being written during 1946-1947.

After the topics for the lesson units were selected, slogans developed by the staff were submitted to the committee. For example, the suggested October slogan was "Big Fires from Little Matches Glow." This was thought by the committee to be too intriguing. The committee members said that many of the children would want to experiment to see if the slogan were true. As a matter of fact the committee went on record as not approving the mention of the word "matches" in any poster. The slogan as you undoubtedly noticed was changed to, "Measles are catching!" The word "measles" was crossed out and the word "fire" written above.

The committee outlined what it would like in the lesson units by listing the safe practices to be covered. For example, the

October topic was first defined simply as "fire prevention," it was next stated as "Inspection for fire hazards at home and school" and still later expanded to include such specifics as "teach not to use matches," "teach what to do in a fire drill," and so forth. It must be admitted very frankly that on this task the committee's contribution was rather limited as they themselves had not thought through the content of safety lessons. As one of the avowed purposes of the committee is to furnish safety information to its members, this is not surprising. I shall deal with that phase later.

Miss Weedon gathered together for the committee all the comments, positive and negative, about the lesson units and submitted them for evaluation. Fifteen such comments or criticisms were studied and recommendations for action turned over to the staff.

An example of such a comment is, "The 'safety lesson unit' is an excellent method of getting something to happen in school. What actually will happen depends so much on the teacher's methods in presenting these lessons, that I wonder if it wouldn't pay to have in the magazine a page of teaching and method suggestions covering the lessons." The committee's dictum came back clear and forceful, "Teachers have had enough work in methods—let them apply methods the way they think will work best."

The committee also evaluated the various activities which had been or might be used on the lesson units. For example, drawing a picture through the device of drawing lines connecting a series of dots was voted a good activity for both grades 1 to 3 and 4 to 6. Coloring outline pictures was said to be especially good for children in grades 1 to 3 but not for children in grades 4 to 6. A completion test was voted good for the 4 to 6 level but ordinarily too difficult for grades 1 to 3. And so on.

Another question which the committee studied in connection with the lesson units was that of terminology. Previously the

lesson units had been designated as grades 1-3; and 4-6. Some of the teachers who were using the lesson units as pupil work sheets objected. It is obvious that a fourth grade boy for example, will not be interested in working on a lesson unit labeled 1 to 3 even though it fits his needs, and his interests, thoroughly. This objection was turned over to the committee which recommended the scheme now used.

The committee also attacked the problem of posters. The members were in agreement on one point . . . the posters are too small. On the basis of this criticism plans were made to enlarge the 1946-47 poster series only to have the decision reversed by the paper shortage.

The committee will continue its work on lesson units this year. In addition two other major projects are planned. I don't want to steal any of Miss Wyman's thunder but I am sure she is going to tell you about the new manual. The success which the manual **MUCH TO DO ABOUT SAFETY** (about which I am sure Miss Wyman will tell you) is due, according to Miss Weedon, to the wonderful cooperation of the committee in trying out the preliminary edition. The task of the Pupil Activities Sub-committee will be to try-out all the pupil activities in the new manual, **FOUNDATION FOR SAFE LIVING** and to develop many activities which are not in the experimental edition.

The second project will be an intensive try-out of the inter-group series from the *Safety Sentinel*.

As I promised I want to speak for a moment about one of the purposes of the sub-committee, that of furnishing committee members with information about safety education. All of the members of the committee were capable educators in the fall of 1945 but only two could have been termed safety educators. It is hoped that before a term of committee service is over each will be a full-fledged safety educator. Thus the committee, following the approved educational principle, will be learning by doing.

Teaching Safety and the Green Light for 1946-47

(A report of the chairman to the National Elementary School Safety Committee)

By MARY MAY WYMAN

Superv., Safety & Special Education Louisville (Ky.) Public Schools and Chm., Nat. Elementary School Safety Committee, Gen. Chm., Safety Supervs. Sect., N. E. C.

Mr. Dearborn, in a masterful address, said: "A glance at the record of child accidents is appalling. Of every three children from five to nineteen years of age who die, one death is accidental. We love our children, but we don't love them quite enough. We don't educate them in safety and we don't protect them from accidents. We intend no neglect, but the horrible facts are inescapable."

You, too, get Accident Facts. You know that what Dr. Dearborn says is true—painfully true. We have a way, however, of thinking of these facts as pertaining to some other locality—not ours. Too few of us keep adequate statistics. We therefore do not know our accident picture. We are prone to think in terms of fatalities that happen between school and home. These are isolated and certainly among the less frequent causes of death. We pat ourselves on the back and think we are doing a good job because we view only a very small part of the whole picture.

We cannot dodge our responsibility. We cannot say we are not included in this indictment of Mr. Dearborn's. We school people are part of the guilty neglect.

For many years, educators have put health as one of the major objectives of education, but teachers, principals and superintendents of schools still give only lip service to health when maintaining the necessary conditions means effort, re-evaluations and taking stands. And so it has been with Safety, except in isolated places.

There are encouraging efforts in the field. A few years ago the Department of School Administrators devoted their year book to safety. The publishing of that book was a milestone because it gave Safety a real place in the thinking of educators. The National Education Administration has an active committee at work, but we cannot say that Safety is now a vital part of school education.

True enough, texts are appearing on all levels. Many readers present safety attractively and in fairly complete coverage.

Health texts include safety and many books used in school shops seek to make safety a part of their teaching. There are movies—more and better ones; more radio programs and in general, a more nearly adequate supply of teaching materials. As Mr. Dearborn would say, "This is good; but is it good enough?"

Our fundamental policy regarding safety remains the same; safety education must change behavior. It is not enough to know. The true test is what our children do as they face life situations in school, at home, on the playground, on the streets as they go on errands—in short, in their every activity.

More materials for enriching the school program in safety are available. True enough—but the best material remains the real experiences of the children. Vicarious experiences enhance—but are not substitutes for the real. School is a place where we live and the school can teach safety through this living.

Next, some one person in every school system must be responsible for the program in safety education for that school system. There may be a committee to assist this individual, but the person in charge must not be so overburdened that he has no time to give to the necessary work with teachers, principals, and the community agencies involved in a good school safety program.

In the third place, we must expect our school systems to provide some funds for this phase of the work. We spend money for every phase of our school program. Why, then, should we expect safety to be taught without funds or to be supported by agencies in the community? It may be necessary, even desirable for there to be some supplementing by some community agency—such as the local safety council, because supplying funds is one way of promoting and continuing interest.

A good safety program should be developed around the needs of the community. There are certain factors in safety that are

common to all communities. Louisville, like Chicago, has similar traffic problems and although we think our pedestrians are more observant of traffic lights, the fundamental problem of being a good pedestrian is about the same. We have, however, some problems that Chicago does not have and our program should consider these. In like manner, schools within a city should be encouraged to adapt the program to its needs. Proximity to a railroad, for example, may create a hazard for the children in one neighborhood; children in the next school may not have this problem but another occasioned by an intersection where six streets come together.

Conditions in a neighborhood change. The person in charge of safety programs in the school must not only be aware of these changes but must be on the alert to see them. Community agencies can help with these changes. Therefore, it is necessary that the person responsible for safety have not only the vision, but the willingness to contact the personnel in these agencies.

It is necessary, moreover, for the safety supervisor to work with teachers to have them realize that although the problem is the same old one to the teacher, it is new because the children facing it are new in her room and have not solved this problem. To my way of thinking, this failure on the part of teachers to recognize that problems old to them may be very new to the children in their classes, constitutes one of the reasons why accidents among children continue.

We need to make safety respectable among our school problems. By this term I mean that we should give education in safety as important a place in our thinking as that given to any other subject or program, and stop apologizing for spending school time on a vital issue. The elementary schools in general have gone much farther along this line than have the secondary.

We must stand pat against exploitation of children; society trusts us to protect as well as educate children. Our school patrols should be definitely educational in nature and not be permitted to become a means of saving the community the expense of providing necessary personnel to direct traffic. A patrol can be the means whereby the entire school receives definite education in traffic safety.

We must protect our children against one-sided programs. No one phase of safety should receive undue emphasis all the time. Children are more than pedestrians. They live at home, they play, they are at school, and in many, many places. All of these should be materials for our safety education.

We need to be aggressive in our own rights—the school is the chief agency charged with the responsibility of educating youth. The school safety program is a part of this general education. It is, if you please, our program.

In this, our program, in safety education, we can use and need the help of many agencies in the community. There are the police, the firemen, the traffic engineers, the parent-teacher organizations, the local safety councils, welfare organizations, luncheon and civic clubs, and private industries, to mention a few, who stand willing to help. If, however, our children are to have a well-rounded program, we must assume the leadership that utilizes to the utmost the contributions these agencies can make to the total welfare of our children. We must join forces with every agency that can make a contribution to the safety program.

Finally, it is ours to remember that ours is not only a privilege but a grave responsibility—"Inasmuch as ye did it not" carries a ringing condemnation for those of us who dodge our responsibility.

Community consciousness has given us a green light. That light is green. Let's go!

THURSDAY AFTERNOON SESSION

October 10, 1946

General Meeting Conducted by the Safety Education Supervisors Section, School and College Div., N. S. C.

Presiding: MARY MAY WYMAN, Supvr., Safety & Special Education, Louisville (Ky.)
Public Schools, and Gen. Chm., Safety Education Supervisors Section.

A Total State School Safety Program

By GORDON WORLEY

Director, Division of Supervision, Texas State Department of Education

Wars — with their preparation for and contemplation of — seem to make life relatively cheaper than usual, and before anything like the maximum or even a reasonable rate of progress can be made in the diminution of hazards to safe living the country must first regain and greatly extend its concept of the sacredness of the life of individuals of the nation.

Our plans for a total state school safety program are not yet at all commensurate with the geographic size of our state, or with our general disposition to join California, Florida, North Carolina, Virginia, and Massachusetts in boasting to the rest of the country and to the world about our greatness. However, within the past decade much progress has been made in the development of safety education.

About 1937 Texas Safety Association, Inc., initiated a move and plan for the development of improved safety conditions. The State Public Safety Department, the State Department of Education, the Parent-Teachers Associations, the Red Cross, and many civic organizations were brought into the plan. It became apparent about 1940 that if safety conditions were to improve rapidly, safety education would, of necessity, have to be incorporated into the curriculum of the public schools as an integral part and be seriously worked at. In 1943, the Texas Safety Association proposed to the State Superintendent of Public Instruction that it would be willing to provide the money for the salary and travel of a director of safety education. The offer was accepted immediately and a man was placed in charge of the development of the proposed program of safety education in the public schools. A series of 14 district

meetings were held throughout the State through the cooperation of the Texas Safety Association, State Public Safety Department, and the State Department of Education with more than 10,000 teachers attending. These meetings revealed the following: (1) A few schools of the State were already offering some type of driving education; (2) that teacher materials in safety education were very inadequate; (3) that school administrators thought the age for issuing drivers' licenses should be lowered in order that youth might take driver education and driver training and secure their licenses to drive before they had learned a lot of bad driving practices; (4) that, generally, teachers recognized or felt their responsibility for preparing youth to fit themselves into a mechanized pattern of life as thoroughly as they did in the social and economic patterns obtaining.

Following this series of meetings with the teachers throughout the State, the Texas Safety Association, the Texas Public Safety Department, and the State Department of Education used their influence to get the Drivers' License law amended so as to permit youth who had taken and passed driver education courses to be issued drivers' licenses at 14 years of age when, and if, they had satisfied the Department of Public Safety of their knowledge of and proficiency in driving.

In order to provide needed curriculum material for the purpose of enriching and making more effective the program of education for safe living, a curriculum laboratory was set up at The University of Texas and \$100 fellowships provided to forty outstanding teachers and superintendents interested in safety education.

These persons spent the summer of 1943 in The University of Texas, developing plans and material for the program of safety education at both the elementary and high school levels. The assistance of outstanding authorities in the field of safety education from over the nation was sought and received. Among these persons were Marian Telford and Vivian Weedon of the National Safety Council. The Texas Safety Association, the State Department of Public Safety, the State Department of Education, The University of Texas, and interested school officials throughout the state gave unlimited assistance in the development of the curriculum materials.

The final result of the work of these work-shop people was two bulletins for use in schools, the first of which was titled *Guide to Safe Living in the Elementary Schools*, and second a companion book, *Guide to Safe Living in the Secondary Schools*.

The theme throughout the *Elementary Guide* is integration of safety teaching into the regular class subjects and playground activities. In the *Secondary Guide*, safety education as a specific subject is recognized and it includes driver education or driver training, industrial safety as studied and practiced in manual training shops and home safety in home economics classes. These guides have been distributed to all public schools of the State and are generally being used as text material in the development of the program for safe living.

During the current school year, 286 accredited public high schools have already signified their intention of teaching classes in driver education or driver training to approximately 35,000 high school students.

However, 286 schools are but a relatively small fractional part of the 1,344 accredited high schools in the state and 35,000 students are but a relatively small fraction of the 125,000 boys and girls of driver age in the high schools. Our problem is to extend the number to include all the schools and all their children.

Our teacher training institutions are more and more recognizing the necessity of training courses with improved content and technique of education for safe living and are offering courses in safety education. The State Committee on Classification and Accreditation of Schools has recognized safety

education and has provided that safety education may be counted as credit toward graduation from high school.

Last year, Texas Safety Association, the Texas Department of Public Safety, the American Red Cross, and the State Department of Education cooperated in the holding of bus drivers' institutes in the 254 counties of the state. More than 6,000 bus drivers attended these institutions and received instruction in the rules and regulations of safe driving, first aid, and discipline, etc. These bus drivers transport daily almost one-half million children. It is recognized that they are tremendously important in the program of safety and everything is being done that is practicable in preparing them better to meet their responsibility for the safety of the children and of the general public.

These bus drivers' institutes were initiated last fall and are being held again this fall. It is the opinion of the officials of the Texas Safety Association, the State Department of Public Safety, the American Red Cross, and the State Department of Education that these institutes are potentially very valuable and it is planned to make them a part of the regular program being promoted and carried on for the development of education for safe living.

Plans are now being developed for the holding of institutes or short courses for janitors or custodians of public school buildings to prepare them for their duties and responsibilities in the development of conditions for school safety. Unfortunately, we in Texas still remember the tragedy of New London a few years ago in which 300 children lost their lives, probably partly through carelessness and neglect. We do not want such a tragedy to happen again, and there is more genuine interest and unselfish cooperation on the part of many State and civic organizations in behalf of an intelligent program of education for safe living than for any other aspect or phase of education in Texas.

But before we solve the problem of safe living we are going to attack much more seriously and intelligently the problem of nutrition beginning with the lands which produce our foods and the feed of the animals whose products become basic in our diet. A people whose diet becomes

progressively more deficient in even the necessary trace elements cannot ever be educated to act most wisely in the complexities of a mechanized age without first

insuring that his diet contains the necessary elements to enable him to see and to act quickly and wisely in emergencies. Attack upon this will surely follow.

Remobilizing for Safety

By GEORGE P. SILVERWOOD

Director of Safety, Green Bay (Wis.) Public Schools

The title of my talk, "*Remobilizing*," implies that, somewhere along the line, a *demobilization* process took place. This implication is based upon actual fact, and the genesis of this truce in the war against accidents can be traced back to the latter part of 1942.

Up to that time the safety movement had been affected very little by the war effort. Local safety organizations were doing a good job and were experiencing little difficulty in obtaining working memberships and operating funds. Communities were safety conscious and took active interest in local and national efforts to lower the accident rate. Law enforcement agencies and government authorities did their share in the drive against needless accidents. Most of the nation's schools had effective safety programs and incorporated the teaching of safety into the curriculum, either as a regular classroom subject or as incidental to other subjects. Newspapers and radios preached safety—as did the clergy from their pulpits. And we were *going places!*

In 1936 our national accident rate was 857 deaths for each 100,000 people in the United States—an all-time high. From that point on, as a result of intensive work in accident prevention on a nation-wide scale, a steady downward trend took place, until in 1942 we had our lowest accidental death rate in history—69.3 per 100,000 population.

And then, at the close of that year, we had our armistice in the war against accidents. The ranks of our local, state, and national safety organizations were depleted when key men and women were picked for civilian defense or war production jobs, or volunteered or were drafted for military service. Other safety workers found that the labor shortage stepped up the tempo of their jobs to such an extent that they no longer could spare either the

time or energy for accident prevention. Our newspapers and radios no longer featured the crusade against accidents as a public service. They had a more pressing problem—to get the latest war developments as quickly as possible to a news-hungry public.

Perhaps another factor was the psychological reaction of the average individual to safety programs and safety propaganda during the war years. Even though accidents were increasing in the community, the problem seemed so trivial when compared with a war in which our nation's future was at stake—and in which our boys were giving their lives. The fact that people were being accidentally killed in continental United States at about the same rate seemed unimportant. The glamour and excitement of war apparently not only dulled our perspective—it blacked out our sense of relative values as well. (Paradoxically, the armed services had safety as a major consideration in all operations.)

And so, at the close of the war, we found that while some agencies still nominally existed in the accident prevention field, most of the operating organizations had been buried in a mass of war work. From a national standpoint much previously generated momentum still existed, but in individual localities it was necessary in most cases, to start from scratch—just as our communities did twenty and twenty-five years ago.

As far as the remobilization process is concerned, I can only tell you about the way we tried to handle it in Green Bay—in the hope that some of our methods and experiences may help you to solve some of your reorganization problems. When I came back last winter I found a situation that probably was matched in most of our cities. I don't hesitate to say that the recklessness which seemed to characterize

civilian life scared me—particularly the way in which people drove cars, and the way pedestrians crossed intersections. There seemed to be a return of the old feeling "It's smart to take a chance" that we thought had died an ignominious death years ago.

Upon surveying the situation, I found that the county safety council had long since given up the ghost; that its liquid finances had been donated to the Red Cross, and its equipment sold with the proceeds going to the USO. The Public Schools had dropped their membership in the National Safety Council, and no longer sent a representative to the National Safety Congress. For the most part, Junior Safety Councils had been disbanded and school safety patrols were given scanty supervision or attention. The amount of actual classroom instruction in safety was just about nil.

In our community, home injuries and deaths and child accidents rose to an all-time high in the three-year period 1943-44-45 and traffic casualties reached a new peak in 1945. Industrial accidents seemed little affected as our particular city had relatively few war industries. However, while in the Navy, I had first hand contact with the ship-building industry on the West Coast and, in the manner in which this construction was carried on was typical of war industry—well, it makes me shudder. In the din and confusion of slapping ships together in the shortest possible time, the emphasis was on speed and more speed. Previously conceived ideas of accident prevention were thrown to the four winds.

And so it went—a gloomy picture of *demobilization*. The one gleaming ray of sunshine was the fact that, when the tumult and shouting of war had died away and people got their feet on the ground again, sentiment for effective accident prevention programs was not slow to reassert itself. People knew from past experience what could be done through safety education, through engineering, through law enforcement, and through constant publicity. We were a prosperous nation, too. So John Q. Public, with an Admiral Farragut touch, said to safety leaders, "Full speed ahead, and damn the expense!"

Our first move in Green Bay was to revive our old county safety council. We

contacted civic leaders and drafted a letter which went to schools, churches, industrial firms, retail stores, wholesale establishments, and municipal and county officials, notifying them of a meeting to be held in the Supervisors' Room at the Courthouse. The response was such that we couldn't begin to get the overflow crowd into the Supervisors' Room. We had to move to the spacious circuit court chambers—a new experience for those of us who were accustomed to small gatherings at safety meetings!

The Council reorganized at that session, on similar lines to its predecessor, with one notable exception. It was decided to stress youth activities, and the consensus was that this could best be done through enlisting young people in the Safety Council itself. Accordingly, all of the high school principals in the county were interviewed and we found them unanimously enthusiastic. The next Safety Council meeting found standing room only in the circuit court chambers, and over half of those present were high school boys and girls. A high school boy was elected first vice-president of the council and the membership of each committee included a high school boy or girl.

The effect of this new blood on the safety council was astonishing. It was like putting a "souped-up" engine into a Model T Ford. The dull and prosaic meeting was a thing of the past. These youngsters orated, argued, made suggestions (some good—some not so good), they criticized and they didn't care who their targets were—the mayor, the city council, the school board, and—the school director of safety. No one was safe from attack and everyone woke up to that fact. Things started to hum.

These boys and girls wanted driver training courses in both of our high schools. This fall they've got two such courses and next semester they'll have four. They attacked the problem of eliminating the hazards that go hand in hand with bicycling to recreation areas outside the city limits, and I'll almost guarantee that, by next summer, there will be bicycle lanes to these spots. They posed the embarrassing question, "Why hasn't the city or the county provided target ranges for our .22 calibre rifles? People growl about danger and pass laws taking away our freedom to use .22's.

When you take something like that away, you've got to substitute something for it," they told us. "Why not build some ranges and provide competent supervision?"

The upshot of that was that right now the county safety council and the local hunting and fishing club are cooperating in a move that will lease old sand-pit property adjacent to the two main recreation areas in the county. By next summer supervised rifle ranges will be in operation at both of these locations—with use restricted to teen age boys and girls. Just now our young people are focusing their attention on supervised outdoor swimming pools. I'll give odds that they get them.

But these accomplishments are secondary in importance to the effect that this youth interest in accident prevention has had upon the city and county. The rejuvenated safety council has become a driving force in community life. Parents have become vitally interested in accident prevention work because their children are leaders in the movement. Industrial firms report a beneficial carry-over into their plant safety programs. A man can't be continually exposed to safety talk at home without absorbing some of the stuff. Most important, of course, is the effect that all of this has had upon impressionable younger children—the boys and girls in the elementary schools who see their older brothers and sisters going to adult safety council meetings and working on committees with adults. The importance of safety work and the development of safe habits and attitudes becomes magnified many times in the eyes of these grade school youngsters—the young people who will have to contend with the dangers of a far more highly mechanized age than the one in which we live today.

One thing that impressed me greatly upon my return to safety work in the schools was the lack of interest in safety education on the part of the individual classroom teacher—the complete absence of a feeling of at least partial responsibility for the physical safety of the child. In some cases the principal had appointed one teacher in charge of safety in the building—and the other teachers felt that this absolved them of work in the accident prevention field. In the majority of instances, even the formality of placing a teacher in charge of safety education had been disregarded. Our

problem was to stimulate a feeling of interest and responsibility in each classroom teacher.

Fortunately, we had the utmost cooperation from the superintendent of schools, the supervisors, and the principals in our move to stimulate teacher interest. We asked that public and parochial schools throughout the county be closed for one afternoon this month at which time a meeting will be held on the subject of safety education. The request was granted without question, and Tuesday, the 22nd we are having Leslie Silvermale, formerly the Director of Safety in the Cleveland, Ohio, Public Schools and later a field representative of the National Safety Council, speak to about 600 teachers and an equal number of parents from various PTA groups on their responsibility for the development of safe habits and attitudes in the individual child. Mr. Silvermale's talk will be entirely inspirational in character, as we feel that this type of groundwork is one of the primary steps in building or rebuilding a school safety program. Following this meeting, we will meet at regular intervals with the teachers of each building to discuss specific teaching techniques and distribute lesson outlines covering the teaching of child safety.

In conclusion, I can't refrain from a word or two of advice to those of you who are now in the school safety field. To accomplish best results, a school director or supervisor of safety must identify the superintendent, the principals, and the other supervisors with the program. Safety bulletins, if possible, should go out over the signature of the superintendent of schools. At a general teachers' meeting on the subject of safety, your program is given prestige when the superintendent presides and one of the school principals introduces the speaker. Under those circumstances, not only does the classroom teacher attach additional importance to the teaching of safety—the school superintendent and the principals also begin to feel as if they have an active part in the program—which is just the sort of an attitude you want them to have. The more you bring other school people into the limelight, the better your safety program.

And now let me summarize what I believe are the essential steps in remodeling a community and school safety program:

First: Re-development of public interest

—particularly that of teachers and parents—in safe education. The nuclei for this activity should be the community safety council.

Second: Enlistment of teen-agers as active workers in the community campaign for accident prevention.

Third: Acquisition of whole-hearted sup-

port by the superintendent of schools.

Fourth: Organization of school safety councils guided and motivated by the active interest of all teachers and principals.

Fifth: Acquisition of adequate materials for teacher and pupil use.

Sixth: Provision for continuing safety publicity through all available channels.

Safety Education in a Large City School System

By JAMES A. HENSLEY

Administrative Assistant, Oakland (Calif.) Public Schools

A plaque which hangs in the Eastbay Safety Council office in Oakland, Cal., bears this inscription: "WINNER Group II (250,000-500,000) Population Oakland, California."

The award was for the year 1945 and reflects the work of our Safety Council, our Fire and Police Departments, our public press, other civic organizations, and last, but we sincerely believe not least, the cooperation and the Safety Education Program of the Oakland Schools.

Any program, to succeed, must have a sound philosophy as its basis. We in Oakland believe that zestful experiences are the best basis for a sound education. Since we cannot create actual experience in safety education, we must substitute something else. The goal in this field as in many others is the formation of proper habits. Schools must therefore plan and build habits of safety. A habit is based on knowledge but is formed by repeated action. It is possible to get a real zest out of habit-forming experiences, and so we plan our program with the idea of building such habits by repeated performances. That such a basis is sound can be illustrated by the fact that millions of people automatically stop when they see a red light, though most of them have not learned to respond by an actual experience of trouble through failure to do so. Any program which begins in the kindergarten and continues through the senior high school necessarily varies greatly at different levels, but the fundamental basis of the program remains the same throughout.

The ramifications of safety education are almost endless. Classroom instruction, hall

control, playground rules and control, street crossing organization, special rules and practices for shops, laboratory and athletics, fire drills, police cooperation (very strong in Oakland), special assemblies, first aid instruction, and regulations pertaining to handling of injured persons are all a part of our safety education work. The mere listing of these makes it evident that the time allotment for this report will not permit a detailed discussion of them.

The largest number of accidents occur in school buildings. Old and obsolete wooden buildings with narrow hallways and steep stairs present many hazards. Approximately fifty per cent of the school buildings in the United States are obsolete in terms of the safety of our children. Oakland is not much better off than the average city in this respect. Realizing this, we submitted a bond issue for school buildings to our voters in October, 1945. The voters approved the bonds by an eight-to-one majority. Unfortunately, the material situation has prevented the start of actual work on any of our schools. Even when the program is completed, time and thought will need to be given to a safety program within the school plants as some accidents will happen in the very best school buildings.

Starts in Kindergarten

Any program to be completely successful must start early and be continuous. This statement applies to safety education even more definitely than to many other fields. We begin in the kindergarten. Where and how to cross streets are immediate problems facing kindergarten beginners. In our schools the classroom is marked off to represent streets, and the children go

through the actual crossing process in classroom play. Sometimes motion pictures are used as a helpful aid. Mottoes and rhymes help to create needed impressions. The following is a sample:

"Little Jack Horner
Stood on the corner
Watching the cars go by.
He looked to the left;
He looked to the right;
And said 'What a smart boy am I!'"

In many of our schools sheets of instruction are given to all parents of kindergarten children. These instruction sheets carefully explain the location of crossings that will be guarded by junior traffic boys or by the police force and give the time for each as well as the school schedule, so that parents will know exactly when their children should leave school and when they should reach the crossings on their way home. This makes it possible for parents to plan to meet their children at the proper time and place if they do not have time or do not wish to come all the way to the school building.

Many other matters pertaining to safety are taught in our kindergartens. Among these are the use and handling of scissors, chairs and other objects and the danger of careless running. One of the most important lessons is that policemen are friends and that their help should be asked for and their instruction obeyed. Since the kindergarten playgrounds are separate from those of the older children, they are immediately taught to stay in their own play area.

In our entire program we stress *learning by doing* whenever possible, though as we pointed out in the beginning, actual experiences frequently cannot be used. The following quotation from a report by one of our second grade teachers gives a fairly good idea of our work in the lower grades:

"We learn by doing in our safety activities. At the beginning of the school year, after vacation, we review our safety rules endeavoring to make our statements positive. For example: 'Walk, don't run in the halls and on the stairs'; 'In crossing the street, look to the left then to right'; and 'Cross at a corner where there are signals, even if it means walking an extra block.' We follow these discussions which are ac-

companied by blackboard and book reading, compositions and illustrations with walks during which the teacher observes the reaction of the children. These walks are followed by more discussions and longer walks. The class and teacher also cooperate with the traffic squad. This safety theory and practice afford a correlated and integrated program in which the child develops a sense of security while progressing in the three R's, the arts and physical education."

Activities in our lower grades differ from school to school, but all schools stress their use. Some illustrations are: making traffic signals, marking off streets with crossings in the classroom, mounting posters on the bulletin board, drawing pictures, making up safety rules, songs and verses, pantomime, play with toy fire engines, quizzes and skits on safety, spelling and pronunciation of safety words, stories, book study such as "Safety Can Be Fun," making of safety type kites, visits to fire houses, talks by policemen, use of safety leaflets, story telling by teachers, riddles, puzzles, and so forth. While this list is not complete, it does tend to show that there are a great many ways to make safety education interesting and often times good fun as well.

Rules and regulations made by children themselves are very apt to be obeyed. Early practice in democracy is present when children help to determine their own behavior.

The Safety Education Program in the upper grades of the elementary schools, i.e., grades four, five and six, is similar but somewhat more formal than that in the lower ones. General school problems are discussed and plans directed by older students. Members of the student council help in formulating rules and regulations for safe practices in the building, on the grounds, and while coming from and returning home. They can and do write stories on safety and make posters; in short, they do all the things that have been mentioned as being done in the lower grades but much more fully and more definitely.

The older groups are more interested in reasons why and in a much greater variety of problems. These children discuss such dangers as trespassing; climbing of fences, piles of lumber and other objects; approaching excavations; getting close to moving

machinery; lurking around places of infection such as dumps, sewers, or stagnated water; playing around railroad tracks; hitching or accepting rides; standing on chairs or boxes; climbing or playing in trees; tripping on misplaced toys; handling sharp implements; danger of electric shocks; careless riding of bicycles; playing with matches; throwing rocks or other objects; bean shooters; sling shots; and so forth. They are taught to look for and obey all printed and other notices of danger, such as "STOP—LOOK AND LISTEN," "DANGER—HIGH VOLTAGE," "BEWARE OF THE DOG," and "KEEP OUT."

The older groups are taught not only to practice safety for themselves but to assume responsibility for and help those younger than themselves. They work out slogans for the school, such as "It's Smart to Be Safe" (fifth grade product), and then plan and work for their realization. Safety committee members supervise the halls, playgrounds, stairs, and so forth to prevent running, pushing, crowding, or fighting; they report damaged equipment and in general assist teachers and principals in the prevention of accidents. (In the Oakland Schools a teacher, playground director, or principal is always on the school playground when school children are playing on it.) A selected group of older boys man the junior traffic squad which supervises street crossings near the school. Their work will be discussed later in more detail in connection with the cooperation of our Police Department. Classroom work in the fifth and sixth grade English includes one or more units on Safety Education.

As children progress from one division of the school system to another, their Safety Education Program continues with no abrupt changes. The junior high school offers many not necessarily new but somewhat different and more mature opportunities for safety education. Shops, science and home economics laboratories, shower rooms, stagecrafts, and so forth, present new hazards and new possibilities for thinking and action in safety work.

In one of our junior high schools a committee was appointed to confer with the captain in the nearest police station. This committee's report, needless to say, was received with the greatest of interest, and its recommendations seriously considered.

The student council in junior high schools usually takes a much greater share in the formation of safety rules and regulations than in the elementary schools. In some junior high schools a stretcher crew of boys is trained for emergencies. Boys of this age can be trained to take their responsibilities seriously.

It is always difficult to determine just when to introduce a new phase of Safety Education, but we believe that the junior high school is not too early for students to realize the relationship between accidents and the use of intoxicating liquor. Since junior high school students can become avidly interested in the problem, units on home safety receive much attention. Swimming, hiking and kindred activities neither begin nor end at the junior high school age, but this is an excellent time for emphasis on them. Since there is a similarity in the junior and senior high school programs, the discussion of each period will be sketchy and common activities will be discussed together.

Senior high students as already mentioned do not differ essentially from junior high school students in problems of safety. They do have an even greater variety of hazards and more maturity in their attitude toward them. Although many junior high school boys and girls drive cars, the problem of safe driving becomes most acute at the senior high school age and continues through life, but all records show that the high school years and those immediately following are the most critical ones so far as driving is concerned. For this reason, although numerous phases of safety are part of our high school program, safe driving receives greater emphasis than any other. Our program for this problem will be discussed in connection with the cooperation of our Police Department.

Since the time allotment for this paper is limited, it will not be possible to go into much detail of specific problems. However, the picture would be most incomplete without some attempt to show complete programs in one or two schools. One high school's list of safety education activities in physical education follows. They attempt to teach:

1. The importance of prompt and proper attention to all injuries.
2. Playing carefully and according to ability.

3. The necessity of proper personal equipment.
4. Gradual resumption of exercise after illness.
5. How to fall.
6. Care in throwing bats.
7. Not to wear glasses in active games.
8. Not to wear jewelry while playing.
9. The danger of long fingernails in many games.
10. Watching for wet or slippery floors, ground, and so forth.
11. Care when retrieving balls from the street.
12. Danger of unnecessary roughness.

Our shop safety program is another illustration. Safety tests have been prepared by a general committee for each machine used in our school shops. Every boy or girl must answer all questions correctly and the paper must be signed by them and by the instructor before they are allowed to touch a machine. Rules concerning touching switches, carelessness in dropping or throwing tools, bothering another student in any way, and use of sharp tools are posted in all shops. The first few days of each term are devoted entirely to the giving of the tests and discussions of the need for care in the shop. The instructor demonstrates the handling of each machine. The entire program is intended to make the student safety conscious and to give him the "know how" to keep safe.

Time does not permit discussion of laboratories, athletics, fire drills, stage problems, motion picture equipment, playground and other hazards, but they all call for equally careful planning and execution.

Police Dept. Co-operation

The cooperation of the Oakland Police Department is outstanding. The Chief of Police, our Director of Safety Education, and the entire force are most helpful. Police are assigned to the more dangerous crossings. Neighborhood men and women are hired, deputized, and assigned to intermediate crossings. Junior traffic squads composed of boys in elementary, junior high and senior high schools take care of the remainder. Oakland is divided into three districts with a lieutenant for each who gives full time to junior traffic work. He confers with principals, junior traffic officers, and with individual boys. The Police Department furnishes caps, rain coats, whistles,

stop signs, badges, and other equipment. They also follow up any cases of drivers who fail to observe the boys' signals.

The police assist in many other ways. They confer with student committees either at the schools or in police offices. The police ambulances take emergency cases to hospitals. They help at games, entertainments, and other affairs. One of the finest services of our Police Department is that of the talks scheduled every semester for high nine students in junior high schools and for high eleventh in senior high schools. In junior high schools the talks are given for one hour a day for five days and in senior high schools for one hour a day for ten days. Thus every boy and girl who goes through the Oakland Schools has a minimum of fifteen hours of serious talks mixed with the right amount of good humor to be most effective by the men who have been working continuously with and for them—their friends, the policemen.

The following are the titles of the talks that are given in junior high schools:

1. Introduction and Problems of Safety.
2. Safety in the Home.
3. Safety at Play.
4. Bicycle and Pedestrian Safety.
5. Review and Examination.

The talks are illustrated with slides. Actual occurrences are used to increase interest and plenty of humor is worked in to give zest. The result is a very high degree of listener interest. The students often remain after the lecture to ask more questions and great interest is taken in the examination.

The lectures given to senior high school students deal entirely with driver problems. Their titles are:

1. Introduction including:
 - a. Need for a program dealing with youthful drivers.
 - b. Outline of the lessons that follow.
 - c. Types of drivers.
 - d. Road signs.
2. Required equipment on motor vehicles.
 - a. Height, length, weight, limitations.
 - b. Safety requirements—lights, brakes, etc.
3. Turning movements and right of way.
4. Overtaking and passing.
5. Parking.
6. Miscellaneous regulations.
7. Speed laws.

8. Felonies in vehicle code and reaction to them (including demonstration).
9. Physical laws relating to vehicle operations.
10. Tests. (Certificates are issued later.) Motion picture slides, color blindness charts, reaction test equipment, graphs and other such devices are used freely throughout the course. Student reaction is practically the same as that of junior high school students to their program.

Enough has been said to show that the Safety Education Program in Oakland, as in other cities, is both extensive and complex. Some of the activities that could be discussed at length are the work of the Parent-Teacher Associations, the Dads Clubs, the cooperation of the National and Local Safety Councils (this audience knows of their work), the required weekly inspection of building and equipment by our principals, the first aid and accident treatment programs, fire drills, and so forth. Surely each of these merits discussion, but time will not permit.

Oakland Schools have had a definite program of safety education since 1923. School children, teachers, and principals are definitely safety conscious. In the last two years safety posters made by Oakland high school students have won six national awards—one, first prize; one, second; three, fourth; and one, fifth.

Whatever has been accomplished has been the result of much work by many people. The following notations were all gleaned from the report of safety work in just one of our elementary schools.

"A new plan for entering and leaving the building was adopted. Requests were made and followed through for the removal of two or three building hazards. A revised set of safety rules and regulations was adopted. A set of suggestions for teaching safety was made. Substitute games were planned for more hazardous activities."

The report of the safety education work in this one school required fifteen typewritten pages. It is manifestly impossible to even summarize it here, but enough has been said to show that Oakland schools are definitely safety conscious.

An attempt has been made to give some part of the Safety Education Program in one fairly large school system. (Oakland has a school enrollment of approximately 55,000.) Doubtless other school systems have similar programs. The total program for the United States must be staggering in immensity. I thoroughly believe that the educational work being done throughout the country by our schools is worth all the effort and that the results will be shown as the children of the present become the adults of tomorrow.

Safety Education Clinic

Participants:

- RALPH W. ELLIS, Executive Vice-Pres., Hampden County Safety Council, Springfield, Mass.
- Mrs. DOROTHY OLENDORF, Asst. Supt., Wilmotte Public Schools, Wilmotte, Ill.
- P. T. PRITZKAU, Dir., Elementary Education, Rochester Public Schools, Rochester, Minn.
- THELMA REED, Seventh Grade Teacher, Karpf School, Kansas City, Mo.
- HENRY C. ROWE, State Safety Chairman, Wisconsin Congress of Parents and Teachers, Madison.
- C. F. SCHEER, Program Production Mgr., Conservation Dept., Zurich General Accident and Liability Ins. Co., Ltd., Chicago.
- HAZEL SMITH, Prof. of Education, University of Chicago.

MR. SCHEER: I would like to start off by asking something about fire drills and procedures. Is there some standard procedure recommended for fire drills?

CHAIRMAN WYMAN: I will refer that question to Gordon Graham from the Detroit public schools.

MR. GRAHAM: There is a definite procedure, I am sure, recommended by the National Fire Protection Association and the National Conservation Bureau. All I can say, at the moment, is that we have worked out our own procedure in Detroit, and procedures I have seen in other cities differ only slightly from those in our own institutions in Detroit.

I think we have tried to bridge a gap that has not been done too well elsewhere.

A principal or teacher who is responsible for the organization of a fire drill should be given a step-by-step procedure as to know how to organize such a drill.

What is the first thing you do? Determine the nearest exit for each room in the school. Then count the total number of children in each room. Add the totals to find out how many children will be using each exit, in the event they all use the nearest exit. It is well to follow this estimate with a trial drill or two, timing each to ascertain whether or not there is any one exit at which the children keep coming out for a longer period of time. If one exit is used by too many persons, shift the load so that all exits clear in approximately the same length of time.

This procedure gives you a base drill from which you can make individual variations. I realize there are bound to be some variations from one hour to another in the day, depending on whether the students in the building are shifted to different classrooms every period. Blocked exit fire drill should be practical, as should the unusual fire drill in the middle of a lunch hour, assembly or other activity.

I don't know any procedure that has been worked out in detail along that line by any of the national organizations. We would be glad to supply it for publication or dissemination through the Council if anyone would be interested in it.

MR. SCHEER: May I ask two additional questions that grow out of Gordon's reply? He mentioned fire drill procedures to cover special cases. What do you do, Gordon, in case you have pupils in the swimming pool at the time the fire gong rings? And what do you do about permitting pupils to get their wraps in case of cold weather?

MR. GRAHAM: Our procedure in connection with fire drills held while youngsters are in the swimming pools is simple. Let me say this first, in no instance, according to our procedure, is anyone allowed to ignore the fire drill signal. Something must be done about it and, in case of persons in the swimming pools, the procedure is to stop all activity immediately. The youngsters line up at the door ready for immediate departure from the pool. The instructor immediately ascertains whether or not an actual emergency exists.

Our swimming pools are located nearly always in a basement room or on the first floor, where they have ready access to exits.

In many instances, at the time I began this work in our schools in 1928, the children were allowed to get their wraps. We have gradually stopped that procedure. I have, I regret to say, within the last two or three years, found a situation in which the children were permitted to get their wraps, but that was specifically a violation of our rules. In other words, every fire drill should be considered the real McCoy—an actual emergency. No one, presumably, should know anything to the contrary, and going to get wraps in an actual emergency is certainly not good practice.

CHAIRMAN WYMAN: Niles Anderson of Pittsburgh, would you like to add to that something from your experience?

MR. ANDERSON: I think the only item I would like to add is that the word "fire" is wrong. We conceive the drills as training to handle panic situations of any sort. We insist on quiet and order to meet any panic situation. This drill is an educational experience teaching the student to respond to a gong or signal in any situation that might occur in the school or other public places.

CHAIRMAN WYMAN: In Louisville with the crippled children we alert them but do not attempt to take them out of the building.

MR. GRAHAM: With the blind there is a problem, too. We have worked out a sort of chain procedure. They leave the building, but they have a hand-holding procedure that is an interesting thing.

MISS REED: The fire chief told all our children they should hold hands in a fire drill. That is contrary to what they have always done. Our safety regulations tell them to keep their hands to themselves when going down the stairs in a fire drill. If they fall, they won't pull others down with them.

CHAIRMAN WYMAN: Mr. Griffin from Chicago.

MR. GRIFFIN: Of course, the reason for not holding hands is because if one falls the other falls with him. We use a method very similar to Gordon's, in lining children up in the swimming pool and in the gym.

We line them up at the door and they wait to see if it is a real emergency. In Chicago, during our bad weather, we allow them to get their coats.

We ring a dummy signal on the class bell and they get their coats and then go out. I know it isn't the most desirable thing but we are forced, by city ordinance, to have fire drills twice a month. What are you going to do in January, February, March and December, if you have a fire drill when no one is ready to go out; and then you get numerous calls from parents saying that Johnny or Mary caught cold? I know it isn't desirable to allow them to get coats but, from a practical standpoint, it is.

MR. GRAHAM: The solution there is to change your state law or city ordinance. We did that in Michigan. Our old ordinance requires that a fire drill be held each month. Our present state law requires that there be a total of ten fire drills per year; it is permissible to hold, say, six in the fall and four in the spring, or something of that sort. This gives you an opportunity to hold a total of ten drills but excludes the necessity of drills during January or February, or times when the weather is inclement.

MISS SMITH: Wouldn't it be apt to create a panic, if there was an actual fire during the winter months and the children had had no fire drill in inclement weather?

MR. GRAHAM: No. I don't think it is a thing that is broadcast to the children. They are not aware that there is a state law about fire drills. They just respond to a drill whenever there is one.

CHAIRMAN WYMAN: I don't know enough about northern winters to answer, but don't you ever have breaks in the weather? I know we do.

MR. GRAHAM: For some years we tried to use that procedure. Our Health Department even accepted it as long as the youngsters kept active when they went out. You can't satisfy Willy's mama on that score, though.

MISS REED: We follow somewhat that same procedure. Our city school regulation requires that we have two fire drills each payroll period, which is four weeks. The report goes in with the payroll. We pick the sunniest day that we find in the

winter months and have the drills. That way, although we have frequent calls, they aren't too troublesome.

MR. PRITZKAU: I think that's a matter of education. If you explain to the parents, they will understand. They won't kick about their children having gone out in the cold or having caught cold.

I want to change the course of thinking to the bicycle situation. What about the bicycle driver? He is the one that doesn't get any breaks at all. Everyone cusses him. He doesn't know where he is supposed to ride. What about bicycle lanes within the city?

Of course, cities haven't been planned for youth; they have been planned for adults. But what is the future in planning for bicycle lanes within the city?

GEORGE P. SILVERWOOD: We have spent millions of dollars on highways and, in our town, we charge a 25-cent bicycle registration fee, yet we fail to do anything for the kids who ride the bicycles.

I don't know how you could provide a safer place to ride than on most streets of the average town. Pedestrians will complain about the children riding on the sidewalks. It is a problem.

We had our junior safety council in one of the high schools bring up that very point. As a matter of fact, students with cameras made some pictures and showed them to me. The pictures showed a bicyclist riding along the curb. He is proceeding in proper fashion along the curb until he comes to an automobile. Naturally he has to turn out around the automobile. At the same time the motorist decides to get out of his car—on the street side. Naturally there is a great deal of danger of crashing into that car.

The youngsters just don't get a break. I am inclined to think that probably the best measure in that particular case is to discourage bicycle riding, as much as possible inside the city limits, and give bicyclists an opportunity to get outside of town on bicycle lanes. I can't see how we can provide any lanes within the city.

MR. GRIFFIN: I think statistics show that two out of three bicycle riders injured were committing an unsafe act. They weren't doing the things they were expected to do.

In most states, the bicycle is considered a vehicle, the same as an automobile. I know when we ride around we see bicyclists riding down the wrong side of the street. They totally disregard stop lights and signals of all sorts. I wonder, before we provide bicycle paths, if we might not provide better bicycle education. Then, maybe, through this means we can reach these offenders and make them obey the ordinary traffic regulations?

MR. PRITZKAU: I don't know whether we will get anywhere with it unless we do give bicycle education. This proposal which we are going to make to the safety council is to declare part of the sidewalk a bicycle lane. Some cities don't allow bicycles to come into the city at all. I don't agree with that technique. Why does one have a bicycle, if he cannot ride it where he wants to go?

MISS VIVIAN WEEDON: Mrs. Olen-dorf is here to ask questions and not answer them, but we would be interested in having her tell us about the Wilmette bicycle ordinance, which handles such a problem very neatly.

MRS. OLENDORF: As one who works in education, I spend 50 per cent of my time criticizing educators and the other 50 per cent in defense of them. Today in speaking of Wilmette and its ordinance for bicycles, I would say I am 50 per cent in favor and 50 per cent critical of our procedure.

I feel, as far as bicycles are concerned, that we are trying to educate the children in the proper use of them. But the community also has a responsibility. We have tried to make a survey to show what the dangers of bicycle riding are and I believe we are pretty much agreed that riding a bicycle in the village street is a dangerous practice. Therefore, while we ride in the street in the outlying parts of the town, when it comes to the main streets, bicyclists are, by ordinance, allowed to ride on the sidewalks.

That does have, it seems, additional hazards. We are then confronted with the safety of our pedestrians. I think we still have improvements to make in our bicycle regulations; however, I would say that the important thing is the reasoning we are trying to do with children, in working out a program that makes sense to them. I

think whatever we do in that program now, the children will be pretty much with us. We need to go further, however.

MISS SMITH: I am interested in what is done before the child comes to school, perhaps through parent education. I firmly believe that no behavior is changed unless there is a positive attitude toward it. For example, in the case of bicycles, I know of one school in which it was thought a good job had been done. The school was trying to get youngsters not to ride two on a bicycle. So what the children did was to ride two on a bicycle until they were within a few blocks of the school, then one got off. In other words, there had been no change in attitude, although they seemed to be observing good practices.

I think many attitudes about safety are built up in the early years before a child comes to school, and I would be interested to know what is being done in that field to correct faulty attitudes.

DR. CLARK: There the school depends, I think, a great deal upon co-operation of parents and teachers through a parent-teacher program.

MISS SMITH: You have been talking about changing attitudes in the school, but I was wondering about changing the attitudes of the children even before they get to school.

MRS. OLENDORF: It seems to me that one of our hazards in a safety program is our over-anxiety. We very often shortcut methods by which we know children learn, by providing programs of dictation rather than participation. It seems to me that is probably the beginning, at least, of difficulties we see in school safety work.

I even feel that implied in a good many of our programs; when we have safety people, particularly, in charge of the program, we often lull ourselves into sleeping very peacefully when we shouldn't be so peaceful. Once we get the thing down on paper and it appears that we have a program satisfactory to us, we wake up to find the program makes little sense in terms of what we know about child development.

MR. PRITZKAU: Hasn't that come about because of courses of study?

MRS. OLENDORF: That I am suggesting very definitely.

MR. PRITZKAU: We have to have

some guides, but let the children be creative in their efforts. I think Mr. Silverwood hit a high note when he spoke about the children being on committees.

MRS. OLENDORF: And about the classroom's responsibility and the teacher's responsibility for the program.

MR. PRITZKAU: The bicycle situation will be solved by the boys and girls, if we let them handle it.

MR. ROWE: Is it right to have boys and girls reporting on each other? Don't we then have student dictation?

MISS REED: That is the thing I am hinting at too. Not only before they are in school, but after they are in school, how much have they actually learned? You can make all these beautiful verses, but how much do they really observe on their own?

MR. PRITZKAU: I think there is a sort of integration of safety, possibly, with some of the other subjects like physical education. People say, well, our physical education is bad, yet how many people die prematurely because our physical education isn't good?

MR. CATLIN (Motor Vehicle Department of Wisconsin): I wonder how much consideration has ever been given to the proper place to teach certain phases of safety? For instance, we run into high schools in many cases where they are talking about teaching home safety which, without a doubt I am sure, should be taught in the elementary grades.

It may interest a number of you to know that, in Wisconsin, we made a fairly exhaustive study to find out about bicycle drivers. Our efforts had been devoted to the seventh and eighth grade levels, yet we found that in the second grade more than 25 per cent of the students knew how to drive a bicycle. In the third grade the percentage was 30, and so on through the grades until we got to the sixth grade where almost 100 per cent of the students rode bicycles.

Our efforts have always been devoted to the bicycle owner and not the bicycle driver, and I think we forgot entirely that many boys and girls know how to drive a bicycle even though they don't own one, consequently our efforts have been aimed at a higher level, perhaps, than they should be.

MR. SCHEER: We apparently are all agreed that at-the-wheel instruction, as far as automobile driving is concerned, is a good thing. Has anyone done anything to provide at-the-handlebar instruction for bicycle riders, perhaps by including this study in a physical education course?

MR. QUALLY (Oshkosh): We haven't done anything about that in Oshkosh. I think if you did do something about teaching bicyclists, by the time the kids got up to eighth grade they would be able to ride bicycles safely.

MR. McFARLIN (Cleveland): In co-operation with one of the newspapers several years ago, bicycle training courses were laid out in several sections of Cleveland, or one would be laid out in a school yard if requested, and the boys and girls went to the nearest course to take the tests that were given by the Cleveland Police Department in co-operation with the Greater Cleveland Safety Council. A movie showed what was expected of the examinees who, if they passed the test, were given a certificate stating they had passed the test and were safe bicycle riders. This method helped quite a great deal to ease the bicycle situation in Cleveland.

MR. GRAHAM: These are skill tests, aren't they?

MR. McFARLIN: Yes, skill tests.

MR. COCHRANE (Erie, Pennsylvania): We have a problem in bicycle safety. We made a survey similar to the other cities.

Our city has 120,000 population, 16,000 public school children, and 8,000 parochial school children. We have enlisted 8,000 bicycle owners of school age, but we have no idea how many there are in the out-of-school age group. There are possibly 3,000 or 4,000 bringing up the total to around 10,000 to 12,000 bicycle owners. That doesn't indicate bicycle riders. There are even more riders.

Our education program has been rather feeble. Our enforcement is as follows: If the police see two boys on a bicycle, they report the incident and try to warn the riders. Sometimes the riders will get off for a little while, then when the policeman is out of sight the boys will get on again. Well, the policemen see the same offenders and this time they take the bicyclists home. And what do the parents say? "Why don't you catch those burglars down the

street? Don't bother the young kids. Don't pick on them."

We don't get much co-operation from the parents, as far as enforcement goes. We do not have a bicycle ordinance; our mayor is opposed to it, in fact he says that you won't reduce accidents with a bicycle ordinance. He claims a bicycle ordinance is just a means of charging a fee for licensing which entails a lot of red tape the city officials don't want to handle. That is our situation.

We are trying to do something about it through education but it is slow, and we would like to have any suggestions you might have for improving our situation.

MISS REED: Why do you get so little co-operation from the parents?

MR. COCHRANE: Erie is a highly industrial section. We have a great many broken homes which we have busy teachers investigating only to find that there is almost no parent interest in the child. We have a good Parent-Teacher Association. It does try to help. But, there has been very little done. In the last year, we started a program by means of which we hope to call the bicycle situation to the attention of the citizens. So far we have had little success.

We would like to hear of some workable plans. Does the ordinance actually reduce bicycle accidents? Is an ordinance worth-while? Does it work?

MR. CATLIN: I would like to refer you to Racine, Wisconsin, where there is a junior police department composed of high school boys who have authority under the city ordinance to enforce the bicycle ordinance.

In that particular community, the parents are co-operating 100 per cent in enforcing the bicycle ordinance. I don't think that, unless you have an enforceable bicycle ordinance, you can expect to get the public or the parents interested in the bicycle situation. We have two or three cities in the State of Wisconsin where they have a really enforceable bicycle ordinance. In these cities the law enforcement agencies have the co-operation of the parents.

I would like to compliment the members of the panel who have been referring to bicycle riders as bicycle drivers. I think the sooner we all begin to call these young

boys and girls bicycle drivers the sooner we will get to thinking that their job of driving a bicycle is something rather important. They do so not for sport or pleasure. They must obey the same rules and regulations, laws and ordinances as the motorist must obey. Then we may get better bicycle drivers!

MR. GRAHAM: I just wanted to add that it seems to me the Erie problem is one that involves more than just the school. It involves a program of public education of the parents to the need for more rigid discipline, especially with reference to control of bicycle drivers. It is a job that needs to be done by community organizations, by local groups, to get the parents to realize the need.

There is a lot to be done. There are bicycle courts in Dayton, for example, and in many other cities. In Detroit we are trying to work it out with the juvenile court so that they can impound a bicycle for two or three weeks; something of that sort.

MR. COCHRANE: You can't do it legally in Pennsylvania.

MR. GRAHAM: There are a number of states where it can't be done legally, yet it is being done.

MR. PRITZKAU: In other words, education has to go into the community. Very definitely, there has to be an interflow of responsibility. The school alone can't do it. We can't do it without a safety council. We can't do it without the parents.

I thought a very good point was brought out by Mr. Hensley in the type of police service in their community—where local citizens help out the police.

MISS REED: I like that suggestion of making use of all community organizations. I took it, from what Mr. Catlin said, that that was perhaps what they did in Racine. Is it?

MR. CATLIN: Yes.

MR. COCHRANE: How long did it take?

MR. CATLIN: As I recall, it was only a matter of a few months. Once the ordinance was passed, we started to enforce it and from that time on it began to develop.

MR. BORGERSON (Lansing Mich.):

Is this matter of bike accidents of such seriousness that we are going to take all the fun and adventure out of riding bikes?

CHAIRMAN WYMAN: It is a serious problem in many sections of the country.

MR. BORGERSON: Is that proved by Accident Facts?

CHAIRMAN WYMAN: Miss Telford, will you answer that.

MISS MARIAN TELFORD: You run in an average year about 500 fatalities from bike accidents, somewhere between 30,000 and 35,000 non-fatal accident.

MR. BORGERSON: The estimates on the number of operators or pilots or drivers or riders of bikes varies from 8 to 12 million. If it is 12 million, maybe the record which they have now is good.

CHAIRMAN WYMAN: Still the total is 500 lives.

MR. COCHRANE: In our city we made a survey in 1945, and found there were 19 accidents and no fatalities.

MR. GRAHAM: Forty-five per cent of ours were fatalities.

MISS NICHOLSON: I would like to ask Mr. Rowe if they are doing anything to inform parents of the ordinances? I think we get no co-operation from parents because parents do not know there are bicycle ordinances in existence. I think it is the duty of the Parent-Teacher Associations to get together with the school people to find out where their responsibility lies and where their co-operation should be given to the school's program.

MR. ROWE: I presume she is right. The parents are not well informed. Adult education is the problem. No doubt, Racine, Wisconsin, has handled theirs. The parents there do understand the whole problem. I think the majority of our bicycle problems do come from the home, when the school is doing what it can. So it becomes a parent problem, as well as a child problem.

CHAIRMAN WYMAN: Have we ridden this bicycle far enough that we can go on with something else?

MR. ELLIS: I am going to switch from bicycles back to fire prevention. It is my firm conviction that the teaching profession teaches children to "Do as I say" rather than "Do as I do."

I have had an opportunity to watch some of the school systems, including Detroit and others. I know of no greater example of violation of safety habits than I see when watching a group of teachers come out of a teachers' convention flocking into their automobiles or dashing across streets.

In other words, I want to bring to your attention this thought—while we are teaching we must also be examples.

In my school system, we are endeavoring to educate the children on this bicycle problem. We find that most of our boys and girls know there is a bicycle law but, like many of their parents, they do as they please regardless of the law.

In the matter of fire prevention, I want to bring up these thoughts because I feel that fire prevention is a vital matter. First, in fire drills you give serious consideration to the so-called lost child. In other words, that single child who may be in the basement, may be in a special room, may be with a doctor or a nurse. We made a survey here about two years ago and discovered some very interesting things. We thought we had an extremely fine fire drill. It requires that the children shall go a distance from the school when they leave the building and that every person shall leave the building, but we found a weakness in the checkup which showed that a child might remain in the basement or in one of those other places unnoticed.

We also found another weakness. Who is to notify the fire department in case of a fire? We have supervising principals in the City of Springfield and when the principal is out of the building, no one had the authority to notify the fire department in case of fire. Now, of course, if it is only a drill you don't call the fire department but, nevertheless, it is of vital importance, as illustrated by the La Salle Hotel and other fires, to get the fire department on the job promptly.

The third thing I would like to mention is in regard to the children wearing coats when they go out. We made a rule in the Springfield School system, following consultation with a member of the National Safety Council staff who was in our city at that time, that young children in the lower grades should put on their coats before going out. However, we have re-

viewed the matter and are going to make a change. Miss Bartlett of our Springfield system is chairman of the permanent curriculum revision committee in the field of safety. She is here, and we are just waiting for the staff member of the National Safety Council to pay us a return visit next month in order that we can discuss making the change.

I want to call to your attention the fact that local safety councils have a marvelous opportunity of serving. We have a great deal of material. We are very proud of Wayne Hughes and the staff of the National Safety Council. We think the Council has the finest staff it ever has had, and we believe firmly that your supervisors should call on the local safety councils. I know we, in our community, are glad to be of service whenever we can.

We don't think our school systems call upon us enough. But I want to leave that thought, because I am the only member on the panel from a local safety council.

MISS REED: Mr. Ellis has mentioned local safety organizations and fire prevention both. What do you think about local safety organizations offering prizes to schools for a 100 per cent return of home inspection blanks during fire prevention week?

MR. ELLIS: I don't believe in local safety councils offering prizes for schools, and I don't believe in prizes for schools for posters or for anything else. We have certificates offered by our council which are furnished to the principals of the schools, public and parochial, to be used in awarding any child who has done an outstanding job in connection with safety.

For example, in Miss Bartlett's school, 32 children in a classroom made posters. Some one child might do a very poor job, but all 32 posters constitute the combined and best efforts, hence we believe that everyone of those children should be given a certificate for his effort in promoting safety.

The same thing should be done with members of the school patrols, or with anyone else that is working in the safety field.

MISS REED: When we raised the question with the local safety organization, it came back with the answer that the

Chamber of Commerce required it. We were told that by awarding points for the number of home inspection blanks returned, pressure could be brought to bear on making a good showing.

MR. ELLIS: I might say that in our particular community we furnished blanks to the children and in most instances we tore off the bottom part of the blanks which asked them to return it to the principal. I don't believe any teacher wants to give the idea that she is snooping in a home, and that is the interpretation many parents put on the inspection blank. We, therefore, tore off that part and now print our own blanks.

MR. PRITZKAU: Talking about home accident protection, some of our teachers have an unusual plan. The children in a classroom adopt a family, getting the family's permission to go to this home and make an inspection for fire hazards. In this way both the parents and the children learn.

MISS SMITH: Mr. Ellis, I was interested, too, in your suggesting that by and large the majority of teachers really don't believe in safety.

MR. ELLIS: I wouldn't say that.

MISS SMITH: Well, they don't practice it. I have seen a lot of what you mentioned. What would you suggest could be done?

MR. ELLIS: I have a feeling that if you just say what I've just said, you will have a very decided effect upon them. I have been saying it, and I think it has had an effect.

MRS. OLENDORFF: In defense of education, this is the time, I think, I can definitely say that I believe the school can teach whatever we think is important to teach, but specialists have two jobs. One is to think in terms of teachers now in schools who have been teaching for years and had no preparation for the kind of work you are asking them to take on. These feel it is not important because it was not stressed during their teacher training. That, to me, is the in-service job we have to do.

To the degree that teachers think it is important, it startles me what we can do with groups of children. We need to let them know that it is important. Today the

teacher is being told what is important and the things are so numerous that, unless we can get first things first, she is going to be a pretty confused teacher before long.

The second point is that in long-term planning emphasis should be on child health and safety. Until all teacher-training institutes recognize this we will have to continue an in-service program that provides for the lack. Specialists have a real job to plan such a program.

MR. ROWE: The question has come up: what is the age at which you should start school patrols, that is, with the fifth or sixth-grade child or seventh or eighth? In a community where there is a high school, the question will often be debated.

MR. GILLAHAN (Oklahoma): We are just beginning a new program in our city. We are establishing, in a number of our elementary schools, what we call safety councils. We have a peculiar situation in that we have a junior police force which is sponsored by our Kiwanis. We have found it has been only a disciplinary organization and not a safety organization. In some of our schools, we are setting up our safety program around the student police, and in others around the student council. In others we are starting with the safety council and out of that we have obtained certain patrols. We have an accident-reporting patrol, inspection patrol, junior traffic patrol.

However, we are careful to place students on patrols which are within their ability. Young, small children are never placed, of course, on the junior traffic patrol. We put kindergarten and lower grade children on minor patrols in order that they may participate in the program and feel that they are a part of it.

MR. SILVERWOOD: We consistently use fifth and sixth-grade youngsters because of the fact that, as in many other school systems, we have the six-three-three plan. If you want a safety patrol in the intermediate or primary grades, you have to use children from three grades. We find it works out fairly well to use largely sixth-grade children, having a few fifth grade ones only so we start with some experienced people each year.

MISS TELFORD: May I make a comment on that? My observation over the

country has been that, ordinarily, the upper two grades of a building—where it is a sixth-grade building—are used. Where it is an eighth-grade building, the seventh and eighth grades are used.

MR. YAGER (Sioux City): We have had the junior patrols since 1929, sponsored by the American Automobile Association. We have the six-three-three plan, and we have tried to keep our active patrols among the senior sixth graders with our substitutes coming from the senior fifth and junior sixth. We have a substitute for every active fellow and, when he is off, his substitute is supposed to function. Usually by the time a student gets to the senior sixth grade he has had substitute training and he makes a pretty good officer.

We have another little stunt that has been started in the last two or three years. We have put girls to work. They have the safety of the building as their task. We have safety patrols in the buildings and the girls take care of that. These girls have more interest in safety than they would otherwise. We feel this is a pretty good plan.

MISS WEEDON: Miss Wyman, we are going to have to get out of this room very, very fast. Before we go I would like to bring this discussion back to the child. We are talking about patrols and organizations and so on. I want to fix attention on the individual child. Miss Smith and Mrs. Olendorf and Miss Reed can toss to see who is going to answer the question.

Last Saturday I was packing to come down to the Congress and my eight-year old niece was in need of amusement, so I put her to working the National Safety Council lesson units. I was on one side of the room and she was on the other, so she was reading the questions to me, selecting the correct answer as she went along. She came to one: "Mary and Jane are walking down the street. There are some branches and some wires down. They should step over the wires and go on, cross to the other side of the street and remain there warning other people of the wire." I was to give her the right answer. "I suppose it is this one," she said.

I said, "Well, Catherine, I think that was supposed to be the right one but I am not sure I agree with it. Suppose your mother wanted you home?" Her mother

always expects her home immediately after school. I said, "What would you do?"

She was silent for a few moments, then she said, "I would go in to a nearby house and I would phone the fire department. I would say there is a wire down in front of such a number on such a street." Then she hesitated and added, "As a matter of fact, I would probably ask the lady to do it."

Perhaps she was going back to something she had been taught, I would like to know how you develop that type of thinking in children.

MRS. OLENDORFF: Good safety education, of course, is good thinking. That is what it is and it begins, of course, in a good home. It is carried on in a good school. Let me tell you how I think it should begin in school.

I visited our four-year old group the other day and was watching one youngster climb over one of these little wooden jungle gyms. As he climbed he called back to the other fellow following. As he was calling, it was apparent to me that the fellow following was a newcomer and that the first fellow had been in school two or three weeks longer. As he called, he said,

"Get down off of there, don't you hear me?"

John kept right on coming. Soon the other fellow in exasperation turned around and started back down. He put his hands on his hips, "Didn't you hear me, John? We don't do that in here. In here everybody takes his turn, me first and you next!"

I was particularly amused by his safety angle. It is "me first and you next." He is in the four-year old group. I think before he is with the five-year olds, it will not always be "me first and you next."

MISS SMITH: I think, too, that perhaps in the case of your niece, she has adults talking with her and not to her. We talk too much to children and not with them. I think children learn a great deal when they are allowed to express their opinions and think things out.

MISS REED: That is just the kind of thinking that is done on any problem in every day living. Unless you have that kind of thinking and that kind of living going on in the home and the classroom, you won't meet your safety problems any more satisfactorily than you meet other problems.

Traffic Section

TRAFFIC SECTION Executive Committee 1946-1947

General Chairman—PAUL J. PRICE, Capt., Traffic Div., Dayton (Ohio) Police Dept.

First Vice-Chairman—JOSEPH M. WYATT, Chief Justice, Baltimore (Md.) Traffic Court.

Second Vice-Chairman—HARRY E. NEAL, Chief Engr., Div. of Traffic and Safety, Ohio Dept. of Highways.

Third Vice-Chairman—F. C. LYNCH, Secretary-Manager, Greater Los Angeles Safety Council.

Chairman, Committee on Traffic Accident Records—J. E. JOHNSTON, Traffic Engr., Nebraska Dept. of Roads and Irrigation.

Chairman, Annual Congress Program Committee—EDMUND B. SMITH, Judge, Kansas City (Mo.) Municipal Court.

Chairman, Membership Committee—HAROLD F. LILLIE, Manager, Lansing (Mich.) Safety Council.

Members-at-Large—

A. W. BOHLEN, Executive Dir., American Assn. of Motor Vehicle Administrators.

NORMAN DAMON, Vice-President, Automotive Safety Foundation.

WILLIAM M. GREENE, Dir., Connecticut Highway Safety Commission.

JULIEN H. HARVEY, Managing Dir., National Conservation Bureau.

W. A. HUGGINS, Chief, Bureau of Accident Prevention, California Dept. of Motor Vehicles.

A. R. FORSTER, Dir. of Training, Northwestern University Traffic Institute.

J. J. QUILLIN, Judge, Traffic Div., Portland (Ore.) Municipal Court.

T. J. SEBURN, Traffic Engineer, Kansas City (Mo.) Dept. of Public Works.

EDWIN S. SMITH, Dir., Rochester (N. Y.) Safety Council.

A. GLENN SMOOT, Traffic Engr., Arizona Highway Dept.

HARRY W. WHITCOMB, Supt., Accident Prevention Dept., Philadelphia Transportation Co.

Ex-officio Members

Traffic Court Division Representatives—

WAYNE L. MILLER, Judge, Fort Wayne (Ind.) City Court.

HARRY H. PORTER, Chief Justice, Evanston (Ill.) Municipal Court.

Police Division Representatives—

RULON BENNION, Inspector, Utah State Highway Patrol.

W. L. GROTH, Capt., Virginia State Police.

Past General Chairmen—

W. GRAHAM COLE, Asst. Sec., Metropolitan Life Insurance Co.

CARL J. RUTLAND, Chairman, Dallas (Tex.) Citizens' Traffic Commission.

Secretary—DONALD S. BERRY, National Safety Council, Inc.

MONDAY AFTERNOON SESSION

October 7, 1946

General Session

Presiding: W. GRAHAM COLE, Asst. Secy., Metropolitan Life Insurance Co.

Traffic Safety and the Public Attitude

By JOHN W. DARR

Pres., Institute of Public Relations

As a prelude to my discussion of traffic safety and the public attitude, let me read you one of the finest editorials I have ever seen on public opinion. It was written by the editor of a "grass roots" newspaper in South Dakota. It will describe in better words than I can the fickle character of public opinion and the challenge to those seeking to influence it.

"Strange are the ways of Public Opinion.

"In her varying moods she becomes a savior of mankind or a destroyer of that which by her own demands she has saved. Today a vampire, tomorrow a saint; a Trojan in her demands for what today is heralded as right, as fickle as Cleopatra when tomorrow's multitudes declare that right was not right.

"Brave as a roaring lion and yet as cowardly as a skulking wolf which has been separated from the pack.

"Virtue-laden when Puritanic idealism possess the land, she turns chameleon when that idealism takes wings and vanishes away. Intolerant and yet a persecutor of the intolerant. Such is Public Opinion.

"She wears a halo to light her path and then destroys the very path on which she found her way to the light.

"She is no respecter of persons, or of truth, or of fact, or of historical revelation, or of prophetic vision; lover of truth and hater of the application of truth.

"She struggles through the years for the accomplishment of a great ideal, then in a day deserts the ideal and sees her own followers suffer the agonies which are certain to result from her popularly endorsed folly. Such is Public Opinion.

"Today she leads an army in a righteous cause; tomorrow she has turned traitor to

the cause and enrolls in the battle lines of her erstwhile foe. Today she is mobilized to construct, tomorrow to destroy.

"She murders a Caesar on the ides of March, and on the morrow follows a Mark Antony from the funeral to destroy those who obeyed demands for Caesar's blood.

"She burns Joan of Arc as a witch, and then sanctifies herself in the incense of the smoking ashes.

"She talks 'peace on earth,' and at the sound of rolling drums plunges into a world war with peace-preaching Christian murdering peace-preaching Christian. Such is Public Opinion.

"In a year of popular demand she capitalizes on the teachings of a century and passes laws for the preservation of those teachings; in another day of popular demand, with a flash, she destroys the very laws which were formed for her own protection.

"She knows no constitution if that constitution blocks the way to her desire. She is a builder of governments and a destroyer of civilization, a defender of constitutional rights and a defamer of the very constitution which protect those rights; a hero and a deserter; a thinker today, a careless follower of uncertain doctrines tomorrow.

"Dr. Jekyll and Mr. Hyde: Thy name is Public Opinion."

We may as well recognize that we must have solidarity of public opinion to achieve the gains for which we are striving. At the outset, we should not confuse public attitude with the public mind. We do have a public attitude on traffic safety, but it's mainly an awareness that the problem is serious, that it deserves major attention, and that there should be strong enforce-

ment for the other fellow. What we want is a united public will for action.

One of the outstanding reasons that we do not have this public will is because, through the years, the traffic safety movement has to a large extent completely ignored the sound and proven rules for molding favorable public opinion. Some of you, no doubt, will challenge this statement. But the records clearly show that over the long pull we have never stemmed the tide of traffic deaths and fatalities to the extent we desire.

To achieve public support—if we are willing to honestly recognize that it is absolutely essential, and I assure you from my long experience that it is—we must first put our own house in order. What we have done up to now is to formulate programs which we believed the public should accept; regulations which we believed were best for the people; enforcement methods which we believed were most practical; and educational efforts which we believed to be sound. Not enough attention has been given to what the people are willing to accept and give their individual and collective cooperation.

I need not remind you that this is the procedure that has been followed in Washington over the last few years and we are today witnessing the confusion and dire results. It is my confirmed opinion that the American people will accept and support only those restrictions and regulations which they understand fully, which they believe to be reasonable in their own interest and the interest of other people, and which they believe to be necessary for the common good. This should always be kept in mind if we are to make a real approach toward public support of traffic safety objectives.

One of the great difficulties in traffic safety, in my opinion, is that we have made public support a secondary objective—an objective to be achieved after our engineering, enforcement programs were working satisfactorily. What little I know about public relations convinces me that the American people will not join in any movement wholeheartedly unless they know where and how and when they fit into that movement.

I do not want to be critical of what is being done, nor do I want to underestimate

the progress that has been made in virtually all fields of traffic safety. In fact, I am convinced that the traffic safety movement is headed in the right direction, if it will quickly recognize that public support is the missing element and move aggressively to get that support.

At the risk of being elementary, let's look at the whole problem just as if you were a client of mine.

What are we trying to achieve? We are trying to assure movement of traffic with maximum efficiency and convenience and a minimum of hazards.

How are we trying to do this? By engineering into our highways the maximum degree of safety for drivers and pedestrians up to the limits of available materials and money; by enacting laws governing the movement of both vehicles and persons, setting up regular standards which must be met before a person can drive, setting up traffic courts and law-enforcement arms, and by broad programs to train persons at the wheel and afoot. All of these things are essential and sound, but we must go farther and reach 130,000,000 people—everyone who drives and walks—with the reasons why we are doing these things and build understanding and cooperation.

Let me give you a case in point from my own business as to how to build cooperation.

Some time ago, the hat industry became concerned over the fact that an increasing number of people were going hatless. If the trend continued, it would mean a steady decline in manufacturing, with tremendous implications on the capital invested in the industry and employment. As a result, the Institute of Public Relations, Inc., was asked to survey the situation and make recommendations. We knew from the start that laws to force people to wear hats would be absurd. We knew that to stop people in front of stores and drag them in and put hats on their heads would be equally as absurd. We knew that badgering people who exercised their American rights to go bareheaded also would be absurd.

Instead of trying these absurdities—and efforts to force people to be safe are equally absurd from a practical standpoint—we launched a program through the Hat

Research Foundation to find out why people went hatless. When we found this out we then found ways to make people conscious of the advantages of wearing hats, and thus created a desire for hats which is proving advantageous to a vast industry.

I believe that the same principle can be followed in traffic safety. If you will utilize the findings of the public opinion survey for the National Committee for Traffic Safety, which confirms many points I am making, you will have made a start.

The traffic safety movement provides an extremely interesting anomaly. The effort to secure efficiency in traffic is the one—and perhaps the only—effort in our complex life without any organized opposition. Everyone is aware of traffic conditions and, properly sparked, will join any constructive move to better these conditions. When we analyze these factors, is it not rather amazing that we have not progressed farther toward the goal of easy-flowing and safe traffic? In other words, with no opposition to be overcome and no lack of awareness to be met, why is it that we do not have the public mind behind our objectives?

I believe that if we cannot find a means of simply moving automobiles with the restraint necessary to avoid collisions and protect those afoot, it minimizes our chances of finding that domestic and international unity we are all seeking. I believe that if we cannot get our 48 states to simplify and make uniform the rules governing interstate traffic, it seems almost foolhardy to wonder why we are not attaining greater success in the effort to help fix the conditions under which people will live behind international boundaries. I believe that if we cannot get our law enforcement officers in traffic courts and on the streets and highways to show for motorists and pedestrians the same degree of consideration they expect from these same people, we cannot talk too loudly about people in other lands not living in harmony.

If we can achieve the ultimate we are after in traffic safety, with it will come a new appreciation of how people themselves can point the way to meeting other conditions that are extremely pressing.

Let me requote a phrase about public opinion: "In her various moods she becomes a saviour of mankind or a destroyer of that which by her own demands she

has saved." This observation seems particularly appropriate here because we all recognize that public opinion—public attitude translated into action—can bring better traffic conditions, or the public can make these conditions worse than we have ever known.

Developments in the whole national picture should be watched as a pattern by all concerned with improving traffic conditions. During the war restrictions were widely imposed upon the American people. They were accepted because of the war. People were told that they would end at the end of the war. However, these restrictions are still with us and we all know the public attitude. All appeals for public support and all pledges and promises are proving unsuccessful in changing public opinion. All the power of government is behind these restrictions, but the power of the people will ultimately prove stronger.

From the standpoint of traffic safety, we may as well recognize now that the much vaunted 3 E's—the whole basis of traffic safety—will never be effective to the maximum degree unless they have public support.

The very essence of reaching the public and securing public support is simplicity. I feel that my friends in traffic safety become a little bit involved in their own techniques. They are so sincere, so determined and so crusading that they do not stop long enough to let public opinion catch up with them.

Some years ago, when I was responsible for the CIT Safety Foundation, we brought to New York 48 "Safe Drivers" from every state in the union. It was a refreshing experience. Those who were guests of CIT were asked to make suggestions on how traffic conditions could improve. Many constructive suggestions were forthcoming. But the one that struck all of us most was very simple. It said that what is needed most on our streets and highways is "motor manners." This suggestion provided a theme which was followed in all efforts of the Foundation. We sought ways and means of improving "motor manners." I am convinced that it is the key to the whole problem of the individual driver and individual pedestrian.

Often I feel that if we were to review the whole traffic situation in simpler terms,

forgetting for the moment "techniques, re-orientation" and a lot of other high-sounding words and phrases—we would begin to have some new conceptions. We would find that the surest approach to efficient and safe traffic and to a solution of the other manifold problems is in recognizing that the basis of society is still the home, the school, and the church. This was recognized in by-gone days when things were on a much sounder basis than they are today. People are gradually getting back to fundamentals. Out of it may come a new consideration for others. Thus I believe that with new attention to fundamental principles and methods of developing broad understanding and reasoning in lieu of unsound and unpopular regulations, we can achieve our objectives in traffic safety.

I readily realize that it means trying to reach 130,000,000 people—all who drive or walk. Yet we must reach them to have the fullest degree of public cooperation and public support. In the states and communities where the people have been reached there is evidence of improvements. I am informed that later in the day awards will be made for gains in bettering traffic conditions. I am confident that a question to those involved will bring the answer that they achieved these gains because of state or community support.

One of the direct approaches in arousing public support is to end once and for all the conflicting and confusing statements on accidents and their causes. There should be one recognized source whose statistics will be accepted. The various statements on accident causes serve to confuse the public just like the conflicting statements from Washington, with the result that people do not know what to believe.

Let me read you a letter I recently wrote which was published in the New York Times.

"I am amazed at the amount of conflicting reports and statistics which are being published concerning the various factors involved in traffic accidents. Let me illustrate by citing three examples from your own fine newspaper:

"On July 28 you carried an article under the by-line of Bert Pierce, in which he quotes the editor of the WEEKLY UNDERWRITER as authority for the state-

ment that 90 per cent of all car accidents result from overindulgence in liquor." In The New York TIMES Magazine of August 11 you published an article by Maj. Gen. Philip B. Fleming, who was general chairman of the President's Highway Safety Conference. In this article General Fleming lists the outstanding causes of accidents as:

- "1. Failure to obey traffic laws.
- "2. Substandard traffic laws.
- "3. Differences in regulations and traffic control devices in various states.

"In regard to the subject of drinking, General Fleming refers to an analysis of what he terms 'the most accurate figures available' and makes the statement that 'one out of nine drivers in fatal accidents had been drinking.'"

"And again, on August 12, The TIMES carried an article on a traffic accident survey made by the New York Police Department and the Greater New York Safety Council, and you quote the Greater New York Safety Council to the effect that two of every three serious accidents involving automobiles were the result of faulty brakes and other mechanical defects.

"It is most important that the cause of accidents be known before curative or preventive measures can be applied. But isn't it rather confusing to the layman to read one day that 90 per cent of the accidents are caused by one factor, and another day to see that two-thirds of the accidents are caused by something else, and another day to find that there are three entirely different major causes, in the opinion of someone else?

"The National Safety Council has for many years made careful study and classification of accident causes, getting their facts from police records and official sources throughout the country, and compiling them most accurately. So why not let's take their figures as standard and authoritative, and go on from there and do something real about correcting the situation?"

I anticipated when you invited me here that you might expect me to give some magic formula for arousing militant public support for a new consciousness in traffic. I regret that I cannot do so. Magic formulas are the greatest foe of sound public relations and the greatest barrier to

an aroused public opinion. There is no magic. It is a case of getting back to fundamentals and it applies to every field of human endeavor, whether it be international, national, state or local. However, I will highlight a few elements of the problem which I believe to be helpful:

1. We have continuously tried to approach the problem from the top down—thinking too much in terms of restrictions, regulations, techniques, campaigns and other activities in terms of things the people should accept. Public attitudes are not formed by commands and direction. It requires a knowledge of what the public wants and what the public will do. Thus the first requisite for success is letting the public, whose support we are seeking, have a part in formulating our program.
2. We must have better coordination of traffic safety efforts if we are ever to secure mobilized public support. Unless those who are faced with prime responsibility can get together among themselves on what they expect the public to do, they cannot hope for the support they are seeking. Organizational activities must be dovetailed into a coordinated national program.
3. We must approach the public through the law makers, the traffic judges, traffic enforcement officers, safety directors, school teachers and others. In addition to their law books, dicta, notes, textbooks and papers, they must be aware of successful methods for securing public cooperation and public support.
4. We must overhaul our whole system of mechanical control of traffic and people. Traffic lights and stop signs must be placed only where they are

needed and not because of the whims of some individual. Pressure salesmanship has foisted on the American people untold thousands of unnecessary lights and signs that have no purpose in efficient and safe movement of traffic. The public is becoming aware of these conditions.

5. We must meet the changing times with new methods of arousing public concern and public interest. With some minor changes the whole traffic safety movement is following the same old pattern. Just as business, labor and politician have been forced to utilize new ways of reaching the public, those in the traffic safety effort must also revise their methods.

In speaking to you today—an opportunity for which I am grateful—I know that I have departed from the customary pattern of a traffic safety message. I have not used any statistics. I have not told you how road-building has been delayed, how our vehicles are being worn out, how the tempers of people are ragged, advanced any new techniques. I have simply tried to speak from my heart on some of the basic things which I believe give new direction to the traffic safety effort. Many of these things you already know. Some of them I have tried to hammer home in conferences and private conversations with many of those present at this Congress.

I should like to say again that the traffic safety movement must be taken to the "grass roots" in every cross-section of the United States. It is there that public opinion is formed and that's the place from whence will come the support and action so vital to turning accident trends downward and solving other disturbing problems facing mankind in this era of change.

The City's Stake in Traffic Safety

By **WILLIAM E. RIDGE**
Traffic Engineer, Wichita, Kans.

Russell McClure, City Manager of Wichita, regrets that illness prevented him from appearing here today. He asked that I fill his assignment and present his address.

Wichita, Kansas, affords an excellent example of a city where a thorough-going

safety campaign has brought results. Every city has an enormous stake in traffic safety. We Midwesterners are not prone to brag, but I think we have met the accident problem with fortitude and never with procrastination. Did you know that there

is a city of nearly 200,000 population where there is 100 per cent pedestrian observance of traffic signals? Wichita is that city. When a city continues through 16 years to win high places in National Safety Traffic Safety Contests, there must be a reason.

Safety is individualistic. It should begin in the family and certainly the city, which is the first echelon of government, must be the programming agency. What constitutes a good safety program? I think that it has two principal ingredients; balance and complete public participation.

A city is not blessed with unlimited resources and must, therefore, decide the merits and priority of each improvement or service. Balance is very necessary if those engineering improvements are to be located where they are most needed and will do the most good, if enforcement utilizes fully manpower and equipment, and finally, if education realizes general public acceptance. All must operate as a team, all assisting each other, all pulling together. The failure of any unit will destroy the effectiveness of the entire program.

Traffic safety is an integral part of our city administration. We believe in a friendly personalized service to our citizenry in all departments, and this includes safety.

All public means of communication are used to make both motorists and pedestrians safety-conscious every day. Education of citizens in proper driving and walking habits plus focusing public attention on the tragic consequences of carelessness has produced results.

The most safety program borne in the 1930's with the cooperation of the Junior Traffic Patrols. Today the patrol supervises the parents and policemen visit the schools, showing safety films and talking on safety. For immediate action, the police conduct a weekly traffic school on Saturdays and children under 16 years of age who violate traffic ordinances are sent to three lessons at the traffic school instead of being called into juvenile court.

High schools have traffic courts of their own and high school students arrested for traffic violations appear before this court conducted by students with a teacher and a police sergeant as observers. Convictions usually bring a sentence to write a 5,000

word essay on a selected safety subject. All public schools have as an integral part of their curriculum a complete safety education program.

The city has three scheduled radio programs daily on traffic subjects and a public forum program is broadcast weekly with citizens participating. Public address systems on police vehicles are used on the streets to issue warnings and attractive safety posters are used at all principal intersections in the downtown area.

The entire community participates in the program. The Traffic Commission, composed of 16 leading citizens, meets monthly and studies current traffic problems. These are public meetings and are attended by many persons seeking a hearing on traffic changes or with ideas to present for consideration. After determining the need for traffic improvement, the Traffic Commission recommends to the City Commission and receives its full support.

The Chamber of Commerce has an active and extremely successful safety committee. Many worthwhile traffic improvements have originated with this organization. For example, they are now sponsoring an off-street loading driveway to serve our largest high school and intermediate school, and if past experience is repeated, I am sure that they will not reduce their efforts until the project is a certainty.

Every civic club, every Parent-Teacher Association, yes, every civic or public organization in Wichita has a safety committee. The Boy Scouts and the Girl Scouts through strength of numbers assist in many safety activities which require some hard work. Recently, the Boy Scouts stenciled safety messages for pedestrians on all sidewalks in Wichita.

Every radio station in Wichita uses at least one safety slogan or safety message every hour throughout the day. Every theater shows safety shorts every day advertising safe ways to walk or drive. We have a well staffed traffic engineering division. We are proud of our police department; enforcement is positive and without discrimination. All city officials and all city employees are cognizant of their responsibilities in providing safety in all facilities and in cooperating completely in the traffic safety effort. I could go on and on, but

I doubt if this is necessary. I think you must understand by now that to us "the public is the thing." Here lies the key to success.

Paradoxically, Wichita ranks at the top among cities in the United States for per capita possession of motor vehicles and in 1945 was rated by the United States Bureau of Labor Statistics as the nation's number one war boom town. For these

reasons, traffic safety records are no small achievement.

To safety-minded Wichita citizens, winning contests is only an incident. Sure, they like to win—they expect to win, but what really counts is that, as the result of their safety program, many children, many of their friends and neighbors are alive today. This to Wichita is worth more than the awards won.

The State's Stake in Highway Safety

By W. EARL HALL

Managing Editor, Mason City Globe Gazette and Chm., Nat. Com. for Traffic Safety

In the past several years I have worked in many fields of highway safety activity. I might cite my newspaper editorship, my participation in our state Safety Council and my current position as Chairman of the National Committee for Traffic Safety, but only to indicate that no single task has carried quite the responsibility of representing the Governor of the State of Iowa in an address on "The State's Stake in Highway Safety."

Perhaps my deep appreciation of both the honor and the challenge of the next nineteen minutes is rooted in my firm belief that certain factors combine to give a state government the leading role in highway safety. At the very least, a state gets an equal billing with the individual highway user, with the municipality and with public support organizations in this drama of deaths and injuries. Whether you insist that we have an all-star cast, or whether you are willing to set a state alone in the spotlight's center, you will agree that safe highway transportation is a shared effort in which every component has an opportunity to prove capability.

A state's unique position in traffic safety is derived from its strategic location as the center of legal and moral responsibility. Except for certain phases of interstate commerce, the Federal Congress has left traffic laws and regulations, and their enforcement, as the province of 48 sovereign states. That thirty years of haggling and bickering has failed to produce completely uniform motor vehicle laws or completely uniform traffic control devices is a sad

commentary on the American ability to work together. In my opinion, unless we can correct conditions through the existing state governmental structure, with the aid of techniques and devices now available, it is only a matter of time before the Federal government will assume jurisdiction in the statutory regulation of highway safety. If that time arrives I doubt that any amount of screaming about "state's rights" will return our lost opportunity. This fact alone might be considered one of the state's principal stakes in highway safety.

It is not unreasonable to claim that a state government has the most direct responsibility for the coordination of the official highway safety program and the stimulation of local activity in traffic safety. This is a natural outgrowth of the fact that municipal traffic ordinances often hinge on state laws, and that such important items as state traffic law enforcement are resolved in the county and municipal courts. It is obvious that a state should expect more and better highway safety in municipalities only if it sets a good example.

The 1700 delegates to the President's Highway Safety Conference last May developed a plan of action which, it was hoped, would serve as a guide for those who have charge of bringing highway safety programs up to the standard which is essential for realization of a permanent reduction in the traffic accident toll. This Action Program was not born in a muddle of theory. It was written by those who have the job to do in every section of our country. This plan, together with the seven

technical reports of the Conference, represents today's total fund of knowledge accumulated through our experience in the quest for safe highway transportation. Today, little more can be said or written on highway safety except as an amplification to some particular portion of these reports. Only time and further experience will make any material changes in that which is proposed as the way to highway safety. Included in the Conference recommendations are the successive steps which a state must follow if it has set its sights on an objective of safer highways. What must a state do?

First, it must perfect its own official program for highway safety. No state measures up to all the specifications of the President's Conference master plan. The difference in the amount of change needed to attain this very practical ideal varies only in quantity. I am presuming that no one challenges the wisdom of the position that a state must set its house in order first before the municipalities or the general public can be expected to exert their full power in the same direction.

Second, the process of "setting the house in order" requires the elimination of overlapping safety jurisdictions and duplications of effort. It is not uncommon for a state to have from six to nine departments concerned with regulation of the use of the public highways. If these departments themselves cannot agree in either fundamentals or details they cannot expect a favorable response from the highway user. We have even seen the extreme of disagreement in two state departments over the type and color of clearance lights which mark the width of a truck. I can cite another state in which one department regulates vehicle and driver licensing, another department vehicle weights and widths, another department the hours of service of commercial vehicle operators and yet another department exerts general policing power. Such confusion can only produce confusion as to what items constitute the official highway safety program.

Third, a state must agree, within its own family of departments, as to its future course in attaining highway safety. Official steps may be made through only two means: legislative action and administrative rules. The average administrator

will place the blame for failure of a highway safety program squarely on the shoulders of legislative leaders. The average administrator will contend that special interests, trades and pressure groups influence the law maker when he considers a matter of regulation. The popular hue and cry against regimentation has made it especially difficult to secure the enactment of traffic laws which even hint at the invasion of private rights. A legislator who will agree with the idea that we should have safe highways will hesitate before he will record his vote in favor of periodic inspection of motor vehicles or re-examination of drivers at the age of 60 before issuing further license privileges. In contrast, legislative committees will point out that administrators have been given broad general powers to issue such administrative rulings as are necessary to carry out the intent of a particular statute. Under these conditions it will be claimed that the administrator is not making full use of the authority with which he has been vested. Frankly, my sympathies are with the administrator—if he makes too much use of his power to regulate by ruling he will find himself out of a job when his appointment next comes before a Governor or an Executive Council.

Fourth, a state must take much of the initiative in seeking public support for its official highway safety program. Some of this support will be automatic when the public is convinced that the state knows what it wants in public safety and how it proposes to get it. Other support will come only through a gradual evolutionary process, patiently educating the people until they can see economic gain as well as social betterment in a single forward step.

These four objectives are stated in rambling terms. Were I to expect them to be a sufficient mapping of the route to highway safety I could be justly accused of evasion. Actually, these are the specific steps:

1. An analysis and comparison of a state's highway safety program with the recommendations of the President's Highway Safety Conference. This is largely a matter of self determination. There can be little question on any specific point. A state's driver license law either measures up to the standards necessary to achieve

safe highways or it does not. We only fool ourselves if we read into our law the principles which are missing. To justify a lack in our law because in our state the situation is "a little different" is an open admission of weakness. This analysis is the first step toward coordination. Assistance is available to us through one or more of the important supplemental highway safety programs currently being conducted in the United States.

2. When the analysis is complete, and coordination is about to become a reality, each state should hold a highway safety conference. This conference accomplishes the double purpose of advising the public of the outcome of the analysis and coordination and inviting public support by encouraging public assistance in formulating the future program. To date 13 states have held highway safety conferences since May 10, 1946. Four other states have set definite dates before the end of the year. Other states have agreed to hold a conference but are hesitant in naming a time. While I will acknowledge the gains which have been made in the past 4½ months I do not hesitate to say that for ¾ of the states to take no positive action since the national meeting on highway safety has all the earmarks of a disgrace. Such a lack of understanding is indicative of political terror, moral atrophy or mental stagnation.

3. Invaluable help in a state program can be secured by a full scale participation in some of the broad and important supplemental highway safety programs. The National Pedestrian Protection Contest is a good example. Every state must recognize the benefits of the Brake Emphasis program of 1945 and the Police Traffic Safety Check for 1946. Still closer to the immediate problem of coordination and plans for the future is the National Traffic Safety Contest.

There are times when a state must stand before a mirror and do some scrutinizing. A state must scan its own official reflection for imperfections and shortcomings, particularly when these imperfections and shortcomings may be taking the lives of the people the state is intended to protect.

Self analysis is good, but not enough. Like people, a state needs to look at itself through the eyes of others. A state must see itself as it is seen. A state must inven-

tory its traffic accident prevention procedures by comparing them with those of its neighbors and in the light of recommendations made for its own well being.

In connection with its National Traffic Safety Contest, the National Safety Council is offering an analysis service of which any state can well afford to take advantage. The inventory is made at the time the annual Contest report is prepared. When the judging is complete and the outstanding records and programs are recognized, each performance item on the report of each state is tabulated. Thus, performance standards are developed.

Possessing this information, along with the recommendations of the President's Highway Safety Conference and those of various organizations, such as the International Association of Chiefs of Police, the American Association of Motor Vehicle Administrators, and the American Association of State Highway Officials, the Council can make a critical diagnosis of the traffic program of any state so requesting.

Such an analysis was made this year of the reports submitted by 33 states, including the State of Iowa. Despite the fact that my state was singled out by the Contest Committee of Judges for the State Grand Award, the analysis report revealed many imperfections and deficiencies in our traffic accident prevention program—some minor and some glaring. You can be assured that this analysis was forcibly brought to the attention of each state department head concerned.

While these analysis reports to states are kept confidential, several governors have revealed the content of their reports for public scrutiny.

4. A state which wants and receives the greatest measure of public support for its highway safety program is one which gives its material as well as its moral endorsement to the activities of a statewide safety organization. We have in existence today a sufficient number of examples of state safety council supported by state funds to indicate that political domination is not necessarily a part of such support. Frankly I believe, as did the Committee on Organized Public Support of the President's Conference, that financial assistance for a non-official state safety organization is the

best way for a state to recognize the public nature of the enterprise. If this condition cannot prevail, it in no way lessens the importance of the safety organization, but it does intensify the need for the strongest possible backing from a state government for the idea of an active state safety group.

The state's stake in highway safety is a matter of the public welfare and of economic stability. No government can overlook the humanitarian problem which results from fatalities and injuries on our streets and roads. No government can afford the economic loss from these personal deaths and injuries, and the attendant property damage. In recent years, despite expenditures running into billions of dollars for highway construction and maintenance, the monetary loss from highway accidents has nearly kept pace. While our highway income has been the greatest in history we have dissipated it in property

damage and, at the same time, have suffered the incalculable loss in human lives.

If a state recognizes the extent of its stake in highway safety its program and accomplishments will only be as good as its leadership. This leadership starts with the Governor, and goes on down through the various department heads and employees to the point where it has direct, on-the-spot contact with the general public. A weakness anywhere along the line may nullify the gains made at other points. A coordinated program for highway safety means consistent hard work and no deviation from the objective. The public must be ready to support "a ceaseless campaign to give our public officials the essential laws, personnel and budget to operate an adequate safety program" This support can be expected only as a complement to a forceful, intelligent official program. Common sense will allow no alternative.

How We Did It

(Panel Discussion)

By representatives from city and state winners in the 1945 National Traffic Safety Contest

Discussion Leader: NORMAN DAMON, Vice-Pres., Automotive Safety Foundation.

Participants:

FRANK O. BAYNE, Dir. of Safety Education, Wichita (Kans.) Police Dept.
 MAJOR J. H. BOICZ, Chief, Lynchburg (Va.) Police Dept.
 JAMES COON, Mgr., Buffalo (N.Y.) Safety Council.
 JORGE HARRY H. PORTER, Chief Justice, Evanson (Ill.) Municipal Court.
 W. HOWARD SHANK, Eng., Connecticut State Hwy. Dept.
 JACK W. SOWARD, Asst. Mgr., East Bay Chapter, NSC, Oakland, Calif.
 CAPT. A. F. TEMPLE, Chief, Texas Driver License Div.
 CARL T. BAILEY, Exec. Dir., Utah Safety Council.
 BENJ. L. WOODCOCK, Dir., Safety Education Div., Iowa Dept. Public Safety.

MR. NORMAN DAMON: I would like to pay my personal tribute to the winners. They set an example that can well

be followed with profit in each state and each community. These men represent the leaders in traffic safety for 1945. I hope that in 1946 all states and all cities will equally become leaders.

I would like to point out to all of you that I believe the NTSC provides the best running inventory that any state or any city could ask as a measure or a gage of progress or of backsliding.

MR. BAYNE: In 1945, Wichita won the grand award in the Traffic Safety Contest. I think I can tell you how we did it in about two words—hard work. We drove home safety education every minute of the day in every conceivable manner to all classes of people and if you really do that, ladies and gentlemen, that's work!

In June of 1944, we lost the services of our traffic engineer and were unable to replace him until November, 1945. So, without the services of a traffic engineer in 1945, we had to redouble our effort in safety education.

This was done with the 100 per cent cooperation of all civic clubs, the Chamber of Commerce, the schools and even the churches, where 75 per cent of the pastors admonished their congregations to drive and walk safely as they left their respective churches.

The program carried on in Wichita can be followed by any other city. We feel that we have a long way to go before attaining perfection. I think that all cities can improve their safety program by exchange of views and ideas with other cities. We in Wichita are ready at all times to exchange our plans with those of other cities, not in the spirit of "We are the winners of the grand award," but in the spirit of helpfulness and friendliness with everybody; in the hope that the exchange of ideas may improve our respective programs, and that our program may be so designed to be of greater help to us all in saving more lives in this humanitarian work we are all engaged in.

MAJOR BOICE: The third paragraph of the pamphlet "America's Traffic Safety Champions," under the heading of Lynchburg, Virginia, I think will explain to you how we accomplished this feat. This sentence merely says this: "It is interesting to note that despite the manpower shortage, 75 per cent of the total uniformed force spent at least 50 per cent of each day working on traffic."

Now our theory is simply this: every uniformed man we have in our department is a traffic officer.

Despite the fact we have a Traffic Bureau, we do not allow an officer even on foot patrol, to pass up any traffic violation. We supplement the Traffic Bureau with uniformed patrolmen. We carry it one step further and do not allow plainclothesmen to pass up traffic violations. It might be interesting to you to know that I have to appear in court myself a week from Friday on the case of a drunken driver violation.

I think that every chief of police should set the example for his men to follow and should insist that his men abide by the rules and regulations and by the ordinances of his city. We are meticulous on that point. We maintain a tight chain of command.

I realize we are a small city as compared to the cities represented here by

other members of the panel. Our Traffic Bureau consists of eight men to start with, but one of those men has the duty of keeping in contact with the newspapers to promote safety; another one with radio stations to promote safety; another one keeps in touch with the civic clubs and P.T.A. Association, and we have assigned each man to some specific thing to promote safety right down through the whole category. For instance, the man who contacts the newspapers, preserves all the clippings that pertain to safety in our local newspapers and at the end of the year, he has that file and it is a tremendous help in making out our report.

MR. CORR: Cooperation is responsible for the fact that Buffalo won the honor of being the safest city of 500,000 population or over last year.

We have what is known in Buffalo as a Board of Safety. It is comprised of civic members interested solely in the activity of traffic safety. That committee meets every week formulating, discussing, and approving plans on traffic safety. Many of the requests that come in from the public are received through our organization, the Safety Council, and we in turn pass them over to the Board of Safety.

We feel that the greatest credit for winning that award perhaps should be given to the police department. They have done an outstanding job. They made something like 2300 arrests for traffic in 1945. We have a squad of about 350 motor vehicle men that patrol the streets constantly.

Our automobile association has done a remarkable job in school patrol work; in furnishing patrol badges, and various kinds of material to educate students who are trained by our police officers. They also furnish posters and literature of all types to the schools in Buffalo and all throughout Erie County.

A great deal of credit can go to our radio and newspapers. Last year we attempted to put on a program for a 13 week period in which the radio stations participated. However, due to the President's death, and the ending of the war, we did not finish out that particular phase of our work. We felt, however, that it had done a tremendous lot of good. It reached everybody in the home as well as the people on the street.

Our newspapers also helped us in bringing out traffic violations in picture form and in news items and various other ways.

We of the Safety Council last year conducted about 200 meetings of all types. We never let a meeting go by. Through our P.T.A.'s, the women's clubs, the Boy and Girl Scouts, and any other type of organizations we could reach, we stressed the value of their cooperation with us. We feel confident, that if the spirit of cooperation can be obtained in the cities in which you work, there is no doubt but that accidents in traffic will be reduced.

JUDGE PORTER: As you know, our Traffic Safety Council commenced about the fall of 1928. We reached, I think, the maximum peak of enforcement along about the year 1931, and we have generally in Evanston held the level of enforcement at that peak ever since. Complete candor requires me to tell you that during the year 1945 there was no change in our program.

Our educational program has been for many years now, intensive. That program did not change, and in short, I have spent an hour and a half talking with the commander of our Traffic Division of our Police Department in Evanston, prior to coming to this session, trying to pry from him some one thing that has been done in our city in 1945 that was different from what has been done the year before or in any year before. He was at a complete loss to explain anything new that had happened in his department. From November 30, 1944 until January 18, 1946, or a period of 13 months and 18 days, we went without a single traffic death in a city of 70,000 population, swollen by the war to 82,000.

Our city has long delayed furnishing us with a proper building for carrying on the police court activity. This year, as distinguished from 1945, they finally have have given us a new city hall building. I have never seen anything that was so utterly amazing as the attitude of those people who come into the courtroom in this building. The room is exceptionally beautiful. A considerable amount of money has been spent on it and in contrast with the attitude of the public in the old buildings, we have an entirely different situation now to handle in the courts.

However, I might say that nothing has occurred during the year 1945 in our city

which has changed our picture one single whit. We kept the heat on in traffic law enforcement. We have kept an intensive educational program. Our engineer is progressing this year. We have eliminated in the main center of town a fountain and that straightened out the kinks in the main traffic. Complete candor requires me to say that this year since the 18th of January, we have had three traffic deaths.

MR. SOWARD: On the 1st of October, a new captain in our Traffic Division requested us to outline a program of intensive selective enforcement and selective education for the remaining three months of the year. We could not, I regret to say, do all of the things the new captain wanted us to do, primarily because of lack of finances. However, within the division, the Police Department arranged to take care of many of the things that it was not possible for us to do.

The radio stations, the newspapers, and all the other agencies of public information gave us whole-hearted cooperation during the remaining three months of the year.

On October 1, the traffic death rate for the City of Oakland was higher than it had been the previous year as 91 persons were killed. The three months of selective enforcement and three months of education paid off as it reduced the death toll from 91 the previous year to 69. Those 22 deaths were saved in the last three months of the year which shows definitely that intensive selective enforcement and intensive selective education can do it.

We are still carrying on the same type of program, not so intensively, but we will, during the last three months of this year, do the same. At the present time, our death rate is 6 below last year, which, in turn, was an improvement over the previous year.

CAPTAIN TEMPLE: I think the primary things that led to the winning of the first place award in the Southern Region were public education and state-wide enforcement. Even though our highway patrol was only 75 per cent of full strength during 1945, the job was carried on by each man working longer hours, making more accident investigations, making more arrests, making more warnings and traveling more miles.

In addition to these things, numerous police schools were carried on during the

year. Each returning veteran to a department was placed in a retraining school. Several schools were held for traffic officers from the various state departments in the state. It was primarily public education. We think that is responsible for the record made by Texas in 1945.

The Texas Safety Association gave us their wholehearted support and cooperation in reaching the people of our state. They not only have provided time on the radio and press releases for contacting the people, but they have assisted the Department of Public Safety in the distribution of three quarters of a million pamphlets on safety education. They have assisted the department in placing a driver training course in more than 200 of our high schools. They have assisted us in all types of the traffic schools that have been conducted and have cooperated with the Department in making the State of Texas a safer place in which to drive an automobile.

The traffic courts of our state have made the penalty known to all drivers when they are arrested. That has helped to a great extent in holding down accidents. Our Accident Report Section has been reorganized and better use was made of the records in 1945 in selective enforcement and selective education.

Those things, we think, led to the winning of the first place award in the Southern Group of States.

MR. BAILEY: We started our traffic safety program in Utah in 1939, and at that time the governor of the state organized a traffic safety council. He set up a Traffic Safety Coordinating Committee consisting of leaders of various departments. Since that time the efforts we have extended as a state organization with the cooperation with the cities and various civic groups, have gradually developed a public consciousness of the seriousness of the traffic situation.

We recently completed a Governor's conference. We had represented at that conference 565 people representing 91 of our cities and all of our counties. We feel that through their cooperative effort, we have been able to do the things we have done. I am speaking of 1945. We are looking forward to a more aggressive year in 1946. There are three essentials as I see it, in trying to curb traffic accidents.

The most important is stringent enforcement of the traffic regulations. That is the quick-range method of getting results. That can only be obtained through the cooperation of various police departments and the justices and judges.

The second, of course, is education. We have a fine cooperation from the press. We have 66 newspapers in the state that belong to the Utah Press Association, and they have given us an unstinted amount of space in their publications. The city press have done likewise.

We have an outstanding driver licensing bureau. We have stepped up the requirements for driver licensing. We had a lot of opposition to that, but nevertheless it stuck.

MR. SHARP: The State of Connecticut has been fortunate in receiving over the past several years, six awards and three honorable mentions for its traffic and safety work from the National Safety Council.

The traffic division of the State Highway Department does not claim to be the agency solely responsible for these awards, but we do feel that the traffic engineering work carried on by the traffic engineering division is a definite contributing factor in winning these awards together with the cooperation and coordinated effort of the other state agencies interested in traffic and safety work.

We feel that the successful functioning of our traffic engineering division is due to the practical application of the theory of traffic engineering and also the research work which is continually being carried on.

One of the basic research functions of our traffic engineering division, which in fact should be a function of every traffic engineering agency, is the analysis of highway accidents to determine the factor which may be contributory to the accident by the highway, by the vehicle, or by the driver. We have in our files a card system showing the analysis of every accident occurring on state highways for the past six years. The facts gained from this traffic analysis are used to a great extent in determining design features, location and method of delineation, line painting, and so forth. We also maintain an accident spot map which is continually watched for the development of an accident "hot spot," so that we may be able to take the neces-

sary steps to correct conditions before public sentiment is aroused.

It is felt that the proper use of a few signs is more advantageous to the safety of the highways than the use of a great many signs which is a habit quite easily acquired. With this in mind, we instigated a sign inventory system whereby a record on a punch card system is maintained of every sign in the field. This record, of course, is not made until after a designated section of the state has been inventoried by a trained man to determine what signs are needed and to see that each sign is erected to convey a definite message to the public. Our highway system is 75 per cent complete under this system, and we have been able to eliminate approximately 4000 signs. As yet, we have not received complaints from the motorists or enforcement officials or local traffic authority due to the lack of adequate signs. We have limited the use of special signs and oversized signs through a study of the existing conditions. It is felt large signs should be placed to indicate the condition to the motorist traveling at a high rate of speed far enough in advance so he can bring his car under control to execute whatever may be required.

All signs which are used on the state highway system with the exception of parking signs are reflective so that the same message may be conveyed to the driver at night that is conveyed during the daylight hours.

We maintain 3000 miles of line painting on the state highway system. Keep in mind that Connecticut is a small state. Three thousand miles comprises a great proportion of our total state highways.

In addition to center line painting, we maintain shoulder lines in areas where there are no sidewalks provided, but where there is quite a bit of pedestrian traffic along the road. I might explain the vernacular I use here of "shoulder lines." In a great many of our rural areas where there are schools and where the areas cannot financially afford sidewalks, we in Connecticut, in connection with our regular highway construction, maintain a hardened shoulder. It may be an oiled shoulder which in proximity to schools, churches, and places like that, makes for the safety of pedestrians. We place a white line on

the edge of the pavement so that the pedestrian can use what would be normally called a shoulder area for walking purposes. Since we adopted that principle, I do not recall having any injuries of pedestrians within the marked area.

There are also maintained stop signs at all side road intersections on the state highways, as practically all of our trunk lines are considered to be boulevard stops. Guide lines approaching all channelization installations in areas where the roadway may be restricted by bridges or underpasses are maintained.

Prior to the final drafting of plans for new construction by the design section of the Highway Department, the traffic engineering division was given the opportunity for reviewing these plans to determine whether the design of the intersection would handle the traffic with the least amount of accidents. I am happy to say that the cooperation between the design section and the traffic section and the results obtained are gratifying and certainly result in a safer highway.

MR. WOODCOCK: We in Iowa have a lot of problems. To tell you how we happened to win the grand award in 1945, I would like to say this: such an award doesn't just come. It isn't through the effort of one organization or department or division that such an award is won.

Our real program in traffic safety began in 1939, and it has been increasing ever since. I would say in making a generalization that the award really was won because of the complete cooperation of all state departments, of the State Safety Council, and so forth, with extra cooperation from the Highway Commission, and I don't know how many engineers. We might take a poll of police chiefs here and find very few, but we have two of them from Iowa. Our highway commissioners are here every year, and they attend all of our conferences in the state. Then, our Educational Department, in cooperation with the Highway Patrol, is responsible for thousands of speeches in service clubs and all types of organizations.

But, I think that the traffic contest itself probably has done more than any other medium to promote the program of safety throughout the whole state of Iowa. The state working with the cities and the

cities in turn working with the state, all pull together to reduce the accident toll in the State of Iowa. Just generalizing, it is the complete cooperation of all state organizations and then the grand help of all of the members of the national organization that has made it possible for us to win.

Discussion

JUDGE HILL (Dallas): We pass speed laws, give a man a fast highway to travel on and a powerful automobile out of which he can get an excess speed over the speed limit, and then we expect him to observe that speed law. I would like to ask, wouldn't it be much more simple for the automobile makers to put a governor upon that which he could press and regulate his speed? Most of the people I catch for speeding do so unintentionally. Wouldn't it be practical and possible for the automotive engineer to place a governor on a man's car and when he gets in the 45 mile zone, he could press a button and he would have a 45 mile speed. If he is in the 60 mile zone, he does the same thing. He would be automatically within the speed limit. Is that practical?

MR. DAMON: I am not an engineer, but the engineers have been able to answer most questions with respect to car manufacture. I can only quote to you what General Knudsen, former President of General Motors said at one time, and this goes back to public opinion: "If the public wants cars with governors, we will build them with governors." I think if you could assure the industry that today people will buy cars with governors; that they wouldn't tamper with them; that they wouldn't disassemble them, and that you could enforce that in the 48 states, you could put governors on the 25,000,000 cars now on the road. I frankly don't know whether we would gain or lose because obviously if you have a car from one state on the road with a governor and you have another car along side of it and he doesn't realize in the passing maneuver that the other car does have a governor, you are going to pile them up head-on. I think perhaps those who are traffic engineers realize that in the passing maneuver there is an extraordinary small fraction of time, a small margin of safety left by the time that clearance has taken place.

I think the suggestion is one that can't be answered categorically by saying "No, it couldn't be done," or "Yes, it should be done." I would like to call on someone else to express any views on it.

JUDGE HILL: What would you need in the way of public opinion to convince you that that is practical?

MR. DAMON: Public opinion that would put governors on the 25,000,000 vehicles now on the road, would presumably require state laws in 48 states. Does that answer that part of it? The question is in two parts with respect to the practicability of first, putting governors on new cars; second, the question of putting governors on the cars now on the road. Otherwise you would have speed differentials that create a passing hazard far in excess of the hazard now existing.

MR. CLAUDE STUBBE (St. Paul, Safety Engineer): Is it required by the Department of Education that safety education be a part of the school curriculum in Kansas?

MR. BAYNE: No, it is not required. During the past two years, we finally got to a point where the Director of Education in the State of Kansas made a few passes along that line. We have safety education in only 33 of the Kansas high schools, but I do believe we are on the road to getting progress in that direction.

MR. STUBBE: Do you believe the Federal Government should require all states to adopt that in their public education.

MR. BAYNE: Decidedly so. I think the majority of safety men would agree with me on that.

MR. BAILLY: In the State of Utah it is a requirement for teachers' certification. They are required to have certain credits for safety education before they are certified as teachers.

MR. HODGES (Great Britain): Bearing in mind the different numbers of vehicles, differences in population, differences in densities and various things of that kind, how do you manage to judge them impartially?

I was very interested in the remarks made by Chief of Police Boone. In Great Britain, we have some 250 Chiefs of Police and almost without exception, every one of them is solidly behind the movement,

and, if I tell you that out of those 250, nearly 100 of them actually acted as local secretaries to the local safety council, you will see we have a great deal of help from the police.

MR. DAMON: That is one question we should refer to the International Association of Chiefs of Police in this country. They have a Safety Division which is doing a very effective job and this past year carried on one of the most effective nation-wide programs we have had.

JUDGE POWERS (Akron): I have been disappointed that we haven't had an educator on our panel. If public opinion and public support are needed to cut down our traffic accidents and traffic fatalities, why don't we begin in our schools? Why don't we give full curricular credit for teaching safety education and driver training? It has been proved in Cleveland. They have tested it out. They had 1800 persons who took it in a certain high school. They traced their driving careers. After five or six years out, they found this group had less than 50 per cent of the accidents and deaths as against another control group of the same number. If we can cut down traffic accidents 50 per cent by resorting to that simple expedient, why don't we listen to it? Why don't we do something about it?

MR. DAMON: I would like to point out there are two questions again involved in your own question. One, the matter of public opinion that will back an educational job in the school; and second, the acceptance of that responsibility by the educator.

On the first question, my attention is called to the fact there will be a public safety education session tomorrow morning. I think you will find that topic fully explored. I would also like to call attention to the fact that the National Committee for Traffic Safety, including 64 organizations in its membership, has just accepted an assignment to support driver training and driver education in the high schools in this nation as one of their major projects.

MR. WOODCOCK: Perhaps you didn't notice that I happen to be the Director of Safety Education. One of our leading sections is the Educational Section. Public opinion of course, as the other men told you, through press and radio is important.

In the Iowa Teachers College, they have a safety course for teachers and we are on the road to making it mandatory that every one graduating from teachers colleges will have to have credits, probably a minor, in safety education. They are going to have a practice driver training range available for adults in the communities, high schools and so forth. Teachers will get driver training and then they can go out and teach. In Iowa, there are 300 schools that have some form of driver education, and our experience has been as you mentioned. We have cut down the accident rate. We will not get anywhere until we train drivers and I think that answers the speed proposition.

Speed is not one of the main hazards. It is not the cause of accidents and I think we are barking up the wrong tree when we chop down the speeder altogether or try to regulate automobile speed mechanically. The engineers will tell you that we can build the safest highways in the world and you can go out and kill yourself on them, and you can do the same thing with the safest automobile. Certainly if anybody drives 50 miles an hour in a 35 mile zone, he doesn't know what he is doing. We won't get any better unless we train them first. Until everybody is trained to drive an automobile and know what they are doing and can pass a comprehensive driver's license examination, you are not going to have safe drivers.

MR. BAILEY: At the Governor's conference in Utah there was a recommendation by the Educational Committee which consisted of leaders of our educational group. They recommended that they develop and have in some of the schools now, a driver educational program as an extra-curricula. They recommended, too, a behind-the-wheel program with the understanding that many of our civic clubs will provide cars with dual control as a civic club contribution to many of the school districts to carry the program through.

INSPECTOR MILLER (Washington, D. C.): In 1939 we passed a pedestrian regulation, after we had submitted the program to the public and found we would have public support. We went through with an educational program for several months and then we attempted to enforce

it. We increased our enforcement until we reached the peak, I believe in 1944. Since that time, it has levelled off a little bit, but now we think that we have good observance.

It is good, for example, in the downtown section, but in the outlying sections where traffic signals are somewhat scattered, not as good. This year, our program seems to be more effective than usual, in that our deaths so far are much less than they were at the same time last year.

At present, we are carrying on more of an educational program than an enforcement program. The radio stations are co-operating and have given us more time than we have ever had in the past. The newspapers carried on a program the first part of August and on into September. In the District of Columbia, we went 23 days without a traffic fatality, which shows what you can do if you intensify your program by use of the radio and newspapers. But, don't lose sight of enforcement. We stepped up the enforcement, not only with the pedestrian, but the drivers. We had more traffic cases the first months of this year than in all of 1945.

JUDGE HILL: What is your pedestrian percentage of deaths as compared to all deaths?

INSPECTOR MILLER: The average city percentage runs around 67 per cent to 70 per cent. Our percentage of pedestrian fatalities in the District of Columbia was

slightly less than 79 per cent and a fraction.

MR. DAMON: Dick Bennett, Secretary of the Safety Contest will give you a summary of what the discussion has covered.

MR. BENNETT: I think by and large our panel members and members of the audience have put a stamp of approval on the words of one of our earlier speakers, Mr. Darr, that public support is absolutely necessary. I know from my own personal observation that none of these cities and states that won in the 1945 contest got way out in front of the public—they took the public along with them. That is how they won.

Another thing I noticed was that every speaker used the word "cooperation." Some of them used it many, many times. I think that is important too.

Another point they mentioned was balance. I think Bert Woodcock said no one department could take credit for it. You have got to have balance. The National Traffic Contest helps get balance. It shows the weak points and shows where the sections of your over-all program aren't up to standard. As Mr. Damon told you, the National Traffic Contest, does provide a measuring stick. It is an inventory. We are not inventorying you; you are inventorying yourselves in comparing the reports. I hope you all do.

TUESDAY MORNING SESSION

October 8, 1946

Group Session for Police

Presiding: CAPT. WILLIAM L. GROOT, Safety Eng. Dept., Virginia State Police, and Chm., Police Div., Traffic Sect., N. S. C.

Why Investigate Traffic Accidents?

By **PROFESSOR J. L. LINGO**

Director, Public Safety Institute, Purdue University

The value of accident investigation as an important phase of any traffic accident prevention program has been generally recognized and accepted since the theory was first proven through practical application in Cleveland and Evanston nearly twenty years ago.

Most of us are familiar with the usual claims which are made regarding the values and purposes of accident investigation. We know that accident investigation is the very foundation upon which most of our really effective traffic safety efforts are based. We know that it is the only method yet found

to adequately get the facts so necessary for use in our programs of enforcement, engineering and education.

We know that accident investigation will help to determine if law violations are committed and, if so, to collect evidence which will support a prosecution. We know that it is the only way we have to gather factual information concerning the circumstances of accidents which can then be used in preventing future accidents.

Before we can discuss the reasons why we should investigate traffic accidents, it becomes necessary to analyze the entire problem in relation to what is being done and what needs to be done. In other words, if we are willing to accept the premise that accident investigation is the very foundation for all effective traffic safety efforts, how well have we accepted our responsibility for doing the job?

Just where do we stand today in regard to the use of effective accident investigation techniques by our city and state police departments? This is certainly one of the questions that must be answered before we can proceed with our general discussion.

It is quite evident that the police of this country are doing a very poor job of accident investigation today. This also implies that the police are doing a poor job of the other traffic enforcement activities that must be predicated on the facts gathered through proper investigation of traffic accidents. I seriously doubt that there are a hundred police departments in the country today who are conducting truly effective traffic accident investigation programs.

Whether or not you agree with this estimate, the important fact is that, individually and collectively, the police of this country have not yet fully accepted and lived up to their responsibilities for saving lives and conserving property through sound traffic law enforcement.

The reports submitted by states and cities enrolled in the National Traffic Safety Contest further substantiate my previous statement regarding the poor showing made by most of our police departments.

Of the nearly 1100 cities in this country with 10,000 or more population, only 380 or about one third submitted reports in the 1945 Contest. Does this mean that the other two-thirds, or about 700 cities, were not

doing enough in traffic safety to justify making a report? Does it mean that the police departments in two-thirds of our cities are ashamed of the job that they are doing and want no record made of it? Does it mean that over seven hundred city police departments are just not interested in conducting a sound traffic enforcement program?

Whatever the meaning, it clearly indicates the need for drastic improvement in the majority of our city police departments. It also serves to characterize the past and present conditions regarding this important problem.

In order to be effective, the results of accident investigation must be translated into practical summaries and reports. These summaries and reports must be placed into practical use. What about the uses that are made by our police departments of the reports and records obtained through accident investigation?

Again referring to the National Safety Contest for 1945, we find the following interesting summaries: (1) "Enforcement planning was based on accident reports and records in slightly more than half of the cities over 250,000 population but in only a quarter of the cities between 25,000 and 250,000 population." (2) "Only about one-fourth of all cities indicated that accident reports and records were used for educational purposes." Again we must keep in mind the fact that we are referring to only about one-third of all cities over 10,000 population, who were sufficiently interested to submit reports in the Contest.

In the state section of the National Contest the reports also showed serious weaknesses in the uses of accident records. A quotation from the reports states: "Relatively few states made special tabulations of accident data for enforcement planning and only about a third use special summaries for this purpose."

For nearly twenty years we have agreed that accident investigation is a very valuable and important technique, that it is basic to the entire traffic safety program of any state or city. Yet with all of our agreement, its practical application has been sadly neglected.

Unless this responsibility is more generally accepted—unless the facts about accidents are better obtained and used—most of

our efforts to place accident prevention on a factual basis will prove futile.

What then, do we need to do in order to correct the present difficulties and place accident investigation on the plane where it belongs? How can we make police administrators and police officers more conscious of their responsibility in this field?

Perhaps the best answer to these questions lies in again pointing out certain of the present weaknesses that exist in many of our police departments today. The weaknesses would range from poor attitudes on the part of police officials in certain departments to complete lack of equipment, personnel and training in others.

In my work, a part of which consists of making traffic surveys in various cities, we find city after city where such weaknesses have been allowed to continue for years. One of the very surprising factors in this regard is that, in many instances, the police officials of the city are not aware of or are not interested in the conditions that exist.

Many city police departments still operate under a policy of ignoring completely those traffic accidents in which no injury or death occurs. Others limit investigative attention to those accidents in which there is death, serious injury or where the combined property damage is \$25 or more. The fallacy of this policy is obvious but it is still the established procedure in many departments, with the result that only a small part of the city's accident picture is known.

We have found city after city where only a fourth or a third of their traffic accidents were even reported to the police. This, of course, means that even a smaller number were investigated.

Most of us know the advantages to be gained through complete reporting and investigating of accidents in any city or state. There is no mystery about the methods that can be used to increase such reporting and investigating activities. We know that there are many police departments who have done an excellent job of getting the public to report accidents immediately, through the use of an immediate reporting ordinance backed up with proper public education.

Another weakness which we frequently find involves the quality rather than the quantity of accident investigation. This is the condition where the department is re-

ceiving a high number of accident reports and sends squads to the scene to investigate every accident. The weakness lies in the poor quality of the investigation that is made at the scene and in the poor report that is prepared by the investigating officer.

While drivers' reports of accidents are known to be almost useless from a real factual standpoint, we have also seen many reports made by police officers that certainly do not provide much basic information.

The reason for this condition usually involves the attitude of the individual officer. This attitude may be based on many factors but is generally due to a lack of knowledge or understanding of the importance of his particular job. This, of course, will indicate the definite need for better administration and training in the department. Over-specialization in traffic work, lack of proper equipment, low salaries and many other factors play an important role in moulding the individual officer's attitude toward the job of accident investigation and traffic law enforcement generally.

Many times, the poor attitude of a police officer toward accident investigation is due entirely to the practice of the department of not making the proper use of accident reports and records. This may be due to a lack of understanding of the value of such records and to what uses they may be put by the department. On the other hand, the officer may know that the time and effort spent in investigating accidents and in the preparation of reports will prove futile because the reports are not used to any advantage.

This factor, I feel, is probably the greatest weakness in the traffic safety efforts of most police departments today. They either make no effective use of the facts gathered through accident investigation or they fail to properly acquaint the individual officer with the uses that are made of his reports.

We have seen that there is much room for improvement in our efforts, both collectively and individually. We must realize that the time has come to stop kidding ourselves about the place and responsibility of law enforcement in the traffic safety field. We must make realistic answers to these questions and sincerely strive to eliminate the conditions that make such weaknesses possible in our state or city.

We must all realize that accidents can be reduced because, in a true sense, they are not really accidents. Too many of us have been thinking of accidents as something bound to happen and accepting a defeatist attitude about reducing them. Accidents, in the main, are caused, and usually some violation or violations of law are involved in the causes. Because they are caused, they can be controlled. Such control depends upon the thoroughness with which the police attack the problem of investigating the occurrence and reporting the facts which they discover. Perhaps it would improve our thinking along these lines if we changed our terminology and substituted another word for accident.

I strongly feel that the police departments of this country should make a sincere and realistic effort to evaluate their traffic enforcement activities in relation to the nationally recognized standards recommended by the President's Highway Safety Conference. If they do not meet the standards, every possible means should be taken to make the necessary changes.

Every police department should enroll and participate in the National Traffic Safety Contest. Whether or not the city wins an award is of little significance in relation to the valuable services which it receives through the analysis of its report and the followup assistance which is available from the National Safety Council.

Every police department should take advantage of the survey and in-service assistance programs available through the International Association of Chiefs of Police Traffic Division, the Automobile Protective and Information Bureau, various colleges and universities and other agencies.

Every police department should recognize the value and need for adequate training and should utilize the services of the many organizations which are capable of rendering assistance in this important field.

In many departments the job could be greatly improved by the development and use of more efficient policies and procedures and by more effective administration.

Police administrators must accept the reality of traffic law enforcement as an integral part of modern police work and not consider it as a stepchild to be kicked around by "ward heelers," so called "traffic experts" and other amateurs. They must realize that traffic law enforcement is a

collective police responsibility and not just the problem of a selected group within the department. This, of course, implies more effective coordination of all police activities and a broader concept of law enforcement generally. It means a change of emphasis in the trend toward over-specialization in traffic work which has been responsible for many of our present difficulties. We have, in many departments, carried specialization in traffic activities to the point where less than a fourth or fifth of the potential police enforcement capacity is even expected to be devoted to traffic activities.

Bruce Smith, an eminent authority on law enforcement, has stated: "Strenuous efforts have been made to convince general patrol officers and specialized traffic officers that each should play the other's game. Such efforts have failed, in large measure, because the generalist tends to be distrustful of the preoccupations of the specialist, while the specialist tends to narrow down, rather than to widen the scope of his interests. If the functioning of the police force, or any part of it is made dependent upon the closely articulated action by a number of specialized units or bureaus, the failure of one may destroy the effectiveness of all."

In concluding our discussion it might be well to return to our original question: "Why Investigate Traffic Accidents?", and try to point out some of the outstanding advantages from the standpoint of the police department and of the individual police officer.

Accident investigation, properly used, can be of great benefit to any police department.

We have already seen some of the weaknesses that are sure to exist when law enforcement is based on opinions rather than upon facts. These weaknesses are not limited to enforcement alone but are sure to be found in all of our efforts involving education, engineering and legislation, as well.

How, for example, could we hope to revise our outmoded city ordinances unless we have the facts about what is needed? Accident investigations can provide a large part of these facts.

How could we conduct a selective educational program for pedestrian safety unless we know the facts about pedestrian accident experience? Accident investigation can provide these facts.

How could we determine which of our intersections need engineering attention unless we know where, when and how our accidents are occurring? Accident investigation can give us this information.

So then, the most important answer to our question is that effective accident investigation will provide the facts upon which all of our efforts toward real accident reduction are based.

Most of us are primarily interested in the enforcement phase of the traffic safety problem. We could spend many hours of discussion on the great number of advantages to be gained for law enforcement through effective accident investigation. In general, these advantages are the same as would accrue to any business project that was being operated on an efficient and factual basis. Some of the more important advantages to be gained through effective accident investigation are:

1. It raises the standards of police performance and brings law enforcement nearer to the professional status that it so rightfully deserves.

We hear a great deal about professionalization of the police service today. One of the retarding factors in this regard has been the enthusiastic, but often premature attempts to apply the word "professional" to policing without sincerely facing its implications. Factual accident investigation, properly used, would do much to assist the police in meeting the implications and responsibilities of professionalism.

2. It shows the public that the police are aware of their obligations to enforce the law and to protect life and property, thus resulting in better public support and improved public relations.

In other words, effective accident investigation and its related activities in policing, provide one of the best media for public education and for obtaining public support for the needs and objectives of the police. When higher salaries or more expensive equipment is needed, the public will support the police only if they are fully aware of the reasons why such things are needed.

3. It provides for an effective utilization of police manpower and equipment on the basis of real selectivity.

We all are familiar with selective enforcement and the advantages to be gained

from basing our program on the facts about where accidents are occurring, when they are occurring and the major violations that are causing them. The importance of selective enforcement needs no further elaboration on our part today.

4. It creates an attitude on the part of the driving and walking public that accidents are not merely individual affairs but that they are likely to result in action by the police. In a sense, it protects the interests of those who are the victims of a wrongful act or violation of law.

It seems incredible that many police departments today will arrest a driver who goes through a preferential street without stopping, but where no accident occurs. Another driver commits the same act, an accident results, and no arrest is made. The creation of a public awareness that police action will likely result from a violation of law in accident cases is one of the best means of deterring future violations.

Just as these factors are sure to materially benefit the department, so will they prove most advantageous to the individual officer.

Effective accident investigation will also benefit the individual officer in a number of other ways.

It provides a real interest motivation and incentive for doing a better job. He will know that the department is functioning as a coordinated unit and that his efforts play an important part in determining the success of the departmental program. He will know that the information which he spends time and effort in obtaining is being properly used. He will know that this information and his part in the entire program is vital to the reduction of accidents—to the saving of lives, human suffering and money.

These factors are very important because no departmental program can be effective if the individual officers are not thoroughly interested in traffic law enforcement.

In concluding this discussion, I should like to express my thanks to all of you who have listened so attentively. I hope that at least I have been able to bring you a new thought or two regarding this important matter.

I hope that when you go back home you will make a realistic inventory and evaluate the job that is being done in your own department.

I hope that all of you will realize the value of the factual approach to traffic safety and make every effort to place your operations on such a basis.

I hope that we may stop making excuses for poor performance and really begin to get the job of accident investigation done properly.

I hope that law enforcement generally will accept its responsibility in the traffic safety field and that in the coming months we may experience some real results in accident reduction throughout the nation.

Law enforcement today is on the spot. All of us can help to place it in the high position where it rightfully belongs.

Why Investigate Traffic Accidents?

(Summary of Panel Discussion)

Leader: CAPTAIN JOHN F. O'NEILL

Accident Investigation District, Bureau of Police, Philadelphia, Pa.

Participants:

CAPT. J. MILLARD GIBSON, Commanding Traffic, Police Dept., Sioux Falls, So. Dak.

H. W. JOHNSON, Supt., Traffic Safety Div., Police Dept., Kansas City, Mo.

CAPT. RUSTON M. RIDGELY, Maryland State Police.

LT. GEORGE WARNER, Traffic Div., Police Dept., Lansing, Mich.

SCT. MAJOR PERSTON B. WEEKS, Accident Reporting Div., Georgia Dept. of Public Safety.

Enforcement should be handled by all members of a department, but accident investigation should be assigned to specially trained men whenever it is possible. There

should be as much specialization by personnel engaged in accident investigation as there is in criminal investigation, since accident investigation is fully as intricate and requires an equal amount of special knowledge and training.

Every attempt should be made to increase the quantity and quality of reports turned into the police department. The steps which must be taken to increase such reporting are proper legislation, education of all members of the police department, education of the public through all possible media, prosecution of those who fail to report or who report late, improved service to citizens who do report promptly and properly and wider use of the sound slide-film, "On Record," to make the problem and its solutions known.

TUESDAY MORNING SESSION

October 8, 1946

Group Session for Traffic Court Judges and Prosecutors

Presiding: JUDGE JOSEPH M. WYATT, Chief Justice, Baltimore (Md.) Traffic Court.

Adequate and Consistent Fines and Penalties

(Summary of Panel Discussion)

Leader: JAMES P. ECONOMOS

Ex. Secy., Traffic Court Committee, Jr. Bar Conf., American Bar Assn.

Judge Ruston D. Hendrick, City Court, Shreveport, La.:

Laws are made for the protection of the life and liberty of citizens. The enforcement of such laws should be designed to further this purpose. All aims of the

judges occupying traffic benches should be directed to the education and correction of offenders. Punishment is secondary and revenue should not be taken into consideration. In order for a traffic court to be effective, its activities must be coordinated

with the needs of the community along traffic safety and enforcement lines.

Judge Revo Beck Bosone, City Court, Salt Lake City:

No matter how minor an individual's rights might be, they are of sufficient importance, judicially speaking, to warrant individual attention by the judge. This ideal is not achieved where a Cafeteria Court exists. The cooperation of the public plus a rigid application of uniform fines has proved effective in Salt Lake City. Thus the imposition of a \$35.00 fine on all speeders who are unable to show legitimate excuse or extenuating circumstances has been so effective that virtually no repeater problem exists. This can be attributed to the high fine and impartial imposition thereof.

When an offender does appear with two previous convictions of moving violations against his record, a jail term is imposed. Drunken drivers get a high fine and short jail sentence for the first offense; a straight jail term for the next misstep. The experience has been that an increase in fines if followed by a decrease in accidents.

Judge Guy Shearer, Traffic Court, Louisville, Kentucky:

Records are subject to the rules of evidence but are of great value to the court both in determining guilt or innocence and for the assessment of the proper penalty. Such records as are not acceptable under the rules of evidence for the purpose of determining guilt or innocence may be helpful, if received after that issue has been determined, on the question of punishment. A conviction on felony charges, records of physical facts concerning the scene of the offense, and facts set out on driver's license of the accused are generally acceptable as evidence.

Those listed below are generally prohibited:

- (1) Records of all previous motor vehicle violations and convictions other than felonies.
- (2) Records of conviction for misdemeanors in Police, County and Magistrates' Courts.
- (3) Records of accused's previous attendance at the Traffic Safety School.
- (4) Records of traffic accidents occurring

at the scene of the offense over the past five or ten years.

- (5) Records of the Traffic Court's penalties.

Judge Edmund R. Smith, Municipal Court, Kansas City, Missouri; and Vice-Chairman, Traffic Court Division, N. S. C. Juveniles include the group of persons under 21 years of age. Some courts with traffic jurisdiction are enabled, by the governing statutes, to handle those age groups above 17.

What a particular court can do in treating violators within these groups depends upon the power and authority given to the court. The most effective deterrent is to arrange to take away the juvenile's driving privileges either by suspension of license or parental cooperation. Another excellent punishment is attendance at traffic schools, particularly for those who do not know basic requirements of the traffic code. However, this punishment is no better than the management of the school. Fines are only worth while if the offender "sweats them out" and not if the parent pays. The use of parental cooperation on this score is important and can easily be obtained.

Judge Otis R. Hess, Municipal Court, Cincinnati, Ohio:

Since judges administer laws and laws usually specify penalties, the judge is legally bound by the provisions of statutes. Punishments not therein provided should not be used. However, where the court is permitted probationary powers, it can, by means of offering violators probation provided they agree to accept certain requirements, utilize provisions not ordinarily provided for in the law which creates the offense and specifies its punishment. Examples of this are having license plates turned in for a specified period, restricting driving privileges and sending offenders to traffic school.

Judge Joe M. Hill, Corporation Court, Dallas, Texas:

The purpose of traffic courts is to obtain compliance from drivers. Punishment is not an end in itself. The experience of one driver in court should be passed on to those who escape the experience of a trial. This is traffic enforcement through education and depends, in a large measure, on the radio and the press. Two important aspects of enforcement which cannot be over-estimated are certainty of punishment and the

lesson of courtesy. Most infractions are committed unthinkingly. All drivers are prone to violate traffic laws and the job is to impress on them the importance of con-

centrating on the job at hand. If we were able to sell the idea of courtesy behind the wheel, much of the traffic law enforcement problem would be eased.

TUESDAY MORNING SESSION

October 8, 1946

Group Session for Traffic Engineers

Presiding: T. J. SEBURN, Traffic Engineer, Department of Public Works, Kansas City, Mo.

The Responsibility of Highway Features in Traffic Accidents

By WAYNE N. VOLK

Traffic Engineer, State Highway Commission of Wisconsin, Madison

A few years ago statements on the assignment of responsibility for traffic accidents to highway features could be made with impunity since few facts were available. Now, however, the Interstate Highway Accident Study being conducted jointly by the Public Roads Administration and the National Safety Council should result in the development of factual relationships between highway features and traffic accidents.

This study is based upon accidents records rather than opinion, and from now on, anyone who makes statements on the subject takes the risk of having at least some of his opinions contradicted by the findings of his survey.

There have been, in the past, a few reliable studies which indicate very definite relationships between highway features and accidents. Engineers have worked with these incomplete data in rebuilding highways in states and communities, especially in the case of divided highways with grade separations and the use of the freeway principle.

The generally accepted definition of a freeway is that it is a highway upon which direct access to abutting property and all possible conflicting or interfering traffic flows are eliminated. In California, for example, accidents on regular major city arteries were compared with accidents on two express highways to which access was controlled and all cross traffic removed by grade separation structures. On two regular city streets, there were 4.4 and 2.5 fatal or injury accidents per million vehicle miles

respectively, while only 0.5 fatal or injury accidents per million vehicle miles occurred on two sections of expressways which carried comparable traffic. Control of cross traffic plus elimination of pedestrians from the express highways accounted for the major portion of the accident reduction.

You have no doubt noted that these accident reductions have been accomplished by improvements produced by building a very high type of highway ranging in cost from \$50,000 per mile in favorable terrain to \$1,000,000 per mile or more in urban areas. The Public Roads Administration has estimated that from 95 to 97 per cent of state highway mileage may never progress beyond a 2-lane highway simply because funds would not be available and traffic volumes would not justify a higher type of roadway. It is necessary, therefore, to study the characteristics of 2-lane highways and traffic behavior on them to eliminate features which cause or contribute to accidents.

Some of the highway features contributing to accidents are specific flaws in the roadway itself such as a hole, stock pile of material, loose surface material, etc. Drivers rarely blame the accident on such factors as lack of proper signs, the sharpness of a curve, restricted sight distance, etc. When a representative of a highway department makes a personal investigation of any location having an accident record, the first thing that he hears from residents and other interested parties is that there aren't enough signs, and secondly, that the curve is too sharp or that some other highway feature is not right.

Classifying holes in the road, etc., as "defects" has enabled some students of this problem to use the term "fault" to describe such factors as inadequate lane width, restricted sight distance, narrow shoulders, sharp curves, etc. Using the more inclusive term "fault" it is possible to blame the highway for 15 to 40 per cent or more of the accidents. But modern superhighways from which these "faults" have been eliminated do not necessarily result in a reduction of the accident rate. In building the Pennsylvania Turnpike all available knowledge was utilized to make it foolproof and eliminate accidents. Yet accidents occurred. Instead of driving too fast for the roadway as is usually the case, motorists on the Turnpike were driving too fast for their own physical limitations or the condition of their cars.

Accidents still occur on some of the nation's most modern highways, yet, we all know of many roads having poor physical features which do not have a high accident rate. This incongruity leads one to believe that newspapers may be correct in speaking of the "scene" or the "location" of an accident. Rarely do they cite the highway as the cause of the accident. Defects such as a hole in the roadway, rocks on the road, narrow shoulders where emergency parking is often necessary, and so forth are "causes" of accidents, but lack of proper and reasonable care, skill and judgment on the part of drivers furnish by far the greatest "cause" of accidents. Because we cannot hope to build many miles of foolproof superhighways, we will have to have increasing co-operation from the average motorist if we are to achieve any substantial reduction in accidents.

One element of the highway involves curves and turns. In South Carolina a study showed that the accident rate was 1.6 per mile on curves and 1.0 per mile on straight stretches, both sections carrying similar traffic. Ohio found that curves of greater than 4 degrees made up 6 per cent of the total rural state highway mileage, but contributed 15 per cent of the accidents. We hope to have data sometime to tell us what is the critical curvature above which accidents will increase disproportionately, so that new highways can be properly designed. Until that time, we will have to be content to eliminate or ease some curves,

and to mark those remaining so that they will not be the scene of accidents.

Hills may also contribute to accidents. Ohio found that hills with a grade exceeding 7 per cent constituted 2 per cent of the total rural state trunk highway mileage but accounted for 8 per cent of the accidents. Excessive grades are rarely reduced except in large-scale reconstruction projects, but if one of the factors involves hazardous overtaking and passing of slow-moving trucks as they grind up the hill, one remedy is to add a special lane up the hill for such vehicles, thus freeing the rest of the roadway for faster traffic.

Intersections are the scene of a considerable proportion of accidents. Many familiar things can be done to help drivers negotiate intersections safely (warning signs, speed control, stop signs, traffic signals, channelization, lighting, and finally separation of grades). Most of these remedies can be applied to existing highways.

The subject of signs is controversial. Many persons believe all that is needed is to provide bigger and better signs. It is becoming increasingly apparent to anyone who has occasion to travel unfamiliar highways, that bigger and better signs are just what we need. Many highways are woefully in need of improved signing. I do not mean that they should be lined with billboards, but the signs that are used should be satisfactory for both day and night driving and they should be fitted to the job.

For instance, take warning signs for curves, narrow bridges, etc. The present standard, reflecting symbol sign is, in my opinion, satisfactory for the great majority of curves. Its value can be greatly increased at night by the addition of a small sign stating the so-called "safe" speed for that curve. We do need larger symbol signs for the unusual hazard. In general 24" signs for "One Way Bridge" or other hazards requiring the use of words are not large enough to permit the wording to be read at night, at present-day speeds, under unfavorable conditions of visibility. These signs need to be larger.

Accidents at intersections are frequently caused by the driver being in the wrong lane to make the desired turn or because he was not informed of the intersection soon enough. This means that advance in-

formation signs for intersections of numbered routes must be made readable at greater distances and must be placed sufficiently far in advance of the intersection to permit the motorist to slow down to make his turn.

Because driver faults cause the largest proportion of accidents, and because drivers tend to own-drive the range of their vision and to rely on the highway being free from obstructions or faults, the highway engineer must be careful not to introduce an unusual hazard without providing extraordinary protection. We had an instance of this in northern Wisconsin recently when a flash flood washed out a bridge on an important highway and a temporary Bailey bridge was set up a few feet to one side of the site of the former structure. The highway at this point was absolutely flat and it was possible to see approaching vehicles for a half mile in either direction. The standard reflecting warning signs were erected well in advance at either end of the temporary bridge and a barricade backed with a low mound of earth was placed across the pavement to prevent cars from being driven into the gap left by the missing bridge. In quick succession three accidents occurred, and in each case the driver apparently kept driving past all of the "Slow," "Bridge Out," "Turn," etc., signs until he suddenly saw the barricade and then it was too late to stop. All of these accidents occurred at night. It was apparent that the solution was to build up the mound of earth high enough to prevent drivers from seeing the headlights of approaching traffic across the gap. To be on the safe side we also reduced the number, and increased the size of the advance signs.

Although most of this discussion has been on the rural highway problem with which I am most familiar, we all know that city roadways contribute to accidents. About two-thirds of all fatal accidents and nearly half of all injury accidents in cities involve pedestrians. Yet little has been done in most cities to protect them—indeed the emphasis is on speeding up the flow of vehicular traffic.

There are several ways in which pedestrians and vehicular traffic can be aided simultaneously. One is by providing channelization at excessively wide or confusing intersections. This facilitates traffic yet

provides pedestrians with a refuge, enabling them to cross the street in two or more stages, through one-way instead of two-way traffic streams.

Medial safety islands and loading islands can also be provided for pedestrians especially on broad thoroughfares where pedestrians are unprotected. These islands, as well as all channelization, should be of a type which will not be a hazard to motor vehicles, else the danger will merely be transferred from one type of traffic to the other. They must be well marked and lighted or they will become in themselves a hazard. The motorist is entitled to reasonable indication of the presence of an obstruction in his path.

Restricted vision at intersections, seemingly inherent in the development of streets in most cases, is a factor in many accidents. This can rarely be eliminated. It usually necessitates the use of restrictive measures such as stop signs, traffic signals, etc. Restricted vision is important to pedestrians at other locations. It has been found advisable to eliminate parking in front of schools during hours of attendance. The recent elimination of parking in the downtown section of Philadelphia resulted in a 40 per cent reduction in pedestrian mid-block accidents.

Inability of drivers to see pedestrians and objects in front of their vehicles under older types of street lighting has been an important contributing factor in accidents. This factor is often aggravated in cities which have a higher percentage of dark-surfaced pavements than rural highways. The important remedy for this is, of course, adequate street lighting. There is a new edition of the Recommended Practices of Street and Highway Lighting developed jointly by the Illuminating Engineering Society and the Institute of Traffic Engineers, which contains revised standards for the lighting of various classes of streets and highways.

In conclusion, it may be pointed out that we can reduce the contributions made by the highway to accidents by eliminating such items as intersections, excessive curvature, narrow shoulders, limited sight distance, pedestrians, excessive grades, railroad grade crossings, defective surfaces, narrow bridges, and so forth, and by adding good marking and signing, speed zoning, lighting, signalization, guard rail,

flatter ditch slopes, channelization, side-walks, and so forth. Of major importance is protection of the highway from unrestricted and unreasonable access which has in the past done so much to nullify highway improvements. There is obviously much that can be done to increase the

safety of travel on highways which do not justify superhighway status. It is to be hoped that the results of the Interstate Highway Accident Study will give us some of the answers in numerical form so that we can continue this work on the basis of factual data.

Results of Houghton Lake Skidding and Traction Tests

By RALPH A. MOYER

Research Professor of Highway Engineering, Iowa State College, Ames;
Chairman, Committee on Winter Driving Hazards, N.S.C.

Winter is a salient factor in the traffic accident problem. Studies by the Committee on Winter Driving Hazards show that the mileage death rate increases sharply during the winter and reaches its peak in December. Studies by this Committee show that accident death rates increase from 24 to 53 per cent in the snowbelt states during the winter months and that reduced visibility and inadequate traction are the primary hazards of winter driving. Tests have consistently demonstrated the need for improved winter road maintenance, especially on city streets.

In January of this year, the Committee on Winter Driving Hazards conducted a series of skidding and traction tests for commercial vehicles at Houghton Lake, near Roscommon, Mich. The purpose of the tests was two-fold: to make a limited investigation of the skidding characteristics of heavy vehicles on ice and to develop testing techniques for a more comprehensive study later. The tests were hampered by adverse weather which prevented complete investigation with the largest vehicles and full loads, but more than 700 stopping, circle and acceleration tests were run. While incomplete in some cases, the tests revealed new facts and corroborated others. Some of the more important findings are:

- (1) Temperatures near freezing are more dangerous than zero temperatures when driving on ice. Wet ice greatly increases braking distance and acceleration time of bare tires.
- (2) Glare ice requires nearly nine times as much distance to stop as dry concrete. On drive wheels only, standard chains reduce this to three times as much distance and premium chains to twice as much.
- (3) Pumping brakes and gearing down is better than locking the brakes on ice.
- (4) Sanders are effective only if the right kind of grit is used.
- (5) Chains aid acceleration on ice, but in this respect premium chains do not show marked advantage over standard.
- (6) Automatic locking differentials help acceleration when only one drive wheel has traction.
- (7) Chains permit some increase in speed without side skidding on curves.
- (8) Natural rubber tires are superior to synthetics in stopping and accelerating on ice. However, the difference is not great enough to justify the claim that synthetic tires are responsible for all skidding accidents.

TUESDAY MORNING SESSION

October 8, 1946

Joint Session—Public Safety Education Association and Traffic Safety Education Association

Presiding: DONALD SLUTZ, Managing Dir., Traffic Safety Assn. of Detroit.

What Cities and States Can Do to Help Each Other

(Summary of Panel Discussion)

R. C. Salisbury (Dir., Safety Div., Wisconsin Motor Vehicle Dept.): The state should provide accident summaries on a state-wide basis for use in the local communities of the state. In Wisconsin an annual accident facts booklet is published for this purpose. It is used by police, schools, counties, etc. The state has a driver accident reporting law. If the state is to receive necessary information, this is needed. Otherwise it must depend upon local enforcement agencies to forward reports to the state.

Charles W. Goodson (Exec. Secy., Fresno County [Calif.] Chapter, N. S. C.): The local community to do an education job needs accident facts. These can be supplied by the state in respect to state-wide data, but there is need for much additional accident reporting and analysis on the part of small communities. Until this is obtained, accident records cannot be satisfactorily used in planning education programs.

Lieutenant George E. Hurteau (So. Carolina State Hwy. Patrol): The state has an important part to play in supplying the communities within the state with tailor-made traffic safety education programs. However, it should avoid putting itself in the position where the local communities lean on the state to do their job for them.

Chief James J. Kupic (Chief of Police, Manitowoc, Wis.): The city needs program materials and, particularly in the case of small cities, the state, as in Wis-

consin, can play an important part in making it available. This material can be used for the press, radio, schools, meetings, etc.

Leo J. Welch (Dir., Safety Education, Div. of Safety Education, New Jersey Dept. of Motor Vehicles): Theatres are one of the best mediums for presenting traffic safety to both drivers and pedestrians. The state can help in doing this in several ways. If possible, it can produce its own film, which should be of theatrical calibre. It can help in the distribution of films made for general distribution by arranging previews for local officials and arranging block bookings. In the latter case, the local community should be advised of booking dates. In addition, the state can suggest supplementary programs to accompany the showing of the film. The state can also maintain a loan library of 16 mm. subjects and sound slide films.

A. P. Gorman (Pres., Kingsport [Tenn.] Safety Council): In small communities without a paid director of safety education it is necessary to depend much more upon outside help than in larger places. The state should furnish plans for programs such as the brake check program from time to time.

W. A. Huggins (Chief, Accident Prevent. Bur., Calif. Dept. of Motor Vehicles): In California it is planned to work with local communities and offer them a month by month program of education so that all cities in the state will be carrying on the same type of activity at the same time.

TUESDAY AFTERNOON SESSION

October 8, 1946

General Session

Presiding: CAPT. PAUL J. PRICE, Traffic Div., Dayton (O.) Police Dept.

Reducing Highway-Railroad Crossing Accidents

By COL. C. R. BRADLEY

Commissioner, Mississippi Dept. of Public Safety
Dir., Public Relations Bur., Mississippi Dept. of Public Safety
Paper presented by A. S. Windham

One of the oldest of all traffic problems—grade crossing accidents—is still one of the most serious, despite all the traffic safety advances which have been made in recent years. It is serious, not from the standpoint of the number of persons killed, which actually is a small part of the yearly traffic toll, but from the standpoint of the certainty with which persons involved in grade crossing accidents die.

In traffic accidents generally, one person in 35 who are injured, dies. In grade crossing accidents, one in three dies. Even without that comparison, it should be obvious that chances of survival are slim when you are involved in an accident with a train weighing thousands of tons. Right here lies the seriousness of the whole grade crossing situation.

For the first time, however, the problem has been tackled actively on a nationwide basis by the National Safety Council, officials in the various states and the country's railroads. The Grade Crossing Program, begun actively only the first of this year, is still far too young to show any sweeping results. One fact, however, seems to indicate that the Program is exerting a helpful influence on the problem. That is the fact that statistics for the first six months of this year, 1946, show that grade crossing fatalities rose only 6 per cent over the same period of 1945 while traffic fatalities skyrocketed 40 per cent above the toll of the first half of 1945.

My own state of Mississippi provides an excellent example of the manner in which the cooperation of all agencies concerned with grade crossing accidents can achieve a marked reduction in the toll. In late 1944,

Mississippi had the worst record for highway-railroad grade crossing accidents in the United States. That fact motivated the Department of Public Safety to plan a program to reduce the toll. Several conferences by the staff of the Department, officials of the National Safety Council and officials of the several railroads operating in Mississippi shaped the campaign.

A formal conference in the Governor's office shortly before the holidays that year formally opened the campaign. Representatives of the railroads, of the National Safety Council and of the state government discussed the problem at length with the Governor and representatives of the press and radio who were present were given a good picture of the situation in Mississippi. As a result of this conference, the first action of Governor Bailey was to issue a proclamation on the highway-railroad grade crossing problem which was given wide circulation throughout the state.

Although the press and radio cooperated excellently in the job of educating the public on the hazards of carelessness at grade crossings, the program in Mississippi was essentially one of personal contact through speaking engagements which reached over 300,000 persons in 73 of the state's 82 counties. Mr. Sid Law of the Illinois Central Railroad worked with Capt. A. S. Windham, Public Relations Officer of the Dept. of Public Safety and the two of them visited over 650 schools, both white and colored, and some 250 adult groups and civic organizations during the first 12 months of the program. The results of the program speak for themselves—grade crossing accidents in Mississippi were reduced 50 per cent.

Traffic Schools

(A Panel Discussion)

Discussion Leader: JUDGE EDWARD C. FISHER, Municipal Court, Lincoln, Neb., and vice-chairman, Traffic Court Div., N. S. C.

Participants:

CAPT. GERALD C. KOPP, Supt. of Education, Div. of Police, Louisville, Ky.

SGT. TED R. SMITH, Chief Collision Investigator, Police Dept., Pasadena, Calif.

LT. OLIVER MEISTER, Public Relations Unit, Police Department, Cleveland, O.

CAPT. FRED BOSSMAN, Police Dept., Saginaw, Mich.

CAPT. JOHN A. RICHARDSON, Commanding Traffic Div., Police Dept., Portland, Ore.

JUDGE FISHER: It seems to me that the keynote or central theme in this congress has to be to get the cooperation of the public. We can do that by education. It is now quite generally realized that the prime function and purpose of traffic law enforcement is to educate motorists, point out the dangers in unsafe driving, and induce them to comply voluntarily with the rules laid down for their own good.

There are several opinions as to how this can be achieved, whether by strict enforcement campaigns, or by other means. Many cities have decided that the best means to accomplish this is by setting up traffic schools of different types, giving education along traffic safety lines, and by the way, one of the speakers in our session this morning had a good suggestion on that, that rather than call them violators' schools or traffic schools, call them traffic safety schools.

The significance is great, it seems to me. Some of these schools are in the nature of penal institutions, where the judge sends the violators. Others are used chiefly for those who volunteer to come in. Some are for juveniles, in order to avoid penalizing children. Others are open to all.

Some of these are conducted by police departments, and some by safety councils, some in the schools, and some by the courts themselves. Many contend driver education and traffic education should be a part of the schools. Others say they should be right in the enforcement department.

Speaking on behalf of the judicial side of the picture, and citing my own experience

in Lincoln, we started traffic schools some years ago jointly by the court, police and local safety council. At first they are attended quite heavily by volunteers, just a sprinkling of violators, but as it progressed along, that portion was reversed, and we had only a sprinkling of volunteers, and during the war it was attended only by a few.

Recently our school has been full of juveniles, who are successful in making the officer conducting the class prematurely gray. Properly staffed and conducted, they are a very valuable aid in carrying on the traffic law enforcement. We found it much more successful in the case of those who attended voluntarily, for their own education, self protection, or civic pride, whatever made them come, rather than for those who attended simply in order to get out of paying a fine.

Those latter were very apt to feel resentful about it as simply another form of penalty. After that traffic school dwindled out, I set up what I called an extension course. That is an alternative to every traffic violator. There are certain exceptions, as in the case of serious offenses, such as suspension of sentence, during which the party gives up his driver's license or driving and studies traffic rules. He has to pass a test, and writes a paper on traffic safety. That might be called a traffic school conducted as part of the course. All the work was homework, and none of the shenanigans in the classroom or anything of that kind could get in to it. A fellow had to work on it or he couldn't get his driver's license back.

In offering it as an alternative, we made it purely optional on their part.

Then there is the question, can any of these types of traffic schools be worth while? Some are better than others, and we are hoping the discussion today will develop the advantages of these different types.

CAPTAIN KOPP: I suppose all of us recognize the fact that in most places throughout these United States, you are experiencing an increase in traffic accidents

and facilities. While we have had an increase in accidents, we do have a decrease in the fatalities in Louisville.

One of the things that I think is of the greatest help in reducing traffic accidents is a sound educational program.

I realize that the three must go hand in hand, education, engineering and enforcement. Lack of one of them will cause your entire program to collapse. But every city or town must furnish some means for its citizens to become more familiar with the traffic laws that govern the individuals. You can not hope to get across to your citizens the fact that they must obey traffic laws only through a group of police officers controlling the streets.

A traffic school is something to the greatest advantage as far as the citizens are concerned, helping them to gain a better and broader understanding of the traffic laws.

The most essential beginning, I believe, in having a good traffic school, besides having a good sound program in your school, is to have the cooperation of your judges. We are most blessed in Louisville with having a traffic judge who realizes the importance of good education. Guy Shearer is our traffic court judge in Louisville, and is helping us to a great extent seeing to it that our traffic school is filled up every meeting night.

Our traffic bureau should also have some means of sending persons to traffic schools. It may be that you have in your city or town something similar to conditions such as we have in Louisville. We can not sentence a person to traffic schools for violation of traffic laws, but we can do this. If the person is arrested, the judge can fine that person and suspend the fine if this person goes to traffic school.

If he fails to attend that traffic school, the fine is reimposed on the individual, or he may give a particular fine of say, forty dollars, and this person may then enter a motion that he would like to go to traffic school, and the fine may be cut to ten or fifteen dollars if he successfully completes the traffic school. We have found that works to a great advantage.

A person who is given a citation cannot be sent to traffic school through our traffic bureau. They can come in with that citation and enter a plea of guilty, and pay the

fine, or, in lieu of that fine, may attend the traffic school and then the case, at the completion of the school's course, is dismissed.

They, of course, also have the opportunity to go before a court in order to be heard in a traffic citation case.

Probably the best way that I can explain the working conditions of a traffic school would be to describe our traffic school in Louisville. It was inaugurated September 4, 1946, and at that time we called it a Traffic Violators' School. We wanted to get as many volunteers in to the school as we could, so we dropped the word "violation" and then had a noticeable increase in the number attending the school.

Persons given citation tickets can come in and elect to go to the traffic school, if they so desire. If they do so, they must attend the traffic school for three nights. They are given a notice telling them what will be required of them at the time they elect to go to the traffic school, telling them what nights to appear in the school.

At the end of the school course, they are required to take an examination, on which they must make seventy per cent or better. If they so complete it, the case pending against them will be dismissed.

If one of the persons fails to comply with the rules of the school, if he fails to attend one of the three nights or does not attend at all, then a warrant is issued, and he is brought in before the court.

If it is a traffic bureau case, the individual then comes in to the court and he explains that he was unable to attend the traffic school for such and such reasons, and usually then the judge will pass a fine on the individual for the driving violation.

We only send persons to the local court for driving violations. Those driving violations do not include hit and run, assault and battery, manslaughter, or operating under alcoholic beverages. It only includes such violations as failing to stop for a stop sign, the running violations, you might say. One of the things we try to do is not only tell an individual in the traffic school that he must do certain things or must not do certain things. I don't think you get far with individuals by saying this is the law, you must stop for a stop sign and let it go for that.

The idea is to point out to the individual why it is so necessary for him to do a

certain thing while driving or walking on our streets. To give you a sample of one of our lectures, it goes something like this.

A little simple stop sign—this is not a canned lecture, but the usual lecture runs something like this—many of our citizens come up to the stop sign and read S-T-O-P, and even though they might be the most educated type of person, sometimes they make "slow down" out of S-T-O-P.

We all realize S-T-O-P does spell stop, and that to comply exactly, they must come to a complete stop. Our wheels must stop rolling. But that is only half of what is required when we come to a stop sign. You must sit there and wait until traffic is cleared before you pull onto that boulevard.

But let's forget about the law for a moment. Look at the human side of the thing—we are all human. We can do certain things according to habit. When you want to walk down the street, you don't think I want this leg to go in front now. You move them automatically. With your subconscious mind, you form the habit of walking down the street, of moving the legs.

If you will pull up to a stop sign, even if it's a traffic light, don't roll across. Look both ways and make sure you are not storing the wrong kind of materials in your sub-conscious mind.

Some day you will be out there driving along, and traffic will be heavy. You will be thinking about something other than driving, and you won't pull up at the stop sign because you got in the habit of going when traffic is light, and when you go in to heavy traffic, then you will be involved in a serious accident.

That is a sample of part of our program in the traffic school. We don't tell them they must stop for a stop sign, we point out the reason why it is necessary to stop for a stop sign or anything else as far as the laws are concerned. What we are trying to do is get across to the citizens an idea of our entire traffic program and the importance of obeying these few simple rules that govern their conduct.

We are trying to do that in our traffic school. To give you a little bit more about the mechanics of the school, we have three separate lectures, and they must attend all three. The first is known as the fundamentals of driving safety practices. The

second is rules of driving procedure. We break down the rules or laws, so the citizens have a much better understanding of them. The third is on the seriousness of the accident problem. In that particular lecture we start out with a few statistics.

Then we show them pictures of accidents which have actually occurred on Louisville streets. We tell them the violations, and the accident's location is flashed on the screen. We made a thorough study of the background, the history and the sad things connected with these particular accidents. It may be called an emotional approach, but we have found it is a very effective approach. That emotional approach gets the people to thinking. "After all, that can happen to me."

Here in the traffic school, we have a chance to build up the law enforcement agency by showing them what you are trying to do. We are not trying to hinder them in any way, but actually we are trying to help them.

I do feel this is one of the grandest things that can be used for an educational feature to get across to your citizens the importance of obeying traffic laws and at the same time, being the good-will ambassador to build up the law enforcement agency.

SGT. SMITH: Pasadena, as you know, is the home of the famous California Institute of Technology, the place where the atomic bomb was developed. You no doubt are familiar with the vast destruction created by that weapon.

Inversely, I wish I could have come here with a report saying we had interested some organization in devoting as much time and effort to the expansion of traffic safety programs, that would save as many lives as that weapon is attributed to taking. I am sorry I can not do so. I am here merely to explain the organization and operation of our local traffic school.

The school is created for the purpose of taking care of the juvenile violator. State law prohibits the taking of any person into regular court under the age of eighteen years. They must be before a court of hearing, not a court of trial. Therefore the traffic school is organized to fill that gap, to carry on a constructive program whereby the violator may be taught the rules to cooperate with the community organization.

Three types of violation are handled

there: The juvenile violator who drives defective equipment is required to submit a certificate from an official inspection station, thereby clearing that charge; the second type is the violator of the laws of registration, possibly parking or some of the more minor violations. He is required to report with one of his parents and is admonished as to the seriousness of that law, sent home, and the parents are instructed to give him a little aid along the lines of studying the vehicle code.

The third is the one we are most interested in—the juvenile involved in a moving violation. That is where the traffic school fits in. The captain in charge of the juvenile division acts as a mediator between the violator and the juvenile court, and is able to more or less instruct this individual violator to attend this traffic school, and thereby keep him from having to appear in court after passing satisfactorily an examination in this course.

In that school we don't have a standard text book. We use a short summary of the California Vehicle Code supplemented by a pamphlet called "Accidents Don't Happen"—a brief summary of the more important driving rules designed originally to be used by the police officer when he issues a citation.

The back of that pamphlet has the various violations listed. Officers check the particular violations for which the person was stopped, and while issuing the ticket, the violator looks over the section, which is written in very plain language, with a little diagram depicting the violation. We found it desirable for use in the school for reference work.

We make use of visual aids. The visual education department of the city schools has put at our disposal a 16 mm. sound film and projector and 35 mm. sound slides which are used as fill-in to show the different violations. We have made enlargements 18 by 12 inches, of accident photographs, which are typical of certain violations. The class instructor uses them to depict the results of certain violations.

We find them very beneficial for that purpose. We have a sand table model consisting of a board about the size of this table, on which is laid out a typical intersection with the control devices of the guide lines, turning buttons and traffic control devices

of all types. We use the very elementary method of using model cars. The instructor moves the cars to depict certain violations. We feel that that visual lesson is one much more lasting than a verbal explanation of the violation itself.

One thing a little different about our particular set-up which might be found in other communities is a school carried on by the department of motor vehicles in our community known as the driver instruction course, with volunteer attendance, by which an instructor from that organization in the evening session conducts a class designed to prepare an individual for obtaining his license for operating a motor vehicle.

In addition to that, we have compulsory courses in the local high schools for driver training. We do not have behind-the-wheel training.

You will notice that I have not mentioned the fact that a police officer carries on the school. We find it is very undesirable to have an officer in uniform trying to teach this class, when an officer in uniform was the one responsible for that student having to sit in there those five days an hour and a quarter each, listening to the more or less dry subject of traffic law enforcement.

We find the chip on the shoulder attitude is not desirable, and we restrict that phase to be carried in to the end of the course, after which the regular school instructor has laid the foundation work. We then have the police officer, one of our traffic investigators, come in to the class possibly, for ten minutes at the end of the course, and give a demonstration or an explanation of the operation of the drunkometer—a subject new to most of the students. It attracts their interest right away.

That then, works over into a few minutes of public relations on the topic of why police officers issue tickets and the matter of selective enforcement.

We find in that way we create a very desirable impression. Our end product is a young person growing up to be a member of our community cognizant of his responsibility as a driver and user of the highway.

LT. MEISTER: Our school in Cleveland starts off with answering a few of the why's and devotes a considerable part of the time to the attitude of the drivers appearing in the school.

The first thing that we discuss is the traffic law itself. All too often, when a man is arrested, and goes to court, the net result is that his pocket book is ten or twenty dollars lighter, and he has a feeling of resentment toward the police and the court. So we explain why the law is necessary for the regulation of traffic and for the reduction of accidents.

We explain that the laws are the demand of the people themselves, that the court had no part in it, and that the police have no interest in it except as they are commanded to enforce it.

A good many citizens have a vague feeling that the laws are a part of a plot to obstruct or confuse them, and I think any one who is connected with the enforcement field is familiar with this slightly paranoid attitude on the part of the public.

Another common attitude we have found prevalent is the thought that every other person should be subject to the laws but not they themselves. Any officer that makes an arrest will find that the man will denounce all other violators, yet excuse his own violation.

We try to explain this paradox and point out one violation is just as much an accident maker as the next. Then we explain the function of the court. In Cleveland the court has as high as five thousand violators appearing before the judge in one month, and he can't devote a great deal of time to them.

We explain that the violator is selected for the school on the basis of his repeat violations, or his unsafe attitudes towards traffic. In the school we start off with passing out a digest of the laws, mimeographed. We pass out the reaction cards such as Actma puts out, and then we explain to the drivers we made a test study of some twelve hundred drivers who have gone through the school, we studied them for two years before, and the two years after attending the course and found that there was a reduction in the two year period after attending the school, of 86 per cent in traffic violations, and 67 per cent in accidents.

We point out that this is to the violators, self-interest to attend the course and to pay attention to what is going on. As we explain the various traffic orders, we point out the physical factors, such as reaction

time, visibility, and other physical factors that go in to the traffic picture.

In discussing the cases in the traffic orders, we do not permit the violator to discuss his own case. We point out that questions are welcome, but that this is not a court of appeals. We find one wastes a lot of time if you permit the person attending the school to discuss their own cases.

At the conclusion of the second night, the violators take a final examination which is a true and false type. Those that pass, and have attended both of the sessions, receive a card certifying their attendance and that they satisfactorily completed the course.

To sum up, we found that the traffic school does serve a good purpose. It serves to improve public relations for the police department and for the court, and we believe that it has a real part in the safety education program.

CAPT. BOSSMAN: Our first traffic school was organized in 1939. It was advertised quite widely to the public and accepted wholeheartedly. The attendance ranged from 80 to 100 persons at each session. A majority of these attended voluntarily. Some were young persons who wanted instruction in motor vehicle law in order to qualify for their license, and some were older persons who wanted to review the driving laws. The others were juveniles and first offenders who were ordered to the school by the Traffic Court. Most of these persons had a very good attitude towards the school. The course consisted of four sessions of about an hour and a half each. These were given one night a week. At the end of each session a set of questions were handed out. The subject matter covered driving laws, courtesy rules of the road, good driving practices, and a short discussion of skillful driving. All instruction was given in the classroom and was by the lecture method.

After a six month period the school fell off gradually until in 1940 the school was closed temporarily.

In 1941 the material was revised and consolidated. It still consisted of four sessions. The first session was devoted entirely to a discussion of the importance of the safety problem. Figures were presented comparing traffic to war, fire, and crime. It was shown that traffic is the big problem

of today. Discussion was invited on this subject. Sessions two and three were devoted to a discussion of traffic laws. Enough material was covered in these two sessions to enable the student to pass the written examination given in taking the Operator's License test. The fourth session was devoted to Driving with courtesy, Skillful driving, and miscellaneous traffic laws. A film of about 10 minutes' length was shown, usually during the second and third sessions. These films were of the safety films circulated by auto manufacturers and insurance companies. It was shown after the discussion period and before the examination. The sessions began with a lecture period. This lecture covered the material in broad form. After this, the class was opened to a discussion period. In this period students brought up personal examples of bad or good driving, traffic problems, etc. The instructor also described recent accidents and offered them to the class for analysis. It was found that discussion periods stimulate thinking and interest in the class. Lectures over 20 minutes would become tiring and boring. Films without advertising would be preferred to the type used. No funds were available in the budget for the rental of films. They were a very successful form of education. Large charts were also used as visual aids.

The material of the school was presented in such a manner that a student might enter his enrollment at any time. Each lesson was complete within itself and independent of other sessions. After six months or so this school also fell off and it was discontinued.

After a short period the superintendent of schools was approached with the offer of presenting it in the high schools. He reacted favorably, as did the two high school principals. The course was given one lesson each week. It was given 3 periods per day for four days (2 days at each of the schools). It was found that one hour periods were too short to allow adequate instruction. Pupils also objected to an examination after each period. If periods are limited to one hour, there should be at least six periods. These should be followed by examination to cover the six lessons. Most of the pupils hoped to get an operator's license upon completion of the course. It was explained that they would receive sufficient instruction to pass their test, but the

test must be taken separately. This school was stopped when the instructor entered the armed service.

It will be no trouble for us to start a traffic session in our schools again as the superintendent of schools is in favor of it. It is only a matter of time when all public schools will be giving a course in traffic to improve the students' knowledge of traffic laws and their relation to accidents, physical laws of motor vehicle operation, the relation of equipment to safe driving, personal driving limitation and driving techniques, etc.

Our big problem at present is how to conduct a traffic school successfully for adults with no let down after a short period. How are we going to get the judges to cooperate; to keep the violator coming to school? That is our problem. The judges find too many excuses for not sending them to school.

At the present time we are only conducting a traffic school for juveniles and that is against the wishes of our probate judge.

CAPTAIN RICHARDSON: The juvenile violator, when stopped by a police officer and given a citation, is directed to go to the traffic office on the fourth floor of the police station at a designated time. He appears before one or two policemen, who in an interview, jot down certain information on a card as to his family life, etc., to see if there might be something behind whatever violation he has committed. If it is found there are some home conditions causing the violation, the mother or father or both of them are requested to come down and appear before the traffic officer.

In all other cases the boy will either get a suspended license, or merely be reprimanded or put on probation. But in all three instances, he will be required to attend the traffic school. In this school, we have a primary class held on the first three Saturdays of each month, and an advance session on the fourth Saturday of the month.

These schools are held in the police department school room and are conducted by traffic officers. The boys have previously been instructed on what the school consists of, and are sold on it. As a result, we find many of them bring their friends down with them.

The first hour is given up to discussions of different traffic laws, and in that hour

we have some case histories, with some blown up pictures of bad accidents, and we outline the violations.

After that, we have a slide film, and then give them an examination. They have to pass the examination or they will be forced to attend the advance school.

The advance school takes up where the others left off. It is for the more serious violators, and those who failed to pass the primary school, and, in addition, make use of psycho-physical tests equipment.

They get right down to reaction time and skid marks, and show the fellow how long it is going to take him to stop his automobile. In this school are mostly speed violators.

The juvenile court and the municipal court both let us handle the boy without an appearance in the court. However, if it is a serious case, or a serious accident, we would automatically remand him up to the juvenile court, and not take him through the school. We have had good cooperation.

During the war we found that our pedestrian accidents had increased greatly, especially fatal accidents. So we started a program of pedestrian enforcement. We had had a little experience with that once before, and it didn't work out. This time we got a lot of publicity and gave out a lot of written warnings, and started in with the pedestrian. In conjunction with that we set up a pedestrian safety school. When the officer stops a pedestrian, he writes out a citation form, the violator may either go to court or post bail. In addition, the officer hands him a card telling about the pedestrian safety school. He also can attend this school.

This school is handled by the traffic safety commission held in the city hall. The notice directs the recipient to report at eight o'clock, for one hour, in the Council Chambers of the City Hall on the Tuesday following the date of the arrest.

We treat them as if they are a group of citizens interested in promoting safety and cutting down accidents. We don't discuss cases in any school. They are handled entirely by the safety commission.

In that school, we discuss violations which contribute to pedestrian accidents, where they are occurring, and what can be done to stop them. We go in to it very deeply

and do a good selling job on preventing pedestrian accidents.

They also use a slide film there. "Are your Feet Killing You?" which is shown at the end of the session.

When the people go in to the school they sign a register at the door. The citation is stamped "Pedestrian School," and sent back to the judge of the Municipal Court who, if the man attends school, cancels the fine or bail, or whatever it might be. If he does not attend the school, he has to go to court or post the bail in the regular manner.

We had originally another school set up in Portland for violators. That school was abandoned sometime ago, and plans are now in progress to reinstate the adult violator's school. So next year we will probably have three schools operating in Portland all on traffic; the pedestrian school, the juvenile violators schools, and the adult violators school. All will be handled in cooperation with the police department and the traffic safety commission.

SERGEANT HERBERT GERMAN (Detroit Police Dept.): The first school in Detroit was about 1921. But in August of last year we started something new in the precinct stations, strictly on a voluntary basis.

We set up three one-hour sessions, that is one hour each week. That worked out all right, because we didn't have very many come in and we didn't want many because we thought it was a proving ground rather than a regular set-up.

The first session was given over to the problem of accident responsibilities. The responsibility of the police officer, the citizens, the meaning of the license, et cetera were also considered.

The next two sessions were given over to the traffic laws and an explanation of them, accompanied by slides.

Later in the year we had additional schools, and we now have a total of eight in seven of the precinct stations, and because the attendance is so great, we have had to cut them from the three original one-hour sessions to one two-hour session.

We still have a number who come voluntarily, but now every person under 18 must attend one two-hour session before he is

permitted to get a license in Detroit. They of course, bring a lot of their parents with them on a voluntary basis.

We have quite a number sent from the court, and that includes the referees in Detroit and the license bureau, which sends those who are unable to pass the examination properly.

The slides, about 120 in number, cover all phases of driving and walking. They are pictures taken locally. They are not something across the city, but something that applies in the students' own neighborhood.

We insist that the police officer be in uniform to help break down resentment. We have it to start with and we feel that when they leave, it is gone.

The purpose of the school is explained. Why have a traffic school, what it consists of, and what we hope to do with it. Then the policeman's duty comes next in the order of its importance. I believe how the police officers fit in to the problem, what he does in the protection of life and property, and how it applies to traffic as well as other phases of police work should be brought out.

His part in assisting the driver, controlling traffic, the knowledge of conditions, and how he corrects those conditions is considered. Then, secondly, the citizen's responsibility. What he has to do, not just leaving it to some one else, but what is the part he has to play in that.

Then last, the value or the meaning of the license itself, how he gets it, how he may lose it, what he must do to get it back, what it amounts to, what the appeal board does under certain conditions. The second and third session are given over to the explanation of the rules.

At the conclusion of the school, he is given an identification card which has his name on it, signed by our commissioner of police, and the instructor's name is also placed on the card. On the back of it is a little pledge, which says, "I pledge myself to obey all traffic laws, and assist others in making Detroit a safer city for drivers and pedestrians."

We ask them to sign that and keep it with them as their own personal property. In case of a juvenile applying for a license, he takes this down with him to show that he has attended school. The fact that he is

able to make out his examination properly at the license bureau, shows he has had the proper instruction at the school.

MR. BEN HEINZ (Portland [Ore.] Traffic Safety Commission): I am connected with two traffic schools, and will be with three in another few weeks, and I have visited most of the schools which have been discussed here. First, somebody wanted to know the answer about how to get rid of the judges that won't go along. Kick them out, of course. Don't fool around with anybody that won't go along with any program.

By the way, be careful of picking your instructor. I am not going to get in an argument with police officers, I still hold a membership in police organizations, but I think you should have an officer in your school. Be sure and pick him carefully. The key factor in teaching is the instructor, and I think an educator, and officer familiar with education, should both be instructors in that school. But the organization of your material and so on, should be by the educator. This man said you pass out materials at the beginning of the school. Would an educator pass out materials at the beginning of one or two hour schools, so that the people would read that instead of paying attention to what is going on? No, he would not. I hold a life certificate as an educator, and I know the answer to that one.

JUDGE FISHER: Just briefly, I will sum up the discussion. The purpose of traffic schools is to educate and promote voluntary compliance, correct first offenders and start the youthful drivers right, and reach the consistent violators. The approach must be educational, not punitive.

The types for whom it is provided are

- (1) drivers who need instruction or corrected attitudes and
- (2) volunteers.

The name should not be "violators school" or similar title, because this discourages volunteers, leads to resentful attitude on the part of those attending.

The school should be held forth as an opportunity to learn. The instructors should be well qualified and enthusiastic. Examinations should be given and certificates of proficiency awarded.

Relationship of the Various Agencies in a Traffic Accident Prevention Program

(Panel Discussion)

Discussion Leader: COL. F. C. LYNCH, Secy.-Mgr., Greater Los Angeles Safety Council.

Participants:

MERTON E. RIDGE, Traffic Eng., City of Wichita (Kans.).
INSPECTOR JAMES M. LUFTON, Dir. of Traffic, Detroit Police Dept.
JUDGE J. J. QUILLIN, Portland (Ore.) Municipal Court.
WALTER D. LADD, Secy.-Mgr., St. Joseph (Mo.) Safety Council.
HARRY E. NEAL, State Traffic Engineer, Ohio.
E. P. LEE, Supvtr., Drivers License Div., Minnesota Hwy. Dept.
CAPT. EMERSON H. WESTWICK, Illinois Dept. of Public Safety.
MILES STANDISH, Chm., Governor's Committee on Coordination of Public Information Media, Rhode Island.

COL. LYNCH: This is a vital and important question, a question of the relationship between the different agencies that are attempting to contribute their bit in the community program or the state program of accident prevention. The unfortunate part about it is that in most communities, and most states, if you talk to the courts, everything is wrong with the police, and if you talk to the police, the trouble is with the drivers license, and the drivers license says it is the engineers—we have never been able to find out who is responsible for the inefficiencies today. We hope to find specifically how we might get these agencies to cooperate one with the other.

I am going to ask the panel if they will be specific. If there is ever anything which happened in their states or their community in which the traffic engineer, for example, contributed to the work of the court, or if there is any case where the court has contributed specifically to the work of the police. We would like to have specific things pointed out to you people, rather than philosophies. We are all full of philosophies, and few of us are full of activities.

MR. RIDGE: Certainly a Traffic Engineer should be an engineer, but even

though I am somewhat of an embryo in city work, I think I can speak with authority and with well-remembered regrets, when saying that engineering to the City Traffic Engineer must be basic and of far greater import must be "human engineering."

God bless the poor misunderstood traffic engineer, or perhaps more often conversely—I'll have to stop there; ladies are present. I have tried to think of all phases of engineering, and with the exception of planning (a close cousin to traffic engineering) I can find none with so unanimous an objective purpose becoming in nearly every instance subjective to some of our citizenry. Well, the doctor prescribes some pretty bitter pills and still we go back. You must be wondering what all this builds into—only this—I wanted to work myself into a position to soliloquize for a few moments.

I want to think of the traffic engineer as the doctor—not a divine healer, just the old country type—called to administer to an ever-rising epidemic—the traffic accident problem. He cannot do the job by himself and I am not relegating any other agency to an inferior position when I appoint him coordinator of the program, for it is a cooperative job.

John Q. Public is the patient. He is well aware of his disease but his desire to recover still isn't genuine, the mental attitude must be improved. Here the doctor must depend upon consultants, specialists. There is no medicine to prescribe, education, conformance, subtlety must do the job. There is little past history or prognosis, still any doctor will agree it is the most important hurdle to recovery. Every available appeal must be used and new and increasingly alluring methods explored lest the patient return to his lethargy.

Often the patient shows signs of psychiatric unbalance, restraints become necessary. But the doctor must assist in exploring the causes of these outbursts, perhaps some of the medicines have been too

severe or unreasonable and perhaps physical handicaps have aggravated the illness. The doctor must demand enforcement of his prescriptions, rigidly but reasonably.

The patient is improving but an operation is necessary to bring complete recovery. Scars of inadequate planning and care in his youth must be removed and his continued health assured with permanent remedies.

I could not let the patient die because I couldn't find a part in the story for the undertaker and it would have been embarrassing for the doctor to end up a quack.

Returning from the slightly ridiculous to the fundamental let me sum it up this way. The city traffic engineer is faced more and more with selling human engineering. I was trying to be realistic quite recently when I told a fellow engineer that I thought the public must be given first consideration when traffic changes are contemplated. He retorted that I was cowardly. I wonder. I spoke a moment ago about the objective becoming subjective. Nearly every traffic improvement in cities tears down someone's building, takes away someone's favorite parking spot, changes someone's way home—and so on and on. These things may not be as dear to someone's heart as they might claim, but many pebbles have started landslides. Salesmanship and a little horse-trading are essential. Public confidence cannot be ignored if a traffic program is to be accepted and succeed. A little sedative now and then to ease the pain isn't in my opinion, cowardly if it brings co-operation.

And last but not least, we must have complete cooperation within our own family—our departments and divisions carrying the responsibility for the traffic safety program must work together. A friendly push or pull is very necessary for success.

I'm for ungilding the lily. Traffic engineering is relatively new and in my opinion we've been too interested in qualifying it technically. Sure it's as basically engineering as any other but it requires as no other generous quantities of common sense engineering, human engineering; and I'm going to spice mine up some with a little showmanship.

COL. LYNCH: When Hoover called

the first national conference on street and highway safety, one of his philosophies was that traffic regulations should be so apparently equitable that they are self-enforceable. I think it might be well to impress that upon the minds of all traffic engineers; if they have regulations which are not apparently equitable, they should not be put into effect until they did become apparent by means of other agencies' educational work.

INSPECTOR LUPTON: Last May the President of the United States said, in discussing automobile accidents, and I quote: "The nation cannot afford, and will not tolerate this tragic waste of human resources."

During the same conference the able Congresswoman from Connecticut, Claire Booth Luce, said: "It is not unreasonable to say that any locality can attain almost any safety goal, it sets."

The responsibility for curtailing these tremendous losses in urban areas, lies squarely in the lap of the municipal police administrator directing traffic safety programs. Because the most important part of any traffic safety program which has been, is now being, or ever will be carried on, is the administrator. Unless there is an able administrator who has vision, perspective, initiative, intelligence and imagination, coupled with the ability to run the program so that it properly controls and reduces accidents, the program will in effect fail. That, Mr. Municipal Police Administrator is indicative of your importance to traffic control generally and to traffic control programs specifically.

My part in today's program is relatively simple. I have been asked to discuss broadly and briefly, and incidentally in ten minutes, the responsibility of the municipal police administrator in developing and administering a long-range effective traffic control program. Since the responsibilities of the municipal police administrator are nothing more nor less than his troubles, my job resolves itself in telling you about my troubles, and who can't talk long and loud about his own troubles?

I shall discuss these responsibilities as I see them, and in the order of their importance in my opinion to the municipal police administrator. His first responsibility is sincerity. Unless he as an administrator

believes in the importance of traffic control to himself and his community life, its fundamental necessity to society's welfare, then he will fail. The very nature of the activities incident to good traffic control require a sincere belief in their importance. This is true because these activities will be interpreted by the public as restrictions on what they will call their rights, but which actually are only privileges accorded them by law.

Therefore, unless there is a sincere belief on your part, you as an administrator will be unable to sell these important issues to the public, and as you know your individual traffic control programs can be only as good as residents of your community want them to be. I mentioned sincerity as a responsibility of the administrator only to stress its overall importance; there is no inference intended; your presence here today is indicative of your sincerity.

The second responsibility of the administrator is loyalty, aid and cooperation with other allied safety groups. It is important that the administrator recognize that he cannot do the entire job alone. In most cases he is not a Traffic Engineer, and he is not a public educator as such, he must therefore depend upon these organizations to aid him in carrying on a balanced program of traffic control. This will include specifically the furnishing of information pertinent to the accident experience in his locality.

Third, in order that he be able to furnish authentic information regarding the accident experience, the administrator must set up within his organization a bureau comprised of a sufficient number of carefully selected and trained accident investigators to carry on the careful investigation and reporting of all accidents occurring within the area under his jurisdiction. It is a further responsibility of the administrator to present, through his accident investigators, such evidence of traffic law violations, if any, as well satisfy the court beyond a reasonable doubt that the violation alleged was committed.

Four—in addition to supplying information necessary to the carrying on of a good traffic engineering program and a satisfactory educational program, he must develop and direct on a highly selective basis, an enforcement program.

Five—He must know at what levels all phases of the traffic control program produces best results and he must keep such activities at those desirable levels.

Six—He must have courage; be constantly on the offensive and discourage the granting of special favors.

Seven—He must recognize, encourage and support good legislative measures and he must just as energetically discourage, disapprove and criticize proposed legislation not consistent with safe driving and walking practices. And last, but not least, he must measure his activities by results obtained; in other words he must be ready to discard and throw out programs which do not produce results, no matter how good they may appear theoretically.

All of these things the administrator will be required to do; in some instances without adequate compensation and possibly with political interference. However, I am sure that in the field of policing, accident prevention can be expected to pay the greatest return. If during your career as a municipal police administrator you can by diligent effort save only one life, you will have on society's books, fulfilled your responsibility and in addition thereto have the self-satisfaction that comes only from knowing that your job has been well done.

It has been a pleasure to meet with you and take part in the 34th National Safety Congress. It has been a pleasure because I am sure that it is from this type of meeting where the representatives of the several agencies responsible for traffic control can meet, discuss problems, and exchange ideas, that activities will develop which will be beneficial, not only to the individuals present, but to the communities which they represent as well. These activities will be in the main the development of more effective traffic control programs which will in turn produce desirable reductions in traffic accidents, and that is you will appreciate, the objective of the Congress.

COL. LYNCH: Thank you very much. That is typical with a policeman, you can't argue with them. When he is overpowered by numbers, he leaves.

I thought maybe we were going to get a beef out of him like they do in Los Angeles, about lack of cooperation with

the traffic engineer and police—they go out and slap up a few traffic signs without inquiring whether there is personnel to enforce them, and certainly signs put up which are not enforced, are bad for the community probably in its entirety.

I might say our engineer uses that inability as an excuse for not putting them up, too.

We have had pedestrian control for twenty years, and up to the 27th of September, we still found it necessary this year to issue 13,308 citations for violators of pedestrian regulations, so we are still having trouble with pedestrian control, but we are still making arrests.

JUDGE QUILLIN: Wherever possible traffic cases should be tried apart from any other Court and in surroundings which would inspire respect and deference not only for the traffic regulations but also with ample consideration given to the safety features.

The Court should always convene on time at regular stated intervals and be conducted on standards equal to those adhered to in the Courts of general jurisdiction in the area.

The judges who sit in Courts dealing with traffic offenses should always bear in mind that their function is mainly a corrective one, only to a small degree punitive, and with this in mind the traffic courtroom should impress defendants as a classroom as well as a courtroom. It is my opinion that even in the most simple matters ample time should be taken by the Court to explain the reasons for a conviction, if one must be had, and also point out an object lesson with brief statistics or any other available method so that the defendant may leave the courtroom with a feeling that he or she has gained something from the experience apart from the penalty which must be inflicted under the law.

Notwithstanding the fact that the average person who is tried for a traffic offense does not think of himself as a criminal, it is my opinion that Court should not be backward about advising them that their offenses are of a criminal nature and that they are being tried as a criminal, distinguishing, of course, between the offenses which are of a felonious nature and those which are misdemeanors only.

Avoid all "star-chamber sessions" and every other court practice which tends to reduce the formality of the traffic hearings as well as every practice which might lead anyone to believe that different or other consideration is given to influential persons or friends than is accorded to the average citizen. This is more important in my opinion in traffic court than in any other place in the halls of justice. To live up to this ideal will require a very great deal of patience and perseverance, but it will also pay dividends and make our traffic courts the most potent agency for good in prevention of traffic accidents and traffic law violation.

In the matter of penalties, our Court should give studied consideration to the duty of recommending suspension of the driving privilege in every case where a defendant is shown to be dangerous, reckless or careless, with the public safety and welfare and should study the possibility of curing some of the most vicious and persistent practices by judicious use of this privilege of suspending drivers' licenses.

These are just a few of the ways of which it occurs to me to be possible for the Court to improve its service to the public and its relationship to other agencies working on the problem. There are many ramifications to every one of the above numbered suggestions, and I am of the opinion that these will offer plenty of points from which to begin our discussion of this most important problem.

WALTER D. LADD: The primary function of the community safety council in a traffic safety program is that of education and coordination. Even its coordination work has an end result that is educational. A properly organized and conducted safety council also represents and speaks for the people of the community in all matters having to do with traffic safety.

Traffic safety education generally follows three lines: First, mass education of the public in correct driving and walking practices and in acceptance of necessary controls; second, specific education of individuals, as in the conduct of driver and pedestrian training in groups and classes; and third, the education or "selling" of those who, by their official positions, have a responsibility for traffic safety such as

police officials, judges, prosecutors, engineers and school officials and teachers.

The first and second phases of the educational program are continuous and vary in different communities only as to specialization and effectiveness. This constitutes a job which is never ended, and will not be ended in the foreseeable future. It is a program which has scarcely scratched the surface thus far. I daresay it would be impossible to find a safety council executive who is satisfied with what he has done along the lines of mass education or specific education of the people whom he seeks to educate.

Mass education is carried on through the newspapers, other printed publications, the radio stations and theatres, at meetings of citizens, with billboards and posters, by the wide distribution of folders and booklets, blotters, calendars and every other form of printed material. This is "shot-gun" education. We never know how many people read it or see it or listen to it. Still less can we judge how many people learn something they need to know from it. We can only repeat and repeat, knowing that repetition eventually gets some results. We buy certain soaps and razor blades and automobiles and beverages because of this ceaseless repetitive advertising of those products.

Formal instruction in driver training and pedestrian classes is the "rifle" method. It is the most effective method of education, and if it could be universally applied, we could reduce the traffic problem to minor importance. Our difficulty there is applying the method. Where it is applied it succeeds. Comparatively speaking, very little of this kind of work is being done. Most safety councils have an almost virgin field to develop in this kind of education.

Every safety council should use every effort to get driver training into the high schools of its community, and to get commercial vehicle owners to train or permit the training of their drivers. These are the two groups that can be reached in an organized way. From this beginning, such training can be spread out to the general public.

If a safety council is doing a successful job, public officials, including school administrators, will ask the council for help, rather than resent the council's efforts to

get them to do their part in the program. All the council's efforts to educate such individuals should be given in a spirit of helping them.

The third phase of the educational program is vitally important. It is one of the safety council's most important jobs, and one for which the council receives little or no credit. This is because it cannot claim credit. As a rule, none but the officers and directors and committee members of a safety council know what is done along this line.

The scope and nature of this educational work varies from city to city. Where a school system is accepting its responsibility for safety education and carrying on a first class program, the safety council can forget that part of the community program. But the traffic engineering department may be weak or even non-existent. A mayor and city council may have to be sold on providing a capable engineer and work crew and furnishing the money for the program.

Or the police department may need educating in its responsibility for traffic safety, and even taught to organize and operate an efficient traffic division. Or the traffic court may be weak and judges and prosecutors may have to be educated to their duties and how to perform them properly in line with their responsibilities.

Changes in administration of any of the agencies or departments having to do with traffic are usually headaches for the safety council, because it is often necessary to do the job all over again. I believe an of us here are familiar with this problem.

While my remarks have to do chiefly with what the safety council should do and can do, a word about how it should be done may not be out of place. I think it is fundamental that the person in official position should be approached tactfully, and persuaded to accept his responsibility, learn what he should know, and perform his duties on the basis that it is good policy for him, that it will gain prestige for him, or make him votes when he needs them, or otherwise benefit him personally by doing a good job. Second, he should be allowed to take all the credit for what he or his department does. The safety council's efforts should be persuasive and strictly under-cover. Only the

most unusual or hopeless situation calls for using a club. Sometimes this may be necessary as a last resort.

The safety council should obtain the cooperation of every other organization in the city that can be woven into the program. This can be done in many ways. They can be enlisted in joint projects—specific things for which they can take credit. They can give financial help. They may desire to undertake projects by themselves, and in such cases the council can often suggest and aid them in these projects. But fundamentally, this is all education.

The safety council can and often does influence public opinion in favor of some project or action. While the result may be decidedly one of action, such as enforcement of pedestrian regulations, a stiffer schedule of fines for violators, the elimination of "fixing" legislation for motor vehicle inspection, driver training in the schools, or a better traffic signal system, the safety council's responsibility and work is still essentially education.

We have an example of coordination in St. Joseph. The safety council prepared and obtained enactment of an ordinance creating a city traffic commission. This commission, is advisory in its functions, but it gets together around a table once or twice a month the chief of police, the head of board of public works, which has sole control of the streets, the head of the city legal department, the city traffic engineer, a member of the city council, the safety supervisor of the public schools, and three or four private citizens to discuss traffic matters. Thus, when action is recommended, every agency concerned knows about it and has accepted such action. In the final analysis, this set-up has a high educational value, as well as ironing out differences privately.

MR. NEAL: I understand this discussion involves relationships of the various agencies involved in conducting a traffic accident prevention program, and involves the matter of the relationship of the police courts, engineers, safety council, drivers license departments, et cetera. As a traffic engineer, I want to say that the engineer is fully cognizant of the need for the cooperation with the various other agencies.

The traffic engineer must have the co-

operation for the traffic regulations which he designs and installs, otherwise they will not operate. In order to get that cooperation, the traffic engineer must be careful that he installs reasonably enforceable regulations.

For example, our problem in the State of Ohio, as a traffic engineer, is different from the city traffic engineer's problem, and many times he is called upon to install traffic lights at intersections on the state highway system. We try to install those signals on the basis of factual studies rather than opinions and demands. Obviously it is foolish to install a traffic signal in a rural intersection, where traffic will be stopped unnecessarily time after time, with nothing demanding passage on the intersecting road. I mention that as a specific example of how the traffic engineer can be in cooperation with our state highway patrol.

In Ohio we have enlarged in a program of speed zoning on the highways, trying to install these speed zones strictly on the basis of engineering investigations and make them reasonable, because if they are not reasonable, the public will not observe those altered speed limits, and naturally the police, the state highway patrol, is going to have a great deal of difficulty enforcing those regulations.

We feel cooperation with a Safety Council is highly essential. We have an Ohio Traffic Safety Council, an organization composed of representatives of 75 leading organizations throughout the state of Ohio, which have an interest directly or indirectly in the traffic safety problem, and we depend a great deal on that organization which is purely voluntary. It has no funds, other than when they pass the hat and need funds for some particular occasion.

It has been very helpful in that it enables us, or is assisting us to get needed traffic regulations in Ohio. I hate to admit it, but our traffic laws in Ohio in some respects are very much in need of change.

For example, we are one of three states which does not have a law requiring the reporting of motor vehicle accidents, and our work in traffic engineering work is more or less handicapped in that respect. Our Traffic Safety Council has helped us get the uniform traffic law passed in Ohio,

and we are very hopeful we will get the report at the next session of legislation.

MR. LEE: I can't speak for all administrators of driver license laws. Probably the best I can do is tell you something we are doing in Minnesota. There we coordinate these various agencies because we have come to understand that we are engaged in a cooperative movement, the sole design of which is to improve the quality of driving on our public streets and highways.

In order to accomplish that, we have brought together for conferences on many occasions, representatives of the courts, prosecuting attorneys, police officers, sheriffs, highway patrol, and driver license departments, and in Minnesota we do act hand in hand in trying to create a better condition of drivers.

The way we accomplish this in some respects at least, is by the various agencies assisting each other by doing the part that they are required to do under the law, by doing the part they are required to perform in order to accomplish the ultimate end so far as drivers licenses are concerned. We feel that the law must be administered, that the courts and the police and the prosecution will know what we are going to do.

They know that we will refuse to issue a driver's license to a person that is incompetent to drive, regardless of who the person might be. They know that furthermore, if it is necessary that the person have restrictions on his driver's license, he will have those restrictions on there, so any police officer, any enforcement officer, or court, will know what driving privileges the individual might be limited to.

We also revoke licenses in every case where the law provides for revocation of license. In Minnesota the court has a right to recommend the suspension of a driver's license in any case where there has been conviction for violation of traffic laws.

All the courts in Minnesota know that drivers license administration will follow the recommendations made by the court, and we do that because of the fact that we don't like bureaucracies, and we are not a bureau in the common understanding of that term.

We feel that traffic enforcement is primarily a local matter, and the courts hav-

ing much more information concerning the circumstances surrounding any person's convictions, are in much better position to determine whether or not the suspension of a driver's license might be beneficial in producing a better quality of driving by that individual.

Therefore, when the court recommends a license be suspended for thirty, sixty, or ninety days, or up to a year, we do that. And of course we get the heat, we get the pressure, but in every case we tell them to go home and make their peace with the local court. If they can convince the court that they are entitled to a different kind of treatment, and if the court is willing to change its recommendation, we will even follow that change recommended, and this happens occasionally.

So far as the police are concerned, we follow the recommendations of the police, particularly as to reexamination of drivers. Very often after a person has been issued a driver's license, something happens to the individual, and, sitting in a little office in St. Paul, we don't know anything about it, but whenever any individual has had the finger pointed at him by a police officer, you can be sure that the individual is going to have an examination. And the police officer is going to be advised of the outcome of that reexamination.

If it is found that the person is not entitled to further driver's privileges, those privileges are taken away from him, and the police officer is advised. If it is found he should have a restricted driver's license he gets that kind of a license, and the officer is advised.

Besides this, the Department in Minnesota, is the chief center of record keeping for all traffic violations, all drivers conduct. There is no other place in the state where they keep a record of drivers.

In Minnesota, we had what we call a cash register system in the police court. That system operates by virtue of an order of the Municipal Court. In the Police Department they have a place where a person can come in for speeding or going through a stop sign or minor violation, and deposit an amount of bail determined by the court, and we used to do that in accordance with that plan. If a person was picked up for speeding, he would deposit \$5 or \$10, determined by the court.

I have run into cases where men were getting speed tickets, and going down and paying fines every few days, and that was all that was happening to them. They didn't have any respect at all for the traffic laws, because all it meant was sending the office boy down with five or ten dollars, and then he was all through with it.

I called this matter to the attention of the courts, and immediately a new order was issued, where, if a person comes in to deposit a bail, before the cashier or the police sergeant can accept that bail, he must call our office and determine the individual's record, and if he is found to be a repeater, bail is not accepted. He is given a warrant and ordered into court.

We are very happy with that arrangement in Minneapolis and St. Paul. We use it every day, every day and every night. We have people on all the time to give information to the courts, and to the police. Our record system is also used by the squad cars. If they find some person involved in a traffic accident, or involved in a violation of traffic laws, they hold the man there for the purpose of determining whether or not he should have an arrest ticket or merely a warning, and before giving that man an arrest ticket or warning, they receive through the radio, and by telephone to our office the individual's record.

Thus the police officer on the job knows the type of person he is talking to. He knows whether or not he is entitled to some consideration because of the fact that he has not had a bad previous driving record.

CAPT. WESTWICK: In discussing the "Relationship of the various agencies which are involved in conducting a traffic accident prevention program," it is my purpose to approach the subject at the level of state government and point out such observations as viewed by a state police administrator.

In Illinois, as in many states, the various departments of state government concerned with the problem are so closely interwoven as to aim and purpose, that the efficient functioning of any one division would be seriously curtailed without active cooperation of the others.

It is reasonable to assume that the Illi-

nois State Police is the division most directly concerned with the problem. This is true because of its position as an enforcement agency charged with the responsibility of protecting the lives and property of those citizens who travel upon the highways of the State.

Their duties, of necessity, range from funeral escorts to the apprehension of dangerous criminals, but, their primary objective and that which claims the major part of their attention is the prevention of motor vehicle accidents and the subsequent saving of life and property.

It was not so many years ago that the policeman obtained and held his job by virtue of his ability to knock someone down and drag him off to jail. His employers were chiefly concerned with the removal of the offender from the view of the public, for a matter of hours, days, or longer, and the matter of education or correction was scarcely considered.

This system might have continued, and with the required degree of satisfaction, had it not been for the advent of the motor vehicle and the subsequent character and number of violations.

Police administrators came to the realization that motor vehicle violations were not only increasing at such a rate as to make enforcement bodies subject to ridicule, but in so doing were causing accidents which were killing and injuring useful citizens in numbers never before equalled in the history of our civilization. Corrective measures had to be taken and it was then that police administrators found the need for revised police techniques and the cooperation of all agencies interested in the general welfare of the public.

Before the police officer can commence his activities in accident prevention, it is necessary for him to be provided with information on the cause of accidents based on a study of past experience. This information is obtainable only from a complete and properly administered records system.

In Illinois, we obtain this information through the cooperation of the division of highways, under whose supervision reports are recorded and analyzed. Also, through the cooperation of city and county police and administrators who investigate the accidents and forward the reports.

Having been provided with the necessary information as to who, where, what and when the violations causing the accidents are occurring, the enforcement officer is prepared to make his attack on the problem.

His efforts may result in the stopping of an offender in which the degree of misconduct is such as to warrant no more than the pointing out of his failure and the suggestion as to corrective measures, or, it may result in a more serious violation where an arrest is made and a summons to appear in court is issued. In both instances, the offender must be made to realize his mistake and a definite effort made to prevent a recurrence.

If the officer neglects to do this, he has failed in his purpose. However, in the case of the summons to court, another cooperative agency enters the picture in the form of the judge or magistrate who hears the offender's case.

The mere paying of a fine or time spent in jail will in no way correct the condition or prevent its re-occurrence if the offender leaves the courtroom feeling that the only purpose in his arrest was to deprive him of certain liberties or extract money from his resources.

To this end, the court must work in cooperation with the officer in the process of adequate education. The offender must be brought to realize the danger involved in the violation and the inevitable result of this type of misbehavior.

Education in traffic safety is not confined to that which is applied to an offender, but must be selective and offered at an age level most applicable to the molding of a correct attitude toward driving.

In the Illinois State Police Department, this responsibility is placed in the hands of the traffic safety section, a group of police officers who are specially trained in driver education.

Included in the duties of this Section is the organization and training of school boy patrols, the operation of psychophysical testing devices and the organization and supervision of bicycle contests.

They also appear before industrial, civic and service groups at which time they conduct training programs and lecture on traffic safety.

Foremost in the duties of this Section

is the program of driver education in high schools throughout the State. Every high school in the state is visited at least once a year by a member of this section at which time valuable assistance is given the school's course in driver education.

Guidance and counsel in the furtherance of this school program is given by the State Department of Public Instruction, whose active cooperation is of extreme value in the continuation and improvement of this very important educational program.

Many other state divisions, including public health, crime prevention and correction cooperate and assist the state police in their never-ceasing war on motor vehicle accidents. The battle has just begun. Cooperation, coordination, and a never-ceasing determination of effort must and will result in the decrease and elimination of this National disgrace—OUR HIGHWAY TRAFFIC TOLL.

MR. STANDISH: I know that the problem which faces the Safety Council through living through it in my own state is one of such magnitude that it far exceeds the funds available to that body to carry out its legal function, and I know that it must have help. I also know from good training during the war in war activities and advertising that that help is available and can be had, and where we haven't money to use, we have to substitute something else for money and get the job done.

I have worked with our state safety commission now for the past six months, since the inauguration of the police check program, at which time I found the State Safety Commission talking to itself. It didn't know the techniques of how to secure the support and the publicity necessary to enlist the public support behind their program to achieve their objectives.

We know those techniques, because we have lived through them, as I said, during the war. So I simply went to the chairman, Judge Pat Curren, a very determined and enthusiastic State Safety Commission Chairman, and said, "Can I help you?" And they not only met me with open arms, but conferred a title on me.

The first thing I did was to look at the forces we had at our command. We have

great public groups who have very deep and sincere convictions and interest on this subject. We have in existence avenues of information to the public which also are centralized in various scope, if you pick the right spot and the right person touches the spot, you get a reaction. We also have a large group of advertisers whose customers are the people who want this job done.

Our problem was how to coordinate these groups, and how to get some real action, how to get what my friend on the right calls, "bird shot publicity," of which he is not sure of the value.

But I want to tell you that Mr. Copell is sure of it and Chief Lee and the others are sure of the value of it, and I am sure of it. I know exactly what it will do. Now all we have to do is get it. That means we have to do a lot of things that are impossible. We have to do a lot of things that have never been done before, and I am just doing enough to try it.

We have tried it in our little state. Here is what we did. The first thing we did was to call in a group of women representing the Congress of Parents and Teachers, and the Federation of Women's Clubs, the Women's Advertising Club, and the Volunteer Women of America, et cetera. We sold them on the idea that if they didn't care enough about the program to take the lead, and themselves ask the public for support and assistance, then nobody would care, and nobody would do anything about it.

They rose loyally to the occasion, and at the present moment, the Congress of Parents and Teachers is the public support body in that state for a three months program. They are today holding the first state meeting with the superintendent of state police, the chairman of the Safety Commission, and the chairman of the State's Safety Conference, and a number of other state officials, all present at the first statewide meeting, and traffic safety is number one on the program for the next year.

They are wildly enthusiastic, and we are giving them support. Now, in order to get their organization enthusiastic about it, we had to show public evidence of their interest and their enthusiasm. Therefore, we next went to the media and called together all the owners and managers of

newspapers, and radios, and outdoor advertising, car cards, moving picture operators, and gave them four or five drinks, because this is making the lion lie down with the lamb.

We had the chairmen of the Safety Commission present and told them the story and told them that right in that room that the job would be done or would not be done. No one else had the power and the facilities which those men commanded to do this job, and it got later and later and later, and they were shouting at each other and had little grievances which they aired among themselves, and each had to get out and meet his wife, but we finally said, "Gentlemen, before anybody goes out to meet his wife, let us tell you this, if you don't do this job, men, women and children are going to be killed in this state next year which you could have prevented. Any one that has to get up to go and meet his wife can go."

Not a soul moved. Those men can not resist the appeals of large public support bodies. Their very existence in the community in which they operate is an obligation. They are men of flesh and blood. They have families, wives, and children. They themselves are not indestructible, and they owe a debt and obligation to the city which gives them their business and profits and their existence, and they know it.

Business today understands that its facilities are no longer sufficiently employed when employed only for private profit of private individuals. The time has come when all business and all advertising must accept that social obligation of using a part of its facilities for the social improvement and the meeting of problems of their own communities, and I think they are ready to accept that obligation at this time.

So in order, as I said, to stimulate the interest of the clubs, we informed these media that it was essential and necessary that they make a contribution themselves, of starting now on a three year basis, and that this was just the beginning of something else. If in three years we can lick this campaign, then we will have a media committee, a state-wide public information committee which is an enormously powerful and effective group which can turn its

attention to any social problem, and with the power it has at its command, lick it.

Business, gentlemen, needs the understanding and support of the public. This is the last nation on earth, in which we have business operated by private individuals without over-all totalitarian controls and business knows it.

That is why advertising will cooperate with you, because they want to be liked. They want the people in their communities to understand what advertising is. When they see newspaper ads and posters, and listen to commercials they want them to understand that is part and parcel of the kind of life we elect to lead in this country, and essential to its continuance and maintenance.

So right off the bat, the Outdoor Advertising Association said "Our donation can be most effectively made if it is made over the signature of the public support body." So we offered a showing of posters throughout the state to the signature of the Parents and Teachers, which cost them not one penny. The operators pushed the posters and donated the space and put it up and it is effective.

We had to do that if we were going out and ask advertisers to do the same thing. Now the butchers and the bakers, and the candlestick makers sell to the Congress of Parents and Teachers in the forms of fathers and mothers and families. They want their patronage. They want their goodwill. Very few are the tradesmen in any community who will say, "Well, I will not convert some part of my advertising in the medium that I normally use, to the purpose of helping to save the lives of my customers and their children."

In this way we can again greatly augment the flow of public information on safety to the people who need it. We now have the promise of a motion picture operator's full support in running trailer films. Our radio stations already are turning out safety programs and offering time to public support bodies for short talks on their programs.

The newspapers have been highly cooperative in giving news stories on these activities of these public support bodies, and in taking photographs of them unveiling their posters, and otherwise furthering the campaign. In this last three month

period, there has been more support by more media, at the same time, of public safety than has ever been achieved in the history of our state.

And what is more, never before in the history of our state, did the owners and managers of the advertising media ever sit down with their feet under the same table.

I am delighted to hear that the American Association of Newspaper Publishers is joining as a participating body in our National Committee for Traffic Safety. I also understood that the National Association of Radio Broadcasters are coming in.

When those organizations become participating groups and form national committees with a state chairman in every state, we can then get those media chairmen together in every state in the United States, and we will have in existence, by that mere action, a powerful group which can integrate a continuous flow of publicity on safety to the public, and that is invaluable. These men own the media. They don't go begging for it. They tell the boys to do it, and that is the sort of people that we need.

We, in our own industry are using the work that has been done as a pilot operation in Rhode Island, as a pattern for a national program of three years. We have as I said already in operation, a program under the sponsorship of the Congress of Parents and Teachers, which will be run through September, October, and November, starting September 1st, for a three-months' period. The General Federation of Women's Clubs in our state will pick up the ball at the end of that three months, and another large group whose identity I am not sure of, but which might be our combined service clubs, Rotary, Kiwanis, Lions, and others, all co-operating together on the same program.

Later another group will take over. So as time advances, in widening circles, we bring in greater and greater groups of people, arouse their interest, secure their cooperation, and support their activities in this campaign. And as time goes on, those groups will grow and grow, so that more and more people are doing the same thing for different reasons.

That is the job of the Safety Council, to get a lot of people to do that same thing for different reasons. Gentlemen, it can be done. It is my hope that our own industry

alone will contribute at least three quarters of a million dollars to this program, in fifteen thousand cities and towns in the United States.

I know that the other media will cooperate, and I know when intelligent advertisers integrate the use of media, and when we intelligently integrate all interests in this campaign, you will have a growing force of publicity so constantly before the public they can never be wholly free from the consciousness of safety.

We will get our information from our accident records, and from the National Safety Council, and we will push consistently month after month on the hazards greatest at that particular time, and hit them from every side.

Don't be impatient. It takes us a little time to organize so large an activity. We ourselves are faced with the problem of selling this program to one thousand members who have got to withhold saleable space to advertisers crying for it in order to give it to the safety campaign.

But we still think it is the most intelligent thing we can do, because while advertising can not hold a course on economics to teach the American people the meaning of advertising, it can make some dramatic

demonstration of its power, that they will accept it as necessary without any economic demonstration.

I feel absolutely confident that in the next three years, if we can secure the cooperation that it looks as if we now can secure, we can build behind you a coordinated force through your official Safety Councils in every state and city, which will drop this accident record down fifty per cent or more. I hope down to twenty-five per cent of where it stands now, and then it is a controllable situation.

We are full of confidence as to the power of the great media of publicity to do this job. If it isn't happening right away in your city, get hold of your outdoor operator, of your newspaper owner, get hold of your radio stations, and ask them to get together. They have been instructed in every case to contact the safety director.

We have a state chairman in every state, and he has already been instructed to contact the official safety director of his state and community, and offer his services. We will build an integrated campaign, taking care of all the details ourselves. We ask your support. We ask your assistance, and your full cooperation at every turn. I think between us, we can do this job.

WEDNESDAY MORNING SESSION

October 9, 1946

General Session

Presiding: COL. LIGHT B. YOST, General Motors Corp.

Present State Programs Compared with President's Conference Recommendations

By A. W. BOHLEN

Executive Director, American Association of Motor Vehicle Administrators

As an outgrowth of the Action Program adopted May 10th, by delegates of the President's Highway Safety Conference, fifteen states have already held conferences in the names of their respective governors. These states are Virginia, California, Ohio, Alabama, Montana, Indiana, South Carolina, Colorado, Pennsylvania, Minnesota, Iowa, North Dakota, Utah, South Dakota,

and Michigan. In addition some 14 states will have their meetings in the near future.

First of all, in order to clarify my remarks about these conferences, it seems to me, to be desirable to give you a very brief outline of what was called for by the President's Conference. The Conference Action Program suggested the setting up in each state of one committee composed of

state officials to act as a co-ordinating body and another committee of leaders in civic, service, business, fraternal, professional, labor, farm, and similar men's, women's, and youths' organizations to act as a public support group.

The co-ordinating or official committee was charged with appraising existing conditions within the states and utilizing recommendations of the conference as a "measuring stick" to determine exactly what was needed to develop an effective highway safety program. This committee was also charged with co-ordinating highway safety activities; moreover, it was charged with acquainting the public with the results of its analysis and comparisons to the end that organizations and citizens might know exactly what elements constituted the official highway program.

The non-official organization, on the other hand, was charged with serving as a clearing house and co-ordinating agency for the respective agencies from which it derived its membership. Its purpose was to advise, stimulate and otherwise assist in the development of the traffic safety programs of its participating organizations, without, of course, giving directions to individual organizations' programs. Likewise, this group was charged with working closely with the official co-ordinating committee.

The states for the most part have followed through in excellent shape in the mechanics of the Action Program. Seventeen states have established official co-ordinating committees and 10 have created non-official public support groups.

The ultimate success of the recommendations of the President's Highway Safety Conference depends entirely on the follow-through by the official and non-official groups.

In reviewing the work that has been done by the Governors' Conference thus far, however, the need for a more critical appraisal of conditions existing within the states is indicated. Moreover, the need for fuller utilization of the technical recommendations of the President's Highway Safety Conference to determine exactly what is needed to develop an effective official highway safety program is also pronounced.

It is not enough simply to set up an official state committee on the one hand

and a public support group on the other hand without giving full force and effect to the conference recommendation that a full appraisal of existing conditions within a state be made.

In the four months following the conference, less than a third of the states have held meetings. Thirty-four meetings remain to be held. A strong blow in the interest of highway traffic safety can be struck if the states in which conferences are still to be held will undertake a realistic appraisal of existing conditions. Certainly to do so will require more than a little effort—more than a little planning. It will also require more than a little patience to do a thorough going job.

If the President's Highway Safety Conference is to be something more than just another series of meetings in which lip service to safety is freely given, a comprehensive study of all elements affecting the highway traffic safety problem must be made. Officials comprising the state co-ordinating committee should insist on and aid in putting into effect a system of evaluating what is now being done so that their own state's program can be brought into line with the national effort.

The Action Program published by the conference sets forth seven elements constituting a balanced program. These are laws and ordinances, accident records, education enforcement, engineering, motor vehicle administration and public information. Each one of these should be thoroughly analyzed and broken down so that it may be compared with its counterpart in conference recommendations.

At the state level, it is necessary not only to consider the broad principles with which the President's Conference dealt, but it is also necessary to consider in detail minor matters, in order that the state program may be brought into proper relationship with conference principles.

It seems elementary to me that any Governor's Committee on Laws and Ordinances should take appropriate steps to bring about a critical appraisal and comparison of a state's laws with the uniform vehicle code and to actively support a program designed to effectuate any needed revision. Such a committee should also establish means of evaluating what is being accomplished in the way of obtaining uniformity of adminis-

tration, interpretation and enforcement of existing laws, and should make an accurate appraisal of the extent to which punishment was certain and the degree to which like offenses are similarly punished.

The Committee on Accident Records should design and carry out a plan to improve the collection of accident reports and at the same time should undertake a program to improve the quality of reporting. Moreover, the challenge to improve the usefulness of such records in the interest of the engineer, the enforcement official and the vehicle administrator should be squarely met.

In the field of education, a comprehensive continuing program is indicated. The committee charged with this assignment must concern itself with all phases of the educational problem. It must make large plans to teach the necessary skills in walking and driving and must make equally large plans to develop proper attitudes in the performance of these skills, at the same time integrating them into the existing levels of instruction.

The Committee on Enforcement should in its field survey current policies and practices in light of conference recommendations and should prepare a schedule of improvements to be made. Such a schedule should in effect be a time table designed to secure early correction of existing shortcomings in all areas of operation. The range of activities of this committee should be designed to improve respect for the police, the prosecutor and the court, and to marshal the forces of these agencies into a more uniform, hard striking contingent.

The Committee on Motor Vehicle Administration should consider its duties and functions in the light of the words of Major General Philip B. Flerning's address on "Budgeting for Safety." In this address the General said: "A thing that has always puzzled me is the contrast between what we are willing to do to promote fast highway travel and what we seem willing to do to make travel safe."

This committee should not only undertake to carry out the general suggestions and recommendations of the President's Highway Conference Committee report on motor vehicle administration but should also take effective steps to contribute materially to the development of a sound driver

license program. Deficiencies in a state's program should be spotted and a time table for their correction worked out. Then a program to accomplish these objectives should be vigorously prosecuted.

The Committee on Public Information has a problem of organizing the several media of information, the public officials concerned and the various interested organizations into an effective force. This assignment is no small one. It is, however, one that will require ingenuity, perseverance and a great deal of effort to get mass acceptance of the concept of individual responsibility.

All phases of the report of the Conference Committee on Engineering should be carefully considered and a means for weighing the state's activities against it worked out. It is also incumbent on this committee to establish continuing activities in those fields where follow-through is necessary. Since much of the engineering program will require support in both money and public acceptance, adequate liaison with the public information committee should be developed. These are but a small part of the area of operations of this group.

At its 1945 conference, the American Association of Motor Vehicle Administrators passed a resolution requesting the President of the United States "to call together responsible public and civic leaders to mass nationwide support for our efforts to provide safe and efficient highway transportation." This resolution resulted in the calling of the President's Highway Safety Conference in Washington, D. C., this year.

As evidence of its recognition of the problem and leadership in seeing that President's Conference aims are fulfilled, I quote from A.A.M.V.A. President Malcolm McEachin's speech at the southern region meeting: "The highway accident problem of all national problems, is one of the most important today. It goes without saying that it is our most important problem since it directly affects every citizen."

"The question is: What are we going to do about it?"

"It seems to me that the delegates of the President's Conference—which was in substance a responsible group of representative American citizens, exploring the means by which our highways may be made safer—have given us, the motor vehicle administrators, a charter for our future activities.

"The Conference told us in effect what the American public expects of us. They told us first of all that they were behind us: that they would give us support in those things that have been tried and have proved effective in reducing traffic accidents. That is important. Moreover, it was made abundantly clear that federal authorities had no intention of invading our areas of operation. That also is important. But the conference, in evaluating the techniques and standards in use in the several states, noted many weaknesses that need correction. The public is demanding that we make the desired corrections which are now embodied in the recommendations of the eight conference committee reports. The President's Conference made 15 specific recommendations to strengthen apparent weaknesses in the field of motor vehicle administration. Five of these recommendations can be put into effect by us at once. They are:

1. Liaison between the several state departments is essential where overlapping of jurisdictions exists in highway transportation matters if the general public is to receive maximum benefits.

This recommendation is important because the public looks to us to put our own house in order to be able to undertake an intensified safety program. Much remains to be done in developing inter-departmental co-operation.

2. Motor vehicle departments should keep the general public fully informed of their activities for the purpose of gaining public support.

If we are to maintain the impetus given to the traffic safety movement by the President's Highway Safety Conference, and if we are going to bring into being many of the things for which AAMVA stands, it is extremely important that we develop information with respect to motor vehicle administration activities that will be of interest to the public.

3. Motor vehicle administrators should assume the responsibility of bringing about the adoption of nationally recommended uniform laws and standards in their field.

It will not be long until the fall elections provide us with a new crop of state legislators. Now is the time to begin laying plans for necessary amendments in our state laws. It seems to me that, through

our public groups, we should be able to tell our problems to legislative candidates so that regardless of who is elected our story will have had the benefit of pre-election consideration. If this can be accomplished, much headway will have been made.

4. The relationship between motor vehicle departments and state legislatures should be one whereby the motor vehicle administrator should become a technical advisor to the legislatures in matters that pertain to nationally recommended uniform laws, standards and practices in this field.

If we take advantage of the situation now in spreading constructive information in regard to motor vehicle matters, it will not be difficult for us, as administrators, to assume the role of technical advisers in matters pertaining to uniform laws, standards, and practices in the field of motor vehicle administration.

5. Adequate facilities and personnel should be provided for analysis and driver control as well as development of information and statistical data of a research nature.

I realize that there are many departments that are understaffed and there are many difficulties in developing information, not only with respect to driver licensing, but also with other functions of motor vehicle administration, regardless of the difficulties we are likely to encounter in securing adequate personnel to do this job. It seems to me that we should make an exceptional effort at this time to establish a factual basis for our arguments for better legislation. Funds and personnel must be found to do the job of developing facts and providing more and better public information.

With respect to driver licensing the committee on motor vehicle administration made the following recommendations to the states:

The minimum standards for driver examinations recommended by the American Association of Motor Vehicle Administrators should be adopted by all states whose standards are lower. But where possible, this committee recommends that higher than present minimum standards be adopted. It is urged that everything possible be done to implement research in the field of driver examinations.

We will never have a better opportunity to make a sound, vigorous attempt to put driver licensing on the high plane it should be. If we fail to do this, I'm sure public reaction will result in greater condemnation of certain practices and that confidence in us will be lost. If we fail to make the public understand that driver licensing is not just a racket, the fault will be ours.

The continual loss of qualified personnel to private enterprise is a matter of grave concern. Trained men are leaving state service in large numbers because of attractive offers from the outside. This is a situation that is not likely to change, so long as private corporations are willing to bid for the services of state employees by paying salaries higher than state agencies are authorized to pay.

We must come to realize that if we expect to keep our present high caliber of personnel we will have to pay them on a scale commensurate with the importance of

the job and on the current level of economic conditions.

Adequate funds should be provided for the establishment of necessary facilities where proper examination of applicant drivers may be conducted.

While, in many instances adequate funds are not presently available to provide facilities for proper examination of applicant drivers, I feel that every effort should be made by us to review our budgets and costs of operation with a view to amending our operations so that necessary facilities may be provided.

Motor vehicle administrators should continue with their work in driver education and training and continue to maintain facilities in their respective departments to that end.

It is entirely possible that a review of our operational costs and the proper channeling of the savings will permit us to undertake a more intensified program of driver education and training.

Present City Programs Compared With President's Conference Recommendations

By CARL J. RUTLAND

Chairman, Citizens' Traffic Commission, Dallas, Texas

Before drawing a comparison of the status of most American cities with the action program recommended at President Truman's Highway Safety Conference in May of this year, I should like to suggest for your consideration an improved medium or agency by which many of these recommendations could be activated.

Such an agency might be called an administrative traffic committee. It is an internal committee within the city government, comparable in nature to a committee which, in some states, has been set up on a state level with the governor serving as chairman. The membership of the state committee is composed of the heads of the highway commission, state police, state school department and the attorney general. The chairman of the internal committee in the municipal government would be the chief operating executive of the city—the city manager or perhaps the mayor, and the members would be the traffic engineer, director of safety education, traffic court judges, police chief, public works engineer,

public utilities supervisor, city attorney and the city plan engineer. The most active person in the promotion of traffic safety among the members could serve as secretary of the committee. Meetings should be held monthly. The President's Conference recommendations, as well as additional traffic matters, should be taken up one by one, studied, and if advisable put into effect.

It must be remembered that in the final analysis the responsibility for the achievement of practically all of the Conference recommendations rests with municipal officials. Nearly all departments of the city government are involved, and share some of this responsibility. In many instances traffic activities overlap between departments. It is obvious that a unified front is essential for effective control measures. For example, some of the recommendations are largely responsibilities of the police department, but the police hesitate because there is no coordinating agency wherein matters affecting the courts, engineering or legal departments or other departments in

the city government can be clarified and agreed upon.

The medium of such a committee will provide for mutual understanding of all departments as to the reasons for the recommendations and the expected results. It will provide for coordination between departments and combined action to achieve results. It will decide on how to achieve public support when that becomes necessary. It will provide for the most efficient method of carrying out the recommendations.

In making general inquiries as to what progress cities have made in connection with the recommendations of the President's Conference, I frankly admit that the report is only slightly encouraging. Perhaps therefore a coordinated committee such as has been suggested is needed and can be the vehicle through which these recommendations may be put into effect. I am sure that in this room there are persons who serve in key municipal positions and who should be members of such a committee. I challenge them here and now to take the lead when they return and promote the formation of such a committee.

It is obvious that most cities have either not put into effect these recommendations, or have not intensified those which do exist, otherwise the traffic accident record in those cities would have been materially improved. A comparison of the present status of cities with the Action Program would be of great interest, but since no cumulative facts have been made based on this year's performance, the only comparison that can be drawn comes from facts submitted by the 400 cities of more than 10,000 population which sent in entries in the 1945 National Traffic Safety Contest.

Most of the cities reporting have record bureaus of one kind or another but many are non-standard and are inefficient because of lack of funds, insufficient equipment, and untrained personnel. Thirty-nine per cent are using non-standard accident report forms. The record and spot maps, in many instances, could be more intelligently used by departments concerned with traffic control. It is obvious that records and spot maps are essential before any kind of worthwhile selective job can be done by the police, engineers or educators.

All cities having more than 500,000 population, report having traffic engineers.

Eighty-three per cent have traffic engineers in the 250,000 to 500,000 population bracket, but less than one-third of those under 250,000 have traffic engineers. In most of the larger cities which have traffic engineers, the engineer reports to the city engineering department or the director of public safety. There were very few instances where the traffic engineering department was set up on a level with public works or police, and reporting directly to the chief operating executive. Our traffic engineering departments are not strong enough. They are in many instances handicapped for manpower and funds. They are not set up with sufficient prestige and influence in the city government. City councils, in many instances, are not aware of the vital need for traffic engineering, of how it functions, or of its objectives. It is well to remind ourselves that the establishment of physical facilities to move daily millions of motor vehicles in our municipalities with safety and dispatch over an intricate network of streets and under varying kinds of regulations, becomes more and more a scientific traffic engineering problem. There must of course be close alliance with the police and other departments, but policing is one science, and traffic engineering is another.

Of the cities reporting in the National Contest, 16 per cent had less than 90 per cent of uniformity of signs and signals. Incidentally, the cities with more than 500,000 population are the greatest offenders—70 per cent of them have less than 90 per cent of uniformity. Is there any reason why the adoption of the Uniform Manual, which is available to every city in the country, should not be one of the first steps undertaken by the suggested Administrative Traffic Committee?

As a general rule, cities require as a minimum approximately 4 full time traffic officers, equivalent, per 10,000 population. With the exception of cities of over 500,000, 70 per cent of those with less population have much less than this general minimum. Most police departments are woefully undermanned insofar as traffic personnel is concerned. Most police departments do not have an adequate program for traffic training new recruits or men already in service. Fifty per cent of cities from 100,000 population up train their new recruits in a range from 31 to 72 hours,

and their men already in service from 5 to 20 hours per year. In few instances only would this be called adequate. The Conference recommendation urges full courses for recruits, and refresher courses for men in service. It also recommends that traffic officers should receive supplemental training in their special fields of activity, special courses for commanding officers and selected attendance at suitable regional schools.

Fifty per cent of the cities over 250,000 use selective assignment methods in enforcement, less than 15 per cent under this population bracket have selective enforcement.

Only 61 per cent of the larger cities have full time traffic courts, that is where traffic cases are segregated from other charges.

In many cities the enforcement index is low. There does not exist the consciousness on the part of the public that punishment is certain. There is insufficient concentration of enforcement on those causes—excessive speeding, driving while intoxicated, bad pedestrian behavior, and failure to yield the right of way—which account for the greatest percentage of deaths and injuries. Some cities have started enforcement of pedestrian regulations, but this step is progressing all too slowly.

There is a great need for more City Council interest in and support of strong and certain enforcement measures.

Over all there is progress in all phases of enforcement, however it is slow and spotted.

In the Coates reports, 90 per cent of the cities with more than 250,000 population report that some person in the school system has been assigned by the Board of Education to supervise safety education in the entire system. School progress is encouraging. Many high schools are taking up behind-the-wheel driver training. Classroom instruction in automobile driving and traffic safety is being carried on in well over 50 per cent of the cities in the population bracket from 100,000 to 500,000.

The President's Conference recommended that continued efforts be made to interest the citizens in the community safety program, and to secure public support of constructive efforts by public officials. Public interest is becoming more manifest. Perhaps the terrific post-war death and injury toll has had some measure of effect in this connection, but the direct efforts of the press, screen and radio, public officials, and community organizations are slowly but surely paving the way for greater achievements in all phases of this movement.

In closing it might be well to bring to the spotlight the very significant fact that most of the recommendations made at the President's Conference require some expenditure of municipal funds. Such funds are already available or may be made available without tax increases by the motorists themselves by reason of parking meter revenues and traffic fines. Since the motorists actually contribute these funds, such funds should in the first place be returned to them through traffic improvements which make for their safety. Strangely enough, nearly every constructive measure adopted not only means improvement in the accident record, but also provides a substantial by-product in the form of revenue received from enforcement of such measures. Such revenue not only covers their cost, but produces a net profit! Pointing specifically to Dallas, Texas, the revenue in the municipal court and the fines bureau eight years ago amounted to approximately \$7,000 per month. The traffic control movement begun during that year has consistently made improvements since. Today, as a result, largely of the splendid enforcement program backed by public support, the returns from them amount to over \$100,000 a month, or well over a million dollars per year! This is far in excess of the cost of every traffic control measure which has been asked for and approved during 1946. These measures include substantial amounts for traffic engineering, more and better trained police manpower, a new court building, three motor vehicle inspection stations, a completely equipped driver training program as a starter in one of the high schools, and an adequate budget for the public traffic educational program. The adoption of these measures by the city government is not only reducing deaths and injuries, which is the primary objective, but is producing an amazing amount of revenue with which to carry on the program. The beautiful thing about it is the fact that the public heartily supports it.

My talk will be confined to two subjects: one, a book and, two, an organization. The book is known as the New Testament of traffic safety. It is just that. The story it tells offers new hope that lives will be spared in the rush of travel along America's streets and highways in the years ahead. This all-important book is the compilation of the proceedings of the President's Highway Safety Conference, the Plan of Action for traffic safety. This book can be the new route to traffic safety in the United States. If all the recommendations could be put into effect over night, our traffic toll would drop to 8,000 or 10,000 fatalities a year.

When nine out of ten people want safety—and not before—we will achieve our aims. Through the National Committee for Traf-

Coordination Through Public Support Organization

By W. EARL HALL

Managing Editor, Mason City (Iowa) and Chairman, National Committee for Traffic Safety Summary

My talk will be confined to two subjects: one, a book and, two, an organization. The book is known as the New Testament of traffic safety. It is just that. The story it tells offers new hope that lives will be spared in the rush of travel along America's streets and highways in the years ahead. This all-important book is the compilation of the proceedings of the President's Highway Safety Conference, the Plan of Action for traffic safety. This book can be the new route to traffic safety in the United States. If all the recommendations could be put into effect over night, our traffic toll would drop to 8,000 or 10,000 fatalities a year.

When nine out of ten people want safety—and not before—we will achieve our aims. Through the National Committee for Traf-

fic Safety we are trying to get the safety story to every person in the United States. Our aim is to get those nine out of ten persons—and all ten if humanly possible—to believe in safety and think safety constantly.

However, there will never be an entirely satisfactory solution to the traffic safety problem until we have a safety organization in every community. Where one already exists, we must do our part to assist it in every way possible. Where there are none, we must do our part in helping to set up such a safety organization. These are broad steps, certainly, but they are the basic steps necessary for saving the lives of our families, our friends and neighbors in the slaughter that is calmly called "America's traffic toll."

The Function of the Coordinating Committee for Federal Departments

By ROBIE DUNMAN

Staff, Federal Committee for Highway Safety

Five months ago the President's Highway Safety Conference recommended that three committees of independent and equal status be formed for the purpose of coordinating a highway safety program on a nation-wide basis. The three committees recommended were, a Coordinating Committee for Federal Departments, a National Committee of State Officials and a National Committee of Non-Official Organizations. Coordinating committees were also recommended for the States, counties and municipalities.

Executive Order 9775, giving effect to the Conference recommendation, is one of the great documents of the highway safety movement. When the President signed this order the Federal Government formally recognized the prevention of traffic accidents as a national problem. The document is a charter for the Federal Departments to stimulate and coordinate their own high-

way safety activities. It authorizes the Federal Departments to cooperate with other agencies, official and non-official, in the field of highway safety, and provides the vehicle for encouraging such cooperation. The Order provides for continuation of the Federal leadership as exemplified by the President's Highway Safety Conference. It is additional evidence of the sincere interest of the President of The United States in the traffic accident problem and meets in every respect the Conference recommendation of a coordinating committee for Federal Departments.

The Federal Committee will seek to continue and strengthen the cordial working relations developed between Federal people and representatives of the non-official organizations during the months of preparation for The President's Highway Safety Conference. It will formally recognize The

National Committee for Traffic Safety as the National Committee of Non-Official Agencies recommended by the President's Conference. The Federal Committee will seek the assistance of the National Committee for Traffic Safety and will assist and cooperate with them in every possible way to effect the Action Program.

The National Committee of State Officials will be recognized by the Federal Committee as the keystone of the coordinating structure. It is this group that will have to be out in front and perform the direct effective work. The Federal Committee will recognize the basic principle that to be effective, highway safety operations must be carried on locally. It will cooperate with and encourage and assist the National Committee of State Officials to the fullest extent.

The Federal Committee on Highway Safety will stimulate desirable action through established groups within its member departments.

It is expected that the committee members will be top ranking officers from the Federal Agencies represented on the committee and that each committee member will have a qualified alternate who will function much the same as the technical advisors to the Director and Coordinating Committee of The President's Highway Safety Conference. There will be a small staff located in the former headquarters of the President's Conference, Room 7009, Federal Works Building, Washington, D. C. The telephone number is extension 3151 on Executive 4950.

A large staff would be required to carry out full-scale operational functions in a field as broad as that of highway safety. However, a small staff will be adequate to carry on the coordination function of the Federal Committee. A summary of the activities of the staff, following the President's Conference, should give some idea of the type of activity in which the staff of the Federal Committee on Highway Safety may be expected to engage. Foremost in these activities is the handling of correspondence. Every announcement from the White House or from the office of General Fleming concerning highway safety brings an avalanche of letters. These letters are referred to the staff for handling. Many letters indicate that the writer has a

sincere interest in safety and a desire to be of help, some advance ideas that are not practical, and a lesser number are obviously attempts to sell products or to secure jobs. Business firms have submitted copies of proposed advertising matter carrying safety messages for comment and criticism.

Each letter is given an individual reply based upon the writer's suggestion or request, with the intention of encouraging continued activity in the safety field. Where possible, inventors or those with suggestions of improvements in equipment or facilities are referred to organizations that may be interested or of assistance in their development.

The staff has distributed 70,000 copies of the Action Program and reports of the 8 technical committees. These reports have gone to National organizations, State, county and city officials, safety organizations, newspapers, magazines, radio stations, schools, colleges, universities, committee members and to all those who attended the Conference. In addition, 12,000 Action Programs and Committee Reports have been furnished upon individual requests. Orders for these publications continue to be received. Because of the demand for bound copies of the Action Program and Committee Reports, arrangements have been made for the Government Printing Office to print and bind 500 volumes. The major part of this number are covered by orders now in the hands of the U. S. Superintendent of Documents.

Assembling, editing, and distributing the report of the Conference Proceedings has been another staff chore. This 191-page report includes in addition to the addresses of The President, Justice William O. Douglas and Representative Clare Boothe Luce, the verbatim report of the general sessions of the Conference, a brief report on the activities of each Committee, and lists of the Conference organizations and those in attendance.

Many requests are received from States, counties, and cities for information and assistance in preparation for State and local safety conferences. These requests are being met to the extent possible with the available personnel and facilities. Whenever the Staff has been unable to comply with requests of this nature, they have been referred to some non-official agency known to be interested and willing to assist.

This summary of activities of the continuing Staff of The President's Highway Safety Conference will indicate to some extent the type of activity that may be expected of the new Federal Committee.

The number one project of the new Federal Committee will undoubtedly be the preparation of a manual on highway safety based upon the recommendations of The President's Highway Safety Conference, for use by the Federal Departments. The Army, on July 15th, issued orders endorsing in principle the recommendations of the President's Conference and there should be no opposition by other departments to the adoption and use of such a manual.

Periodic publication, perhaps once each month, of a bulletin or news letter will be a major activity. This publication will go to the approximately 200 organizations and departments making up the three National

Coordinating Committees and will report association safety activities and other matters of general interest.

It is hoped that arrangements can be made with the Post Office Department for stamp cancellations that direct the public attention to the seriousness of the traffic accident problem.

The Committee will become informed of highway safety research projects, programs, and activities of the participating agencies and will serve to make generally available information on this subject.

The Federal Committee on Highway Safety will carry on its activities with this one thought ever in mind—our responsibility to promote highway traffic safety and the abatement of highway traffic accidents can only be met by concerted action with all others who strive for safer streets and highways.

National Committee of State Officials

By LT. COL. FRANKLIN M. KREML

Director, Traffic Division International Assn. of Chiefs of Police
Summary

In line with the President's Highway Safety Conference, the National Committee of State Officials will have its first organizational meeting the first part of November. The members of this committee are: International Association of Chiefs of Police, American Association of Motor Vehicle Administrators, American Association of State Highway Officials, Association of Railroad and Public Utility Commissioners, Association of Chief State School Officers, Association of State and Territorial Health Officers, Governors Conference and Association of Attorneys General. The last two were added to the list appearing in the Action Program of the President's Conference.

The principles set up by the National Committee of State Officials are:

- (1) Traffic control and safety is primarily a state and local job. Serious thinking should be given this principle.
- (2) No new types of official agencies are necessary.
- (3) The "Action Program" is endorsed.
- (4) Coordination is necessary at state and national levels.

- (5) Further research and development are necessary. This was not included in the President's Conference, but research and development are necessary if we want to solve effectively our traffic control and accident problems. It must be conducted on a coordinated and cooperative basis.

Objectives of the National Committee of State Officials as stated in the Action Program are: (1) Appraise present conditions; (2) Coordinate state programs; (3) Liaison with non-official organization; (4) Liaison with Federal Officials Committee. The Committee will work as a coordinating agency, through and for official organizations. Specifically, the committee will evaluate and develop the Action Program. It will endeavor to coordinate the various official organizational activities, resulting in greater efficiency and much faster progress. Citizens, civic leaders, and public officials should give support to participation in the National Committee of State Officials. We must get away from individual and uncoordinated effort.

The National Safety Council's Part in the Over-All Program

By **SIDNEY J. WILLIAMS**
Manager, Public Safety Dept., N. S. C.

My topic is aptly worded because if we in the National Safety Council want the President's Conference to have any lasting results the first thing all of us must do—members and officers as well as staff—is to put on our overalls and apply ourselves to the tedious, often discouraging job of putting the recommendations into effect in every state and city. Not that this is the job of the National Safety Council alone—far from it. To reiterate an oft-stated vital fact, the Conference itself—the committee reports, the newspaper headlines, the flashlight photographs of celebrities—all these add up to little more than nothing unless all of us, officials, highway users, public support groups and everyone else, are willing to toil and sweat, to be rebuffed and knocked down and still come back for more, through all the laborious and unglamorous task of translating words into action.

The things on which the National Safety Council can particularly help are these:

First, the State Conferences: encourage the calling of them, where this has not already been done; help, where requested, on the program; in particular, urge conformance with the strong recommendation of the President's Conference that these state meetings be not just a series of inspirational speeches, but be based on a careful appraisal of the situation and needs in the particular state. For the latter, unless some other and better appraisal can be made, our analysis of the state's report in the National Traffic Safety Contest is available. Then—if requested—help in the

setting up of both the official coordinating committee and the public support committee or safety council; help these bodies to get going and to keep going, by giving them the experience of similar groups in other states; all this, I repeat, if and when requested—not otherwise.

Second—repeat this word for word, for the city or metropolitan area conferences: help in the setting up, the presentation of an appraisal, the formation and operation of a continuing group or groups. Whenever we have a strong local safety council, they will naturally assume this task as well as helping on the state conferences.

Third, the National Safety Council will continue to offer technical and statistical information on accident causes and remedies.

Fourth, the Council will continue to offer assistance to state accident record bureaus.

Fifth, we will continue similar help on state public education programs.

Sixth, we will continue to work with the states on programs of technical and other assistance to their cities, especially those of smaller size.

Seventh, we will support to the utmost all the President's Conference recommendations, through all our channels of national publicity, and

Eighth, through our active participation in the National Committee for Traffic Safety.

In all this the National Safety Council seeks no "leadership" except such as is earned by service.

WEDNESDAY AFTERNOON SESSION

October 9, 1946

Group Session for Police

Presiding: **B. R. CALDWELL**, Deputy Chief, Director of the Traffic Bureau, Police Department, Los Angeles, Calif., Chairman, Police Division, NSC.

Uses of Accident Records

(A Panel Discussion)

Discussion Subjects: (1), Planning the Enforcement Program; (2), Checking Enforcement Performance; (3), Guiding Public Education; (4), Administrative Use of Records; (5), Traffic Engineering Use of Accident Records; (6), Driver Licensing Use of Records; (7), Court Use of Accident Records.

Participants:

CAPT. LESTER J. DIVINE, Traffic Division, Police Department, Oakland Calif.
SGT. JOSEPH L. CHILES, Safety Traffic and Operators License Division, Michigan State Police.

W. BURKE SMITH, General Manager, Massachusetts Safety Council, Inc., Boston.

GEORGE D. EASTMAN, Chief of Police, Seattle Wash.

GEORGE J. FISHER, Assistant Traffic Engineer, Ohio Department of Highways, Columbus.

MAJOR A. F. TEMPLE, Chief, Driver License Division, Texas Department of Public Safety.

F. C. SANFORD, Traffic Division, Police Department, Salt Lake City, Utah.

Planning the Enforcement Program

By **CAPT. LESTER J. DIVINE**

We, who have made the field of traffic control our particular specialty, all agree that motor vehicle accidents can be prevented through the use of the three "E's," engineering, education and enforcement. In the development of this idea we have also concluded that before anything intelligent can be done in any of these fields of endeavor there must be a pool of accurate, reliable knowledge about traffic accidents and their causes. Furthermore, this knowledge must be properly interpreted before it is of value in traffic accident prevention.

Some traffic administrators have allowed the idea to develop that unusually heavy stress upon enforcement alone will solve the problem. This may be a perfectly natural method of reasoning, since the police officers' primary duty is law enforcement, but we know from past experience that it is not a valid line of thought. Accident investigation and accident record analysis are not only important they are absolutely essential to successful selective enforcement. It is, therefore, important that traffic ad-

ministrators recognize this and maintain adequate accident investigational and analytical services, capable of developing clear, concise and complete reports of the existing accident picture. When this has been done, the groundwork for good enforcement planning has been laid.

Adequate enforcement planning requires a complete awareness of the desirability of selective enforcement. The tremendous toll of injury and death seems to indicate that, at this time, many departments choose to completely ignore the principles of selectivity. It might be well, therefore, to review the definition of the term "selective enforcement."

By "selective enforcement" we mean the application of enforcement in terms of patrol strength and violator apprehension in such a manner that enforcement effort is generally proportional to the need for attention in terms of times, locations and causes of accidents as indicated by accident experience. Naturally, this basic plan may be modified to secure adequate concentra-

tion on extremely difficult problems or problems of a special character.

Among the primary factors affecting enforcement planning is the type of police organization concerned. Differences in organizational structures will naturally cause a difference in the methods best used by municipal departments and those used by state forces. In cities, special traffic patrol forces are generally used as true selective enforcement units, leaving the basic coverage to uniformed patrol forces. Statewide policing usually presents a different picture. It is generally necessary to maintain a fairly uniform distribution of manpower, and reserve forces to detail to the "hot spots" are usually lacking. As a result, planning in municipal and state forces differ to this degree.

In cities, all accident record analysis and planning will be done in Traffic Division headquarters. In state work, all general study and planning should be done at headquarters, leaving detailed assignment of manpower to the districts. Because of the distances involved and other factors, local districts will be better acquainted with their own problems and in a better position to effectively detail available men. However, all local planning should conform to the general plans and policies of state headquarters.

Another important factor in the development of the enforcement plan is the analytical program. We must bear in mind that analysis now offers fewer and less accurate clues to the future picture than in normal times, due to the rapid and severe fluctuations occurring during the war years. We are now in the post-war period, a period which will continue to present an ever changing picture. Prior to the war, we were able to plan our next year's enforcement program on the previous three or four years' experience. Now, it is virtually impossible to do so. However, our current records are already demonstrating the directions adjustments are taking and the new trends are apparent. In some cases the administrator will have to rely upon his experience in the field, perhaps even guess a little, but, whenever possible he will use factual data as developed by the analytical method. As the traffic situation "levels off" the repetitious pattern of accidents will again become very apparent.

Under stable conditions, it is possible to plan from one to three months ahead. In order to develop a usable picture, it will be necessary to analyze the experience of the immediate past, using a one to three month period depending upon the volume of accidents investigated. It is possible to use the experience of corresponding periods of time of preceding years, provided allowances are made for any changes which may have occurred in the intervening time. Thus, problem arterials of previous years may not warrant attention now because of the closing of war plants, housing projects, etc.

Severity of accidents bears little relationship to the problem of enforcement programming at this stage. Our primary consideration here involves the accidents which can be prevented by enforcement. Those accidents whose solution lies in education or engineering should not concern us here, for at this point we are dealing with enforcement alone.

The first of the three factors in a selective enforcement program involves the time element. The first step is the distribution of enforcement manpower to conform to the time of occurrence of accidents, a process duplicating the assignment of accident investigation crews. Plotting an hourly frequency curve will graphically demonstrate the need for men by time. For example, if 35 per cent of the accident experience occurs between 4 p.m. and 6 p.m. then ideally 35 per cent of the available personnel should be on duty or at least assigned at that time. It must be appreciated that regular time losses such as court time, meals, special details, etc., will materially affect the orderly distribution of manpower.

A large city will require a 24-hour span of enforcement coverage, generally with overlapping shifts. Smaller communities will probably require less than a full day span of such effort for, where traffic volumes are low, such effort will not be justified. If the accident experience falls below 5 per cent of the total for any given period, for example from 2 a.m. to 5 a.m., that period may be disregarded in our planning, and enforcement at those times left to the accident investigation units and to the patrol divisions.

Similar studies must be made on a day-of-week and on a monthly basis. These

studies will indicate when days-off and vacations can be given without impairing enforcement strength. The important thing to watch here is that men are actually on the street at the times when accidents are occurring.

The second factor to be considered in enforcement planning is "where" are the men to work. In the development of this factor, the administrator's most valuable guide will be his spot maps.

The first step involved in area control of accidents deals with the establishment of beats or patrols. Jurisdiction is divided into districts and line patrols in such a manner as to include in each enforcement beat an approximately equal percentage of the total accident experience. In developing the beats it will be necessary to take into consideration those natural boundaries which are a part of every community.

Area patrols are those in which the officer has a prescribed district within which he covers all streets or roads. A line patrol is one on which the officer rides a designated street or series of streets during his tour of duty. There may be a combination of both area and line patrols wherein a given officer will cover a district for a portion of the tour while covering a line patrol during the remainder. It may also become necessary to superimpose a line patrol on an area patrol. The patrol system should be flexible enough to be altered as circumstances warrant—next month a beat may have to be extended here or shortened there. Constant checking of the spot maps will demonstrate where enforcement is needed.

The third principal factor used in the development of the selective enforcement program involves the violations causing accidents. It is essential that men assigned to enforcement know what the accident-causing violations are in order to effectively deal with the problem.

Of the three factors involved in enforcement planning; time, location, and violation, the last is, perhaps, the most difficult to cope with. Time and place of accidents are both routine tallies in which it is unlikely that great errors will occur. However, from initial investigation of an accident to the man on the street arresting subsequent violators, the interpretation of accident causes may differ considerably. The necessity of having uniformity in the under-

standing of the violation factor of selective enforcement cannot be over stressed.

In the process of building a selective enforcement program the traffic division administrator must have complete assurance that, first, every accident reported is thoroughly investigated primarily to find the law violations (and I use the plural advisedly) which caused the accident. Since it is generally accepted that accidents are caused by a chain of circumstances it is important to know that which occurred prior to the violation which allegedly caused the accident. The importance of this is apparent when one considers that right-of-way violations are indicated as the cause of large numbers of accidents when we know that illegal or unsafe approach speeds are really the basic cause of such collisions.

Secondly, the information concerning accident causes must reach the enforcement personnel. This may be accomplished through bulletins. These should convey to the officer on the street the impression that they emanate from an accurate, reliable source and that the material is current and factual. It is important that the analyst be familiar with the thinking of the working officer and with conditions as they actually exist on the street.

Thirdly, to be successful, selective enforcement requires interested, informed, and capable supervision. Sergeants or squad leaders should be conversant with the method and function of accident investigation, accident record control, and record analysis. For example, officers may or may not cite violations as instructed. The temptation to gravitate to places where "easy" violations are plentiful is very great. Conversely, in some places violations causing accidents may be inadvertently overlooked, deliberately thrust aside as being "petty" or otherwise dismissed. Supervisors must assume the burden of training, discussing and generally demonstrating the necessity of adhering to the plan as outlined by the administration.

There cannot be too much stress placed upon the importance of records coupled with careful, thorough, accident record analysis in the enforcement planning picture. Every stable organization bases its approach to the future upon its records and the police must do likewise, if we are successfully to cope with increasingly hazardous traffic situations.

Administrative Uses of Traffic Records

By CHIEF GEORGE D. EASTMAN

Police records systems should, in the main, perform four major purposes:

1. Act as an official memory of police operations.
2. Make a public accounting for police operations and monetary expenditures, and by so doing, successfully interpret police methods and objectives.
3. Perform in a disciplinary manner.
4. Serve as a base for the analysis of emerging situations, and in the anticipation of problems, and assist in the development of plans.

In the complex undertakings performed by many men, precision and certainty in action and control over far-flung operations can be secured in some degree through a requirement that the manner of performance shall be recorded and this record be summarized, tabulated, and otherwise adapted to the needs of administrative review.

Only by this method may the policies and driving force of the administrator be extended throughout all of the ramifications of a metropolitan police department. The administrator must have, in condensed, readable form, an accurate summary of activities to use as a "line of progress" check. It is imperative that the administrator know what is happening and what effect police service is creating. He must also be able to locate inadequacies in planning and deviations from policies, at the time they first appear.

An adequate records system is the only feasible manner of properly evaluating the efficiency and performance of individuals. Standards of performance and efficiency must be created on a basis of known facts.

Only by proper recording, classifying, and tabulating incoming complaints, reports, and requests from the public will the administrator be able to accurately determine the extent of the problem posed.

The traffic administrator has his objectives clearly defined for him by the nature of his assignment. Broadly defined, his dual purpose is to: (1) Reduce accidents; (2) Expedite the flow of traffic.

It is realized, of course, that there are many factors that must be considered and

many activities that are included in the operations of his division, but in the final analysis, the two objectives mentioned are the primary obligations of any traffic unit.

The principal administrative use of traffic records is to determine the "where" and "when" and "why" of accidents. This is the very foundation of selective assignment and selective enforcement, which are accepted as the keystones of a proper traffic program.

These activities stem from traffic records and their application can only be checked, adjusted, and guided by traffic records.

(1). Daily recapitulations of arrests and citations are the administrator's constant check on the enforcement activities of his entire unit. The daily activity report from individual officers and their monthly recapitulation are the similar checks on the activities of the persons in the unit.

(b) Daily tabulation of reported accidents, by type, location, and time of day, keep the administrator up-to-date on the accident problem and indicate necessary changes in assignments and tactics.

Uniformity of action and adherence to policies and tolerances established by competent authority is a prerequisite to progress.

Selective assignment and enforcement have taken the guesswork and haphazardness out of traffic programs. Analysis and a clear understanding of the traffic problem have resulted in definite plans for solving, or in decreasing this problem.

All of these are of no avail, if the activities which are designed to put these plans into effective operation are not efficiently done, by the prescribed methods, in the prescribed manner.

It is therefore fundamental that the administrator must have accurate, current, and concise information as to whether this is being done. Traffic records are the only method of acquiring this information.

My department represents an annual investment of \$2,000,000.00 by the public. The Traffic Division accounts for the expenditure of an appreciable portion of this sum. The public is entitled to know just what they are receiving for money so invested.

While the Police Department is not in a position to end a fiscal year with a balance sheet showing an actual cash outlay and pecuniary return, dollar for dollar, it should be in a position to show that the money spent has been justified by the returns from the investment.

Traffic administrators must also be able to show that the methods and objectives established by them are adequate, effective, and proper. They must be able to substantiate these methods and objectives both from the standpoint of solution of the traffic problem and as reasonable expenditures of manpower and finances.

Accurate, complete traffic records, properly tabulated and summarized, are the only practical manner of attaining these ends. The numerous intangibles that make evaluation difficult which are present in any police program, are emphasized and exaggerated in a traffic program.

By means of accurate records of public relations and activities, driver consultations, safety education operations, and traffic engineering activities, many features of traffic programs which have been heretofore on an "estimate" basis can be brought much closer to a factual basis.

By including a true presentation of the

relative value and desirability of these intangible factors in an over-all report, together with the more concrete items already mentioned, traffic records approach the fulfillment of one of their major purposes.

While the function "To act as an official memory of police operations" is listed as the first major purpose of a records system, it is actually one of the most passive of uses.

It is obvious that the many and varied activities cannot be trusted to human memory, but a records system designed merely to record and hold information is scarcely deserving of the designation of a unit of the police department.

Complete information, properly indexed, is extremely valuable during the investigation of a case, but unless this information is used beyond the specific case, the retention of it in the files serves only as an accumulation of doubtful historical value.

In conclusion—while there are several basic administrative uses of Traffic Records, it is safe to say that an alert, earnest traffic administrator will find that he is constantly finding new uses for records and each new use will suggest other worthwhile uses and studies which will better equip him to discharge his duties and responsibilities.

Traffic Engineering Use of Accident Records

By GEO. J. FISHER

The traffic engineer uses the records, relating to traffic accidents in his area of operation, as the backbone and basis for his program of activities. They are used by him to:

1. Select locations most in need of improvement.
2. Justify the installation of signs, markings, traffic signals or channelizing islands.
3. Warrant a reduction in the statutory speed limits.
4. Establish one-way streets.
5. Justify the enactment of traffic regulations for safer operation at these locations.

Perhaps not all of the uses have been enumerated, but a sufficient number has been given to show that accident records

are all important to the engineering phase of traffic safety and facilitation.

A few phases of accident recording and filing that have been very useful to us in Ohio may be helpful to others who are not employing such methods of analysis at present.

First: Computing Mileage Accident Rates

It has been generally recognized that a direct relation exists between the frequency of accidents and the amount of highway usage, which may be expressed as a rate per million vehicle miles. Such a rate may be established for the entire street or highway system by dividing the total number of accidents by the annual travel in terms of millions of vehicle miles. Such a rate, established on an annual basis, may be regarded, for purposes of analysis, as the

existing average rate of the entire street or highway system.

In Ohio, for example, the rate for 1945 on our rural state highway system was 1.9 accidents per million vehicle miles. While this rate does not seem serious, it must be remembered that a mile section of highway with an average daily traffic volume of 2700 vehicles will aggregate a million vehicle miles of travel during a year.

Accident rates were computed for all sections of the Ohio rural state highway system, based on reported accidents and highway travel of each section. Sections having an accident rate above the 1.9 index were summarized and the summary revealed much valuable information concerning the prone sections of the system. The summary was also used to determine the need for a traffic engineering study of the sections and to justify the incorporation of improvements and the establishment of specific traffic regulations.

A study of the day-night ratio of accidents on each individual prone section was also useful in determining the need for reflectorization of signs and the application of glass bead paint for lane and center markings. In fact, a map showing these prone sections could be the basis of signing and center lining programs.

Second: Spot Maps

Most state traffic accident record bureaus keep and maintain various kinds of spot maps to show the frequency and locations of accidents. From an engineering standpoint, it might be advisable to keep a spot map for rural areas with a map legend according to roadway character.

The map pin colors would then indicate curves, hill crests, grades and driveways.

Checking Enforcement Performance

By SGT. JOSEPH CHILDS

Mich. State Police

My subject implies that an enforcement program is in operation, and that we wish to determine its effectiveness. The theory of traffic law enforcement is that it prevents traffic accidents. The effectiveness of a T. L. Enforcement Program is therefore determined by the number of accidents it prevents.

These kinds of locations usually cannot be identified on the ordinary spot map.

By using colored pins to represent the character of the roadway, it is possible to identify curves, grades and hill crests. This is particularly helpful in spot analysis of specific locations since the reference points are none too accurate on the original accident report.

In Ohio, we also keep a five-year map of accidents at specific points such as intersections, bridges and railroad crossings. While this seems like a duplication of work, we have found that such a map is necessary to identify locations where the accident frequency for any one year is not sufficient to justify detailed analysis.

Third: Summary Sheet

If the accident record bureau and traffic engineering division are separated, it is difficult to obtain all of the necessary information needed in preparing strip maps or collision diagrams of the original accident data without actual reference to each individual report.

We have developed a special summary form (8 1/2"x11") on which the location, date, time and other customary information on each accident are tabulated. However, the form is so made up that sufficient space is available for showing the position of vehicles, direction of travel, point of impact, etc.

By using a template to outline the roadway and carbon inserts between sheets, it is possible to transcribe all necessary accident data plus a diagram of the accident on a small size sheet. With such a form, detailed analysis of sections of roadway, intersections, etc., can be made without reference to the original report.

Enforcement performance must therefore be checked against accident frequency. Traffic Accident Frequency can only be determined by careful analysis of accident records.

A thorough analysis of traffic accident records in order to determine not only the number of such accidents, but in order to

determine WHERE they are happening WHEN they are happening and WHY they are happening is prerequisite to checking enforcement performance.

A police administrator who plans his enforcement program on the where, when and why of his accidents is on sound ground but his job is not finished when he assigns his personnel. Police administrators must apply similar business methods to his business. He must know not only where his men are assigned but what they are doing as well.

Traffic Arrest Experience must therefore be analyzed in much the same manner as traffic accident experience. It is necessary to know WHERE traffic arrests are being made, WHEN they are being made, and for WHAT OFFENSES they are being made.

When the WHERE, WHEN and WHAT FOR of enforcement experience can be compared with the WHERE, WHEN and WHY of accident experience we can begin to check enforcement performance.

Checking the Enforcement Performance of any police organization is an administrative job which I do not believe can be accomplished in its entirety at Headquarters particularly in a State Organization. The organizational structure of a department must be taken into consideration and a complete plan worked out which not only takes into consideration the department as a whole but each subdivision of the department and finally each man.

For example, we have eight districts in our department, each under the command of a captain who is directly responsible to the Superintendent of the Uniform Division. Within those eight districts are 45 detachments each under the command of a non-commissioned officer and under each non-commissioned officer are from 5 to 20 men.

The accident record section of the Department can and does furnish to the Superintendent comparisons of accident experience with arrest experience for each district.

It is an administrative responsibility of our Superintendent to point out to our District Commanders where their enforcement performance does not compare with

their accident experience and to furnish to the District Commander information which will show the performance of the Detachments under his command.

It is the District Commanders responsibility to point out to Detachment Commanders where their enforcement experience is not up to par.

It is the Detachment Commander's responsibility to know what each man under his command is doing or not doing and to point out to the officers where their enforcement performance needs correction.

If our theory that good, well directed enforcement reduces accidents the police administrator may reasonably expect a reduction in traffic accidents when the WHERE, WHEN AND WHAT FOR of his enforcement experience checks with the WHERE, WHEN, and WHY of his accident experience, provided of course that other things such as volume remains constant.

The administrator may find however that even though his enforcement experience compares favorably with his accident experience accidents have not decreased.

He must then check further.

(a) Perhaps enforcement is not the answer. Maybe engineering is necessary.

(b) Perhaps the enforcement index is not high enough to be effective.

(c) Perhaps a study of accident records for that area will show the need of a safety education program.

(d) Perhaps he will find the conviction ratio of arrests in that area to be unusually low and the number of suspended sentences unusually high because of an uncooperative prosecutor or court.

(e) Perhaps he will find that the mileage or amount of traffic has increased more than was anticipated.

When a check of Enforcement Performance reveals that the WHERE, WHEN and WHAT FOR of ENFORCEMENT does not compare with the WHERE, WHEN AND WHY of accident experience the police administrator may find any one of the following:

(a) His subordinates are not doing their job in the manner in which they were instructed.

(b) He does not have sufficient personnel assigned to that area.

(c) The quality of accident reporting is too poor to make accurate comparisons possible.

(d) An in service training program is needed to stimulate the manpower of the department.

(e) There is not proper cooperation between the enforcement team consisting of the police, the prosecutor and the court.

We do not claim to know all the answers to the problem in Michigan. We do know that the problem is complex. We do know that the better the accident reporting the better you can check your enforcement performance. We have learned that appearances are sometimes deceiving

and that the obvious answer is not always the correct one.

We are following to a considerable extent Public Safety Memo No. 106 entitled "A Method of Using Accidents Records for Enforcement Purposes." It is our belief however that there are several good bookkeeping systems used in business and that in our business of protecting life and property each one of us must set up a system in accordance with our organized structure and the staff we have available.

No doubt many of you have many good and practical ideas. The main thing to remember about an idea however is that it won't work unless we do.

Guiding Public Education

By W. BURKE SMITH

General Manager, Massachusetts Safety Council

Having heard how to plan your Enforcement program and how to check your Enforcement performance, now how do we Guide Public Information?

I humbly submit, it is very simple—just tell the public the story—the story of the accident situation in your city or state—but tell them in a professional manner—tell them all of the details on accidents in a manner which will set up the Police Department as a professional organization within the government which knows what is going on to the minutest detail—and knowing what is going on knows what to do about it provided it has the Three M's so essential to efficient police department operation—Men—Money and Material.

Of course, this is all predicated upon your police department having installed The Standard Accident Reporting System—or its counterpart. Without such a system you cannot tell the public or your city officials the true situation in a professional manner—because you simply do not have the facts. If your department does not have The Standard System or its counterpart installed, I suggest you get a copy of the National Safety Council's Public Safety Memo No. 69 before you leave Chicago—it will tell you how to install and operate it.

But for the purpose of my short discussion with you, let's assume every department represented fully realizes that no

enforcement program is successful without public support—and that such public support is not forthcoming without adequately acquainting the public with the accident picture, and that it is necessary to convince city and state officials of the importance of an adequate traffic accident prevention program in order that sufficient budget will be provided (for all intents and purposes we will consider some such officials as part of the public in this discussion—this is not intended to be derogatory in any sense—officials have hundreds of things on their minds—any number of departments to consider—the department with the best public relations is uppermost in their minds because they do read the papers and listen to the radio, particularly when it has to do with an official agency).

So on with Public Education—what is it? Simply the judicious use of newspaper space, radio time, house organs, outdoor advertising space, lobby and window displays, booths at various expositions and so forth—building displays and creating posters—furnishing data for newspaper articles based entirely and absolutely upon the accident records in your Traffic Bureau as compared with National Records and records of neighboring cities or states as the case may be—and of further importance—telling the public that it is information based upon the summary compiled by your Records Bureau.

Now don't think the space is difficult to get—it isn't if you have a factual story to tell—and your weekly, monthly, and quarterly summaries tell that story.

For example, if you are planning a pedestrian drive, invite the reporter covering headquarters into the Record Bureau and show him the pedestrian record—show him on your spot map where most of them are being caused—check the location file with him for causation factors—you have that on the summary, of course, but let him see your system and how it works—go over special studies you have made on hours of accidents indicating of course when most pedestrian accidents are caused. Even a calloused newspaper man will be impressed (and incidentally, the callousness of newspaper people is only a fallacy—I'm sure you've determined that—they are human even as you and I) he'll ask you questions and unless I miss my guess, will outline a fine program of press notices for your Pedestrian Campaign—and might even, if you're cagey in your approach, rewrite several of them for the house organs in your area.

You can do the same with the program director of your radio station—you may have several—invite them all down to the bureau—give them the same treatment. They, too, will be impressed with the efficiency of your operation—with the fund of factual data you have on file—and presto!—you tell them what you want—they assist in working out a schedule and you have splendid radio coverage for your campaign.

Then phone the display manager of your leading department store or stores. Invite them down to visit you—take them on the same tour—they will be impressed—they are salesmen selling through displays which are attractive and sensational—if they have the facts or the material to build on—you have the facts, you suggest a window display—they'll go to work. You may not always get a front window—it may be a side window or even an interior display—but it will be seen and people will be educated and your campaign will be successful.

The display men usually have plenty of material on hand to build an additional display for downtown office lobby use—you can suggest it, give the store a credit line card—see the building superintendent, and

you have another vehicle for Public Education.

Talk to your leading outdoor advertiser, give him the same treatment and suggest utilization of the 24 sheet posters produced by National Safety Council and The Outdoor Adv. Assn.—he might sell the space to local sponsors or he might give you one or two at no cost for a short period.

But remember—your entire story—your whole Public Education Program is based upon fact—upon your police record of actualities. These people will not assist you, except passively, if you engage in platitudes—if you say "We are having too many pedestrian accidents."

Hit them between the eyes with a statement such as, "Last month 9 pedestrians were hit by cars between A & B Streets on Downtown Avenue—two of them died—if they had walked 200 feet in either direction to the intersection and had waited for the pedestrian signal, there would have been no accident." That, gentlemen, is impressive, and you have inestimable material in your accident record files if you get people interested.

Concerning Expositions—Better Homes, Food Shows, and others of a local nature. The manager of such an affair, according to my experience, is only too glad to provide space at no charge to official agencies—particularly the police as it adds color to his show. So, when such an affair is announced, look up the manager, ask for the space, contact one of the display men in the department stores—and he will assist you in building an exhibit—will no doubt loan you the material and will build it around the records of actualities in your bureau—again not platitudes.

Now, of course, I mentioned a Pedestrian Campaign—merely as an example. But, many others would be developed in accordance with the local situation such as—Accidents at intersections where there is some type of traffic control, speed, mechanical defects, reexamination of drivers, driver education, or publicizing your student patrol.

But again I stress, base it—even if it is a general story on the overall accident situation—upon your records—upon actual fact.

I assume most of you or at least representatives of your department appear be-

WEDNESDAY AFTERNOON SESSION

October 9, 1946

Group Session for Traffic Engineers

Presiding: D. GRANT MICKLE, Traffic Eng., Automotive Safety Foundation.

Relation of Parking to Traffic Safety

(Presented for Wilbur S. Smith, Associate Director, Bureau of Highway Traffic, Yale University, New Haven, Conn.)

By ELROY L. ERICKSEN
Yale Bureau of Highway Traffic

The parking problem is bad, as everyone will admit. One well-known traffic authority, asserted: "As parking is now practiced throughout these United States, there just isn't any such thing as 'Relation of Parking to Traffic Safety,' for there is no safety. There isn't enough space at the curb in downtown districts and use of the available curb space creates many difficulties."

Grandiose plans and schemes have been conceived and advocated, yet no city has completely solved its parking problems. Matters of congestion and the insufficiency of storage capacity are most dealt with because they are daily realities to every motorist and street user. The element of hazard, the influence of curb parking on traffic safety, is less frequently considered because only a small percentage of persons is directly involved and because community effects are not as real. Accidents and hazards involving vehicles parked at the curb should be considered in all studies of parking; data on them are valuable in determining correctives and, more often, aid in getting needed changes adopted. Parking causes congestion and congestion may cause accidents. Removal of congestion will often reduce accidents.

The influences of parking on traffic safety are elusive and it is often not possible to prove all the hazardous conditions created. Many cases and examples, however, prove that improvements can come from parking changes.

Facts About Parking Accidents

General Involvement of Parked Vehicles in Accidents: In cities and in states, collisions involving parked cars (including parking and unparking) constitute a substantial part of all accidents. The latest information compiled by the National Safety Council¹ shows 9.2 per cent of all accidents in urban areas and 4.5 per cent in rural areas involving parked cars. Only 1.3 per cent of urban and 2.5 per cent of rural fatal accidents involve parked cars. To these values, however, can be added several others related to parked vehicles; five per cent of the urban accidents involved cars leaving parked positions—1.1 per cent of the rural; 2.6 per cent of the urban and 3.9 per cent of the rural mishaps involved cars stopped in traffic. It is evident, then, that approximately 17 per cent of city accidents and 10 per cent of rural accidents involve vehicles which are parked, maneuvering into or out of a parked position, or stopped in traffic.

It is further significant that 5 per cent of the pedestrians killed in cities and 6 per cent of those killed in rural areas, entered the roadway from behind parked cars. Nine per cent of pedestrians injured in each area came from behind parked vehicles.

A study made in 1940 in 10 large cities shows that accidents due to parking range from 5 per cent to 28 per cent of the total accidents reported.²

A survey of rural accidents in 12 states indicated accidents involving parked or stopped vehicles constitute 12.4 per cent of all rural accidents, with a variance between the 12 states from 6.6 per cent to 16.3 per cent.³

¹Accident Facts, 1946. National Safety Council, pp. 65-66.

²"Accidents Due to Parking in Congested Areas"—L. E. Bender, Bureau of Highway Traffic, Yale University, 1940.

³"Accidents on Rural Highways Due to Parking"—W. W. Davis, Bureau of Highway Traffic, Yale University, 1940.

Recent figures from Flint, Michigan⁴ show that 12.3 per cent of the accidents in the business district involve parking.

Figures for rural accidents on state highways in South Carolina⁵ for 1946 show that 7 per cent of all mishaps involve vehicles parked or standing. Vehicles stopped on roadway or in a parking maneuver were noted in 10.7 per cent of the accidents.

Some of the best roads experience many parking accidents. One of the nation's most talked of highways, the Merritt Parkway, has many accidents involving parked vehicles: From June, 1938 to July, 1940—17.7 per cent of all accidents involved parked cars; from May, 1945 to April, 1946—12.2 per cent of all accidents involved parked cars. During some years of the war period, one-fifth of all accidents on this road involved parked vehicles.

A recent study of accidents involving Army vehicles⁶ shows that 3 per cent are attributed to unsafe parking, and approximately an additional 7 per cent to unsafe backing from parking spaces. About 10 per cent of these accidents, then, are of the parking type.

Delay and congestion in traffic, even though they do not produce accidents at the point of trouble, may cause accidents elsewhere. Rushing to make up the lost time, chances induced by irritated minds, and other outgrowths create hazard. An example from San Antonio⁷ shows that the correction of a bottleneck near an intersection reduced accidents 71 per cent within a one-block radius.

Influences of Angle and Parallel Parking on Accidents: Angle and parallel parking usually produce different accident rates. In most instances, parking accidents are more numerous where angle parking prevails. The indirect influence of angle parking on accidents is also greater than that of parallel parking. Persons leaving such spaces are inclined to inject their vehicles blindly into the traffic stream, forcing moving cars to swerve, inducing collisions with vehicles in other lanes. More congestion is created and congestion breeds accidents.

To avoid collisions with cars parked at an angle, drivers tend to "steer clear" of the rear of such vehicles, usually clearing them by as much as five or six feet. Some will even drive with their left wheels over the center-line to clear parked cars.

Another hazard created by angle parking is that of drivers making U-turns across on-coming traffic to enter curb spaces on the opposite side of roadway.

Eliminating all-day and long-time parking, parallel parking will often accommodate parking demands except during periods of extreme demand. At these times, even angle parking does not meet the full needs.

A survey on a business street in Chicago⁸ revealed a 63 per cent reduction in accidents when angle parking was changed to parallel.

A study in an Oregon city⁹ reveals more accidents with angle than with parallel parking. Two street sections of the same length and almost identical widths have solid business frontages. Each street has an average daily traffic of 8,000 vehicles. With other types of accidents about the same for the two sections, parking collisions are almost three times greater on the street with angle parking than on the one with parallel parking.

In Miami Beach, Florida¹⁰ in 1938, cars were parked diagonally on Washington Avenue—an 80 foot street. Thirty-six per cent of the city's accidents and 65 per cent of the transit accidents occurred on this street; delays were terrific. In 1939 angle parking was changed to parallel and speeds were controlled by a flexible progressive signal system. A check after one year showed only 3 per cent of the city's accidents and 1 per cent of the transit accidents on this street. Results were so good that all diagonal parking is now being eliminated in the city.

An interesting case comes from Kansas City, Missouri.¹¹ Accidents were reported for streets on which angle parking was changed to parallel in 1938, and was changed back to angle 18 months later. With angle

⁴Data furnished by Mr. Henry A. Barnes, Traffic Engineer, Flint, Michigan.

⁵Information furnished by South Carolina State Highway Department.

⁶Figures supplied by Mr. R. S. Holmes, Safety Branch, U. S. War Department.

⁷Information furnished through American Transit Association by Mr. H. A. Briggs, Safety Dir., San Antonio Transit Company.

⁸A Plan to Relieve Traffic Congestion in the Ashland-7th Shopping Center—July 1939, Chicago Motor Club, City of Chicago and Chicago Surface Lines.

⁹Data furnished by Mr. F. Bruce Crandall, Acting Traffic Engineer, Oregon State Highway Commission.

¹⁰Data furnished by Captain John Hoover, Traffic Inspector, Miami Beach Police Dept.

parking there was an average of five accidents per block per year involving parking; with parallel parking, one accident per block per year, an 80 per cent reduction.

A main street in a Minnesota town of 10,000 population reported a bad traffic condition. Signals were requested. Parking was changed from angle to parallel. Accidents were reduced and movements became so orderly that signals were no longer sought. Six months before the change, 27 accidents were reported which involved parking or unparking. During the six months following the change which included heavier traffic and a period of higher accident frequencies, there were only 16 accidents—a 41 per cent reduction. Enforcement and other conditions were unchanged.

Even though facts on curb parking accidents may not convince officials that angle should be changed to parallel, they often prevent changing parallel to angle. Such a situation developed recently in Macon, Georgia.¹ A study on a downtown street in 1945 showed that 57 of 182 accidents, 31 per cent of all reported accidents, occurred on an especially congested 1200 foot section. In these 57 accidents, angle parking was the cause or major contributing factor in 76 per cent. On two of six blocks of another important street in Macon, angle parking prevails. Of 68 accidents in the six blocks in 1945, 30, or 47 per cent, occurred on two blocks with angle parking. The cause of 47 per cent of these 30 accidents was traced directly to parking. With these examples, moves to abolish parallel parking on other streets were defeated.

Double-Parking Induces Accidents. In many city areas, sufficient loading and unloading zones are not provided at the curb or off-street, for commercial vehicles. In others, the facilities provided are not well used because of lax enforcement. As a result, many collisions involve, or are caused by, vehicles double parked, stopped in the roadway, or, for that matter, at the curb where general parking is prohibited.

A study made by a transit company² revealed that double parked vehicles either directly or indirectly contributed to 17 per cent of bus accidents in congested areas. These collisions represent 4 per cent of the company's total for the city.

When double parking is allowed to go

unregulated, serious conditions can develop. A case was furnished in which double parking had been permitted to such an extent that few drivers now pull to the curb, fearing entrapment by double parkers. Another case indicated that this condition had grown so bad in a small town that the highway department was requested to erect signs along main streets saying "No Triple Parking." Parking had moved completely away from the curb. These conditions illustrate dangers stemming from enforcement at its worst.

Stalled and Stopped Vehicles. Because of mechanical failures and for other reasons, many vehicles stall or must be stopped in the traveled portion of the roadway. Often the stop is of an emergency character. A number of collisions take place with these vehicles and driver actions aimed at averting collisions often result in other types of accidents. These conditions are usually worse in rural areas where speeds are high and transverse maneuvering areas are restricted. Short-sight distances obviously contribute greatly to such mishaps.

Collisions with vehicles stalled or stopped in the roadway are apt to be more numerous and more severe during hours of darkness. Frequently the vehicles are not lighted and adequate advance warning is not given.

In 1945, about two-thirds of the deaths involving vehicles engaged in interstate commerce with mechanical defects, involved vehicles stopped in or along the roadway.³ One-fourth of the mechanical defect accidents were due to vehicles colliding with vehicles which were disabled. 27 per cent of all interstate motor carrier accidents involved vehicles stopped because of mechanical failures.

"Runaway" Vehicles. A surprising number of accidents involve vehicles which break loose from parking places on grades. Brake failures and carelessness are usually the causes. Not only are such actions likely

¹Fact submitted by Mr. T. J. Seburo, Traffic Eng., Dept. of Public Works, Kansas City, Missouri.

²Information furnished through American Transit Association by John Gerson, Manager, Transportation, Georgia Power Company.

³From study of San Antonio Transit Company by Mr. H. A. Briggs, Safety Engineer; furnished through American Transit Association.

⁴"Analysis of Mechanical Defect Accidents of Motor Carriers—1945," Interstate Commerce Commission, August 1946, page 4.

to result in severe damage to the "runaway" vehicle, but, also, great dangers are created insofar as collisions with other vehicles, persons, and property are concerned.

An I.C.C. study⁴ of mechanical defect accidents of motor carriers for 1945 shows that 24 of 31 accidents involving parking were due to brake failures; some occurred while the vehicles were parked on grades, others when engines failed going up-hill. In both cases, "runaway" conditions were created.

Unattended cars left with motors running have also been known to create "runaway" problems. When cars are parked with motors running, another hazard develops from the likelihood of carbon monoxide poisoning. Insurance companies report accidents resulting from persons becoming affected by carbon monoxide while stopped. Not realizing their "groggy" condition, they become involved in collisions upon starting their cars.

Parking Violations and Inadequate Control Cause Accidents. Double parking, parking on the wrong side of the street, parking in prohibited zones, parking too far from curb, parking improperly as to space layout, and other such violations add to the hazards created by parked cars. One case is known of a city which legalized double parking on downtown streets—and soon regretted it!

Irregular parking at the curb and on an 84 ft. median strip on a highway in Michigan⁵ created a serious accident problem. Strict regulation aided by erection of a fence around the median strip to control exits and entrances, brought an 87 per cent reduction in accidents involving parked cars.

Pedestrian Accidents Affected by Parking. Many pedestrians are struck by motor vehicles as they enter the roadway from behind parked cars. If no parking prevailed there would not be a visual obstruction created to develop this hazard. Most correctives will likely come from control of the pedestrians, rather than the parking of vehicles. However, there are some cases in which the matter of improving the visibility between motorists and pedestrians is of sufficient concern to justify drastic prohibitions, or controls, in curb uses for parking.

Pedestrians in the roadway in the process of working on or pushing stalled vehicles

cause another problem. Other accidents have been reported in which persons, especially children, were seriously injured or killed from being struck by moving vehicles after falling from parked vehicles. Persons getting out of parked cars and cabs on the street side cause other pedestrian mishaps.

Involvement of Transit Vehicles in Parking Accidents. Buses and street cars, because of their size and operating characteristics, are often involved in collision with stopped vehicles and with vehicles in the process of parking or unparking. In addition, these vehicles are delayed by improper parking and stopping practices; running times of buses and street cars have been greatly reduced by changing from angle to parallel parking, by prohibiting parking entirely, or during rush-hours, and by other parking correctives.

Parking in bus stops, particularly during peak hours, is especially hazardous because of the congestion developed and because of exposures to traffic of persons using buses.

Patrons of mass carriers may be unduly endangered by situations developing at loading and unloading points by improperly parked vehicles or by inadequate parking regulations. Patrons like to step directly from the curb to the bus, or vice-versa, and will attempt this for distances up to four feet, resulting in mishaps and injuries.

During the first 8 months of 1946, 10.4 per cent of all street car accidents, and 18.9 per cent of all bus accidents in New Orleans⁶ involved parked cars. Many more were undoubtedly due to parking maneuvers.

Trying to "squeeze in" another parking space near the intersection, especially where meters are used, causes traffic problems. A case from San Antonio, Texas,⁷ is typical; buses making a right turn were involved in 5 accidents in a four-month period at an intersection in the business district. Delay and congestion were developed by buses in negotiating the turn. One parking meter was eliminated at the intersection and no

⁵"Getting Results," No. 3, National Conservation Bureau. Example submitted by Mr. J. L. Webmeyer, Traffic Engineer, Wayne County, Michigan.

⁶Information furnished through the Transit Association by Mr. J. C. Balme, Jr., Gen. Supt. RR Dept., New Orleans Public Service Co., Inc.

⁷Information furnished through American Transit Association by Mr. H. A. Briggs, Safety Director, San Antonio Transit Co.

accidents of the above type have occurred in two years; delays due to bus turns were also eliminated.

Prohibition of parking opposite street car loading zones and on the approaches to these zones reduces accidents. The sign on the end of a loading zone in the District of Columbia² was knocked down 22 times in a 13-month period. The throat on the right side of the platform was opened by removing three parking spaces preceding the approach to the zone. Accidents were all but eliminated—one was reported in 9 months.

During an approximate two-year period, two street car lines operating over narrow streets in the business section of New Orleans³ had 708 accidents. Five hundred, 71 per cent, occurred on a section of the line which represents only 25 per cent of the round-trip distance. Of these 500 accidents, 30 per cent were collisions with parked cars; this shows the strong influence of illegal parking on transit accidents.

Prohibition of Parking Often Necessary. Where traffic densities are heavy, congestion and accidents may be greatly reduced by prohibiting parking at the curb and by rigidly controlling loading and unloading operations. Results of such actions are shown by many experiences. Congestion was great and accidents were numerous in mid-town Philadelphia⁴ in 1946 due to one-way streets with center car tracks and left-side parking. By prohibiting parking on practically all streets, permitting loading and unloading only on the right side, and allowing loading of heavy materials on the left side only with special permits, average speeds were practically doubled and accidents were reduced 15 to 20 per cent in the affected area while city-wide they increased 45 per cent.

On a street in Washington,⁵ parking at the curb was prohibited for a distance of about 2 miles. The street is 42 feet wide, with a double street car track in the center. After a year, a 27 per cent reduction in accidents was noted, with the same volume of traffic.

Buses operating on a two-block section of a narrow street in New Orleans were involved in 27 collisions with parked vehicles in seven months. Parking was eliminated on one side of the street in one block and only commercial loading was allowed

on that side of the other block. After more than a year, no collisions were reported on the first block and only four occurred on the other block.

When parking is prohibited, care is necessary to see that stopping and standing is not allowed. One truck parked on a street creates a bottleneck and reduces the efficiency of the street. Many side-swipe accidents are caused by cars pulling out and around parked trucks, or three lanes converging into two or two into one. Any stopping or standing, even momentarily, seriously impedes the flow of traffic on heavily traveled streets, making a stringent ban necessary. Streets on which parking is not allowed in Washington, D. C. have had their capacity increased 15 per cent by enforcing "No Stopping" regulations during rush hours.

A reservoir for vehicles on the approach to a signalized intersection can be created by prohibiting parking for a distance of 50 to 150 feet from the intersection. Such action results in efficient intersection performance and signal operation, thus reducing hazards. When street widths change at intersections, parking prohibition on the far side, on the narrow street, reduces the bottleneck effect and eliminates collisions.

Prohibiting parking during rush hours is becoming a common practice to alleviate congestion. Such action invariably reduces accidents. On an important artery in Washington, D. C.,⁶ 60 feet wide and occupied by a heavily used street car line, parking was prohibited on one side from 7 to 9:30 am and on the other side from 4 to 6 pm. A check-back after 3 months revealed a 70 per cent reduction in accidents, with a marked increase in speeds and traffic volumes.

Prohibition of parking in the congested area of Dallas, Tex., during the afternoon

²Information furnished by Insp. A. E. Miller, Met. Pol. Dept., Washington, D. C.

³Data obtained from the American Transit Assn., from J. C. Beane, Jr., Gen. Supt., St. RR. Dept., New Orleans Public Service, Inc.

⁴Engineering Record, No. 76, National Conservation Bureau. Example submitted by Mr. E. A. Mitchell, Chief, Bureau of Traffic Engineering, Philadelphia, Pa., and from information furnished by Philadelphia Transportation Company through the American Transit Assn.

⁵Information furnished by Insp. A. E. Miller, Met. Pol. Dept., Washington, D. C.

⁶Information furnished by Capital Transit Co., through American Transit Assn.

from 4:30 to 6 p.m. has given marked relief from accidents and delays.⁷ Average speeds increased 27 per cent. A "Before" and "After" check of accidents for 3 months showed 15 accidents (6 property damage) before the change and 11 accidents (all property damage) after the change; a 21.6 per cent reduction in all accidents and elimination of personal injury accidents.

Accidents during peak hours of the afternoon (4:30 to 6 pm) were practically eliminated over a four-block area in New Haven⁸ by prohibiting parking. "Before" and "After" studies reveal an 88 per cent reduction in all accidents with parking at the curb prohibited. Similar prohibition on two blocks of another street show even better results in terms of accidents prevented.

Eliminating parking in congested areas need not destroy business. It must be remembered, however, that complete elimination of parking without off-street facilities can destroy the utility of streets. A realistic analysis of the curb capacity available to each business establishment on most business streets will always reveal that few businesses would ever have as much as one full parking space per place of business—it is just impossible to affect business greatly by curtailing or prohibiting parking in such areas!

A congested business street in St. Paul⁹ was greatly improved by eliminating parking, resurfacing, installing new curbs and sidewalks, and eliminating all trolley poles, ornamental lights and advertising signs which extended more than 12 inches from store fronts. Limited deliveries are permitted from 9 to 11 am only. The street has been so "opened-up," without widening, that traffic is greatly expedited, accidents are reduced, and business has increased from 20 to 40 per cent since the improvement.

Influence of Road Design on Parking Accidents. There are many phases of design in both rural and urban roadways which have a direct bearing on involvement of parked cars in accidents.

Curb heights, sudden transitions in street widths, and inadequate widths to accommodate both moving traffic and parking are perhaps the most common design factors inducing parking accidents on city streets. In the first case, vehicles may not be able

to park properly nor may occupants properly leave cars because of extremely high curbs preventing opening of doors; lack of adequate curbs may encourage the improper positioning of parked vehicles so as to obstruct sidewalks. Bottlenecks and inadequate widths for traffic loads necessitate changes in space arrangements, expensive widening, and rigid regulations which may be difficult to enforce.

Widened streets and special curb cut-backs may allow parking and, at the same time, remove interference with moving traffic. In some cities the land owners have volunteered to bear the expense of such treatments rather than risk the enactment of parking prohibitions. Control of the design, construction and use of such special curb cut-backs is essential. Minimum depths of 18 feet or 20 feet, pavement markers requiring parking at not greater than 45 degrees to the line of the roadway, and adequate sight distances at intersections are among the needs suggested. Effect of maneuvering to and from cut-back parking stalls on traffic lanes should also be considered in its adoption.

Rural and suburban areas present a number of additional design factors which have direct relationship to parking hazards. Inadequate shoulders make it difficult, even impossible, for vehicles to be stopped off the traffic portion of the roadway. On some of the newest highways in this country, there are very narrow shoulders which are obviously not capable of being used by vehicles, even in emergencies. Cases are known in which guard rails are constructed so close to the pavement as to make it impossible for an automobile to be driven off the concrete.

Getting vehicles off the traveled surface is further complicated by the construction of curbs along rural highways where parking is not permitted on the roadway surface. These curbs constitute at least a partial barrier, and discourage motorists from driving over them onto shoulders that might be available. The need for properly designed curbs, if they are used at all, is imperative.

⁷From information supplied by Mr. W. C. Braddock, Traffic Engineer, Department of Traffic Control, Dallas, Texas.

⁸Data procured from Mr. H. P. Clark, Chief of Police, Dept. of Police Service, New Haven, Conn. ⁹From information supplied by Mr. J. E. P. Darrell, Asst. Traffic Engr., Mass. Dept. of Highways.

Bus turnouts created by widening and surfacing shoulders on rural and suburban roads have reduced accidents in many localities. The dangers of collisions with school buses, to children using them, and other types of accidents are alleviated by providing adequate space on the shoulders for bus stops.

The inavailability of parking and emergency storage spaces on bridges, fills and other locations on rural roads creates additional accident hazards involving parked or stalled cars.

Failure of highway designers to provide adequate turn-outs and parkway areas at points of scenic interest, and elsewhere where stops are commonly made by motorists, can also create a parking hazard which may contribute substantially to accidents.

Some highway engineers construct four-lane undivided roadways adjacent to cities and through small towns without allowing sufficient pavement width for parking. Since parking cannot logically be prohibited and since even an occasional parked car reduces the travelway by one lane, such practice becomes short-sighted. Almost invariably, where four-lane undivided roads are justified in such areas, curb space is needed for parking. Unless sufficient width is provided for curb parking, the effective street width is reduced to two-lanes and congestion and hazard are created, again bringing the matter of parking squarely into road design.

Relationship of Access Control to Parking. Along many roadways through suburban areas the problems of access control become especially acute in relation to accidents. Where promiscuous entrances and exits are permitted, many accidents are likely to occur. A common location of this type for accidents is at the road-side stand or "honky-tonk" where drinking, festive attitudes, and other conditions are apt to contribute to hazards developed by parking and unparking actions.

Other access hazards develop at parking lots and garages. While these may not directly involve parked vehicles, they grow out of terminal actions.

Summary and Conclusions

Several suggestions have been made in this paper, and examples shown, of utilization of accident facts in dealing with curb parking problems.

Delay and congestion, even though they do not produce accidents at the point of trouble, may cause accidents elsewhere. An example has been cited where correction of a bottleneck near an intersection reduced accidents 71 per cent within a one-block radius. Short-sight distances contribute to such accidents and in hours of darkness advance warning and vehicle lighting are extremely important for accident prevention.

"Runaway" vehicles frequently break loose from parking places on grades. Brake and up-grade engine failures and carelessness are frequently the cause. Drivers affected by carbon monoxide while parked with engine running have been known to become involved in collisions upon starting.

Space violations and inadequate control such as double parking, parking on wrong side of street, parking in prohibited zones and other such violations add to hazards created by parked cars.

Although pedestrian accidents resulting from walking from behind parked cars will likely receive most correction by pedestrian control, improved visibility is often of enough concern to justify drastic prohibitions, or controls of parking at the curb.

Parking correctives which can help to improve bus or street car safety and reduce running time include: changes from angle to parallel parking; rush-hour or entire parking prohibition; and clearing parking from bus stop areas or adjacent to street car loading zones.

Complete or rush-hour parking prohibition together with rigid control of merchandise loading and unloading operations, where needed, can greatly speed up traffic movement and reduce accidents. Signalized intersection performance can often be improved, and hazards reduced, therefore, by eliminating parking near the intersection.

Parking from the Retailer's Standpoint

By ROY JOHN

Managing Director, Associated Retailers of Indiana

I would like to emphasize that I am not speaking as a parking expert, not speaking even on the subject of parking, per se. Rather I am attempting to analyze the processes of thinking and experience that have led the retailer to be interested in parking and other problems that lie outside his store; and then I will offer a specific plan for dealing with the parking problem.

The retailer's function, stated simply, is to assemble consumer goods at a convenient point and then induce customers to come to that point and purchase them. In the first half of this operation the retailer is a buyer, and in the second half he is a salesman.

Unquestionably, it has been customary in the past for him to put majority emphasis on the buying side of his job with its attending activities of receiving, stocking, pricing and arranging the merchandise at the point of sale—all the mass of details involved in moving goods from the hands of the manufacturer to a point within reach of the hands of the consumer.

Now it is apparent that in a basic, logical sense the retailer, as the distributor of consumer goods, is responsible for covering the entire span between the place where the goods are made and the place where they are consumed in the home. I refer not merely to physical transportation, but rather to all the tangible and intangible factors involved in getting the goods under proper circumstances from point of origin to the point of consumption.

Obviously, it would be of no use to bring goods to the store and let them lie there permanently. Half of the job lies on the selling side and it is interesting to note how gradually the retailer has moved into this area of his responsibility that lies between the arrival of merchandise at the store and its arrival at the customer's home.

There was a time when retailers were inclined to feel that the job of getting goods from the source to the retail sales counter was practically the whole of their responsibility—that merely having on hand somewhere around the place, covered up in a dust-proof box or drawer, the things that

customers asked for voluntarily out of their own recognized needs and without too much stimulation or encouragement, constituted a competent job of retail distribution.

In those earlier days, operations on the selling side were largely restricted to handing goods to a customer and recording the sale, and these were considered routine activities of secondary importance. Little thought was given to that large area of selling problems lying between the goods on the retail counter and the consumer at his home.

However, during recent decades, a quiet, steady, continuous change has occurred in this attitude. With the growth of modern facilities and the attending increase in competition, the selling side of the retailer's job has been increasingly emphasized. Formal training courses for sales people conducted on the employer's time is now standard practice in larger stores and chains; and community classes for smaller stores are conducted widely under the George Dean Act. The careful selection and training of competent store personnel is now a major retail activity.

Another significant change on the selling side in recent years is the growth of the merchandise display movement. It no longer is sufficient to have the merchandise on hand or even to have it out where the customer can see and touch it. Now it must be so attractively packaged, so well lighted, and so effectively dramatized in its presentation to the eye of the customer that the article is more than half sold before the salesperson makes her contact.

So, it is clear that retailers have moved on from being merely buyers and stock-keepers to being real salesmen within the walls of their stores. That is, they have added to the span of their responsibility the interval lying between goods-on-the-counter and customer-entering-store. There still remains a largely unoccupied selling area lying between the front store door and the customer's home, and the outstanding problem in this area is parking, to which he must and will give much attention in the near future.

REF
NO.

1

7

It seems desirable to recognize this development in the views and policies of retailing in order to properly evaluate its present interest in the parking problem and other phases of the traffic subject. Clearly, this interest does not represent merely a short-ranged, temporary attempt to get more business. Rather, it is the result of a slow, glacier-like underpush of the industry as a whole toward better service for the public under modern competitive conditions—a movement that started long before we had traffic problems and will continue after parking solutions have been found.

There can be no question about the retailer being an important source of help and leadership for dealing with parking in the future. Then it is apparent that the future well-being of his business (as well as that of every other kind of business in town) is dependent on the possibility of his out-of-town customers and many local ones, to park their cars close enough to his store to make it practical for them to trade with him.

I know there is the view that convenient parking facilities for privately owned cars might well be discouraged in favor of an expanded use of better public transportation. Economically some defense can be made of this view. But my guess is that those who place faith in it are either evading the issue in wishful thinking, or are connected with public transit companies.

People prefer to drive their own automobiles with the feeling this gives of convenience, privacy and comfort. It is a typical American attitude. They like to be able to carry home in the spaciousness of their own transportation the things they buy. Of course, there always must be the combination of public and private facilities in larger centers but the trend unquestionably is in the direction of more and more private transportation that clamors louder and louder for convenient parking arrangements. The issue must be faced.

Another situation that insures an expanding interest in parking by merchants and all other down-town interests, is the much publicized trend toward suburban business developments. It has been well demonstrated that Mrs. Jones is willing to drive several miles out of her way in order to shop for certain things, where she can park conveniently. This development has sent a flock of cold shivers along the spine of the

down-town business community—especially in larger cities—and will be an effective sharp stick for prodding the city fathers and business leaders into action.

As a matter of plain fact, what is it the suburban store has that the down-town store doesn't have? The answer is parking—just the one single advantage of parking space; and mind you that is only a temporary advantage. If the outlying store succeeds in drawing a profitable volume of customers to its isolated location, then other businesses are certain to spring up around it and very soon the same old plaguing question of where to park puts in its appearance.

On the other hand, what does the down-town shopping center have that the suburban area doesn't have? Everything, except ample parking space. It has the big and little stores with their large assortments and services; a complete assembly of goods and services in all lines that are within comfortable walking distances from each other; doctors, dentists, lawyers, and other professional services; the best picture theatres; the best old line, well established institutions of the community—all across the street from each other. It is a combination that can't be beaten for serving the public, and scattered outlying clusters of small stores with limited stocks and services never will dislodge the down-town business community. It would not be in the public interest to have them do so.

But suburban developments will prosper at least until the down-town parking problem is solved and the best guarantee we have that adequate solutions will be found with some speed, will be the existence of prosperous expanding suburban developments, shaking their threatening finger at the slow pokes down town. It seems to me a quite healthy situation.

All this time I have been talking about parking from the standpoint of retailing, in spite of the fact that parking today is the personal business of every member of the community. Can you think of any person who isn't involved? All business and professional people and the interests they represent in a community, are deeply involved; all vehicle owners are painfully involved; the life and safety of every citizen—man, woman and child—is gravely involved in the present universal traffic tangle. It does not need a prophetic eye to foresee that

the community which persists in failing to provide a proper traffic welcome for its citizens and visitors will suffer a decline that shrinks the value of investments for every member of the community.

Therefore, I come at once to the proposition that parking and its accompanying traffic difficulties are a community-wide question that directly concerns every citizen and must be dealt with on a co-operative community-wide basis if adequate and happy solutions are to be achieved.

Assuming there are no thin-skinned traffic engineers present I would like to ask as gently as possible whether you, like most professional technicians, are inclined to feel that the problems in your field are too technical and mysterious to be considered by the patient and are capable of solution without the understanding and participation of the patient? I venture to ask this delicate question because of the many instances where traffic surveys and solution plans have been worked out painstakingly by competent engineers, sometimes at sizeable expense, but failed to be accepted or applied in a thorough-going way by the communities concerned.

Would it seem to you that it might be worth trying the idea of beginning on the other side—the community side—by first helping the community to organize in a democratic fashion for the purpose of facing its traffic problems; and then carefully putting the community in the position of having to make its own decisions and live up to them?

On this basis we have worked out a co-operative traffic program in Indiana that has been adopted by our State Highway Commission. I'll give the plan to you in exactly the form in which it was presented to the Governor and the Highway Commissioner, as follows:—

CO-OPERATIVE TRAFFIC SERVICE FOR INDIANA COMMUNITIES

Co-Operating Agencies: Indiana Highway Department; U. S. Public Roads Administration; Indiana State Police Department; Purdue Safety Institute; Associated Retailers of Indiana

Plan of Procedure

I.—Organization of Initial Community Meeting to Explain the Service.

A.—When a request that is considered

valid, has been received from a community for traffic assistance, the first step will be the careful setting-up of a representative community meeting to be made up approximately as follows:

1. City Officials:—Mayor, Chief of Police, Councilmen, Fire Department Chief.
2. Head of City Planning Board.
3. Officers of Chamber of Commerce.
4. Officers of Merchant Organization.
5. Banking and Manufacturing Representatives.
6. Women's Clubs Representatives.
7. Superintendent of Schools.
8. Head of Ministerial Association.
9. Press and Radio Representatives.

B.—At this meeting, representatives of the co-operating agencies will explain the traffic solution service and the conditions under which it may be made available. Conditions under which the service may be available to a community are as follows:—

1. Consent by those present at the initial meeting, together with any other local persons who may be desired, to constitute themselves the local Traffic Plan Committee.
2. Agreement between representatives of the co-operating agencies and the local Traffic Plan Committee that a sufficient traffic problem exists to justify application of the co-operative service program.
3. Definite assumption by the local Traffic Plan Committee of full responsibility for leadership in carrying out the program, it being clearly understood that the co-operating agencies merely will furnish the necessary traffic facts about the community, together with recommendations for their solution; and assist in educating and organizing the community in support of the solution plans that may be adopted by the local committee.
4. Formal invitation from the Traffic Plan Committee to the co-operating agencies for assistance.
5. The traffic assistance service, where given, will be without charge. However, it will be furnished only to those communities which evidence a serious and business-like determination to deal adequately with their traffic difficulties.

GREAT LAKES MICROFILM COM

CHICAGO, ILLINOIS

I hereby certify that the following described records of: Congre

National Safety Council - 425 No. Michigan Ave. -

FROM: OCT. 7, 1943

THRU: OCT. 7-11 - 1946

were photographed as received and without alteration by the Great Lakes Mi

3734 South Archer Avenue, Chicago 32, Il

Date 1946

Signed Ben Ber
GREAT LAKES M

Witness Irene Sherwin

END

It seems desirable to recognize this development in the views and policies of retailing in order to properly evaluate its present interest in the parking problem and other phases of the traffic subject. Clearly, this interest does not represent merely a short-ranged, temporary attempt to get more business. Rather, it is the result of a slow, glacier-like underpush of the industry as a whole toward better service for the public under modern competitive conditions—a movement that started long before we had traffic problems and will continue after parking solutions have been found.

There can be no question about the retailer being an important source of help and leadership for dealing with parking in the future. Then it is apparent that the future well-being of his business (as well as that of every other kind of business in town) is dependent on the possibility of his out-of-town customers and many local ones, to park their cars close enough to his store to make it practical for them to trade with him.

I know there is the view that convenient parking facilities for privately owned cars might well be discouraged in favor of an expanded use of better public transportation. Economically some defense can be made of this view. But my guess is that those who place faith in it are either evading the issue in wishful thinking, or are connected with public transit companies.

People prefer to drive their own automobiles with the feeling this gives of convenience, privacy and comfort. It is a typical American attitude. They like to be able to carry home in the spaciousness of their own transportation the things they buy. Of course, there always must be the combination of public and private facilities in larger centers but the trend unquestionably is in the direction of more and more private transportation that clamors louder and louder for convenient parking arrangements. The issue must be faced.

Another situation that insures an expanding interest in parking by merchants and all other down-town interests, is the much publicized trend toward suburban business developments. It has been well demonstrated that Mrs. Jones is willing to drive several miles out of her way in order to shop for certain things, where she can park conveniently. This development has sent a flock of cold shivers along the spine of the

down-town business community—especially in larger cities—and will be an effective sharp stick for prodding the city fathers and business leaders into action.

As a matter of plain fact, what is it the suburban store has that the down-town store doesn't have? The answer is parking—just the one single advantage of parking space; and mind you that is only a temporary advantage. If the outlying store succeeds in drawing a profitable volume of customers to its isolated location, then other businesses are certain to spring up around it and very soon the same old plaguing question of where to park puts in its appearance.

On the other hand, what does the down-town shopping center have that the suburban area doesn't have? Everything, except ample parking space. It has the big and little stores with their large assortments and services; a complete assembly of goods and services in all lines that are within comfortable walking distances from each other; doctors, dentists, lawyers, and other professional services; the best picture theatres; the best old line, well established institutions of the community—all across the street from each other. It is a combination that can't be beaten for serving the public, and scattered outlying clusters of small stores with limited stocks and services never will dislodge the down-town business community. It would not be in the public interest to have them do so.

But suburban developments will prosper at least until the down-town parking problem is solved and the best guarantee we have that adequate solutions will be found with some speed, will be the existence of prosperous expanding suburban developments, shaking their threatening finger at the slow pokes down town. It seems to me a quite healthy situation.

All this time I have been talking about parking from the standpoint of retailing, in spite of the fact that parking today is the personal business of every member of the community. Can you think of any person who isn't involved? All business and professional people and the interests they represent in a community, are deeply involved; all vehicle owners are painfully involved; the life and safety of every citizen—man, woman and child—is gravely involved in the present universal traffic tangle. It does not need a prophetic eye to foresee that

the community which persists in failing to provide a proper traffic welcome for its citizens and visitors will suffer a decline that shrinks the value of investments for every member of the community.

Therefore, I come at once to the proposition that parking and its accompanying traffic difficulties are a community-wide question that directly concerns every citizen and must be dealt with on a co-operative community-wide basis if adequate and happy solutions are to be achieved.

Assuming there are no thin-skinned traffic engineers present I would like to ask as gently as possible whether you, like most professional technicians, are inclined to feel that the problems in your field are too technical and mysterious to be considered by the patient and are capable of solution, without the understanding and participation of the patient? I venture to ask this indelicate question because of the many instances where traffic surveys and solution plans have been worked out painstakingly by competent engineers, sometimes at sizeable expense, but failed to be accepted or applied in a thorough-going way by the communities concerned.

Would it seem to you that it might be worth trying the idea of beginning on the other side—the community side—by first helping the community to organize in a democratic fashion for the purpose of facing its traffic problems; and then carefully putting the community in the position of having to make its own decisions and live up to them?

On this basis we have worked out a co-operative traffic program in Indiana that has been adopted by our State Highway Commission. I'll give the plan to you in exactly the form in which it was presented to the Governor and the Highway Commissioner, as follows:—

CO-OPERATIVE TRAFFIC SERVICE FOR INDIANA COMMUNITIES

Co-Operating Agencies: Indiana Highway Department; U. S. Public Roads Administration; Indiana State Police Department; Purdue Safety Institute; Associated Retailers of Indiana

Plan of Procedure

I.—Organization of Initial Community Meeting to Explain the Service.

A.—When a request that is considered

valid, has been received from a community for traffic assistance, the first step will be the careful setting-up of a representative community meeting to be made up approximately as follows:

1. City Officials:— Mayor, Chief of Police, Councilmen, Fire Department Chief.
2. Head of City Planning Board.
3. Officers of Chamber of Commerce.
4. Officers of Merchant Organization.
5. Banking and Manufacturing Representatives.
6. Women's Clubs Representatives.
7. Superintendent of Schools.
8. Head of Ministerial Association.
9. Press and Radio Representatives.

B.—At this meeting, representatives of the co-operating agencies will explain the traffic solution service and the conditions under which it may be made available. Conditions under which the service may be available to a community are as follows:—

1. Consent by those present at the initial meeting, together with any other local persons who may be desired, to constitute themselves the local Traffic Plan Committee.
2. Agreement between representatives of the co-operating agencies and the local Traffic Plan Committee that a sufficient traffic problem exists to justify application of the co-operative service program.
3. Definite assumption by the local Traffic Plan Committee of full responsibility for leadership in carrying out the program, it being clearly understood that the co-operating agencies merely will furnish the necessary traffic facts about the community, together with recommendations for their solution; and assist in educating and organizing the community in support of the solution plans that may be adopted by the local committee.
4. Formal invitation from the Traffic Plan Committee to the co-operating agencies for assistance.
5. The traffic assistance service, where given, will be without charge. However, it will be furnished only to those communities which evidence a serious and business-like determination to deal adequately with their traffic difficulties.

II—Simultaneous Surveys and Accumulation of Data to Support Recommendations.

A—Traffic Surveys.

1. In order to acquire all traffic facts that are essential to the preparation of an adequate traffic plan for a community, it is necessary to conduct separate surveys of the following four separate but interlocking phases of the problem:

- (a) Trading area analysis; (b) Traffic movement; (c) Curb parking; (d) Off-Street parking.

Initially, the traffic survey crew may consist of two engineers—one in the office and one in the field—together with proper supervisors, all of whom should be permanent employees; and a proper number of interviewers to be employed in each community being surveyed.

B—Traffic Enforcement Survey.

- 1. One enforcement specialist with necessary assistance.

C—Safety Education Survey.

- 1. One safety education specialist with necessary assistance.

III—Organization and Coordination of Factual Data and Preparation of Specific Recommendations.

A—It is apparent that the several types of surveys listed above, will produce a considerable volume of data whose usefulness will depend in large measure on the accuracy with which it is organized and the skill with which solution recommendations are deduced.

This work will be partly clerical and partly of an exacting engineering nature. The clerical assistance will need to be employed for the purpose but it would seem desirable for the engineers in charge of conducting the surveys to sit in on the preparation of recommendations based on those surveys, together with whatever additional engineering skill can be arranged for this operation. The recommendation reports, especially the one for Off-Street Parking, will need to be worked out in close co-operation with the local Traffic Plan Committee.

IV—Presentation of Recommendations to Local Traffic Plan Committee.

A—Experience will show whether entire

completed reports can be presented to the entire local Traffic Plan Committee; or whether sections of certain reports will need to be presented to sub-committees, first, and then presented in whole to the Committee as a whole.

When the reports have been presented informally and digested by the local committee and a resulting composite traffic plan for the community has been adopted, a special occasion ought to be made of the formal presentation event—including a dinner meeting and newspaper and radio publicity.

V—Visual Education and Organization of Community in Support of the Traffic Plan Adopted.

A—The history of traffic solution programs is that they tend to die a natural death at this point after having been planned in detail at great labor and expense—because of lack of community-wide understanding, interest and support. There have been unhappy examples in Indiana.

To bridge this gap, a slide film with sound is to be provided to sell the traffic solution idea in general; and another local slide film, made from facts uncovered in the specific community where it is being shown, will sell the locally adopted traffic solution plan. These films are to be shown under local chairmanship to all important groups, including luncheon clubs, a merchant mass meeting, women's clubs, manufacturing plant employees, schools, etc.

It will be important to have a proper resolution of approval passed at each such meeting and a copy of the resolution transmitted to the chairman of the local Traffic Plan Committee.

Simultaneously, the best use is to be made of newspaper and radio publicity.

Finally, action by the City Council to effectuate the plans which have been agreed on ought to be scheduled in proper time-relationship to the impact of the community educational campaign.

Conclusion of the Plan

Clearly this program is designed to assist communities to deal with their traffic problems on their own initiative. The official public traffic agencies of the State agree merely to hand up the proper tools—the operation must be performed, if at all, by the community itself. It gets well away

from the practice of trying to superimpose traffic arrangements on a community that doesn't understand the purpose or necessity of such arrangements and so doesn't have its heart in the project.

This plan is a recent development and we do not yet have experience under it, but I am confident that we will apply it in one form or another in our Indiana communities.

Small City Traffic Safety and Parking Problems

(Summary of Panel Discussion)

Leader: HENRY K. EVANS, Director Traffic Engineering Division, National Conservation Bureau.

Lloyd M. Bruff, Staff Engineer, DeLew-Cather Co., Chicago.

Smaller cities have proportionately more severe congestion and more parking problems than the large metropolitan centers. The reason is that in the small city nearly everyone comes to the business district via passenger car, whereas in the larger cities a greater percentage of persons coming to the business district use public transportation. In addition, it will be found that in the smaller cities the drivers will not walk as great a distance from their parking point to their destination as will the city driver. The obvious solution is to decrease curb parking and to increase off-street parking.

J. E. Johnston, Traffic Eng., Dept. of Roads and Irrigation, Lincoln, Neb.

State highway authorities are faced with the parking problem from the following standpoints:

1. Parking on the travelled way of high-speed highways.
2. Parking in connection with roadside service establishments.
3. Parking on state highways in urban communities.
4. Parking on state highways which run through cities.

The remedies for each of these problems are:

1. Stabilized shoulders, increased pavement widths.
2. Legislation, enforcement, controlled access, purchase of wide right-of-way.
- 3 & 4. Legislation and enforcement, and off-street parking provisions.

William F. Kavanaugh, City Traffic Eng., Syracuse, N. Y.

Syracuse is now trying to do something

about its parking and traffic problem, the latest plan being to try to move north-bound traffic through the business district on one thoroughfare and southbound traffic on a parallel thoroughfare. Up to the present time, this has been working out satisfactorily, with the rate of traffic flow being increased.

C. G. Stoneburner, Highway Eng., Highway Div. of Arlington, Va.

The first off-street parking regulations in Arlington were adopted on June 25, 1938. They provided, in general, that any dwelling, apartment house or multiple family use of a lot must include provisions for garage or parking space, together with ingress and egress thereto. One space for each living unit was required. It soon became apparent that the safety objective was being impaired in some of the larger apartment developments where off-street parking bays were provided immediately adjacent to the public thoroughfares and not separated from the paved roadway. One step further was taken when the Zoning Ordinance was amended in May of 1942, to include off-street parking requirements in all commercial and manufacturing districts. In every district which was zoned as "commercial" a portion was set aside for off-street parking. Theaters, auditoriums, stadiums and other places of assembly, except churches, must provide one space (200 square feet) together with ingress and egress thereto for each four seats. This space must be within 400 feet of the main entrance in order to make it useable. Hotels are required to provide one parking space for each three guest rooms. With this plan in effect, all districts in the city are covered.

WEDNESDAY AFTERNOON SESSION

October 9, 1946

Group Session on Traffic Safety Education

Presiding: EDWARD J. FLANAGAN, Inspector, Public Relations Bur., Cleveland (O.) Police Dept.

How Cities Are Using Radio

(Summary)

This program consisted of the playing of actual transcriptions of traffic safety radio programs. Each was followed by comments by the representative of the city from which the program came and by Mr. Baylor.

TRAFFIC SAFETY ON NEWSCAST. Station WMAN, Mansfield, Ohio. Traffic Commissioner F. C. Boals of the police department presented a transcription of the five-minute traffic safety broadcast which is included each morning on the 7:30 newscast of Robert Horn. Each morning Mr. Horn covers one or two phases of traffic safety. His entire program has a wide listening audience within a radius of 25 miles of Mansfield, a city of about 40,000 population. This is the only station in Mansfield at present.

Mr. Baylor commented that this was a good example of tying in with a program which has an already established listening audience. This is a valuable technique irrespective of the size of the city, and is one which should receive particular consideration in smaller cities where the station is not in a position to assist in the preparation of traffic safety programs.

TRAFFIC SAFETY ON VARIETY PROGRAM. Station KFH, Wichita, Kansas. Sergeant Frank O. Bayne, Director of Safety Education, Wichita Police Department presented a record of another program with well established audience from 4:30 to 5:00 p.m. Sergeant Bayne takes over after appropriate introduction by the master of ceremonies. He presents various things including music, sound effects, account of the accidents for the past twenty-four hours and reading of letters from listeners.

Mr. Baylor pointed out that this is another example of taking advantage of an already established audience. This is a good example of a program which does not

try to put a lecture platform in front of the microphone, but employs suspense, dramatization and the right emphasis.

TRAFFIC TRIBUNAL. Station KFI, Los Angeles, California. Sergeant Frank Crewe, Traffic Education Unit, Los Angeles Police Department, played the 370th weekly broadcast of this 15-minute program which has been on KFI for seven years. It is estimated that it reaches a listening audience of 92,000 persons. Thirty to forty letters are received each week and these are not deliberately stimulated. The program is prepared by the station with the cooperation of the police department. Formerly, talent was secured from radio schools. Now, professional talent is used. The format of the program is varied from time to time to sustain interest. Music, interviews and dramatizations are used. Sometimes famous names, such as movie stars appear. Occasionally the program is advertised by such means as car cards. This particular program was an interview with the police officer who takes the leading part in the motion picture "Traffic with the Devil." It also included the dramatic presentation of statistics and music.

Mr. Baylor pointed out that this was a good example of adapting known radio ingredients to making a good traffic safety program. Suspense was maintained throughout the program. To produce a program such as this probably requires at least 100 man-hours in advance of the actual broadcast. This program indicates that the station is well sold on the need for traffic accident prevention and the part which radio can play. One important factor in such a situation is the representative of the safety council or police department who is the contact with the station. That should be one competent person's responsibility.

TEENERS OF MELODY LAND. Station WHAS, Louisville, Kentucky. Captain

M. E. Mittler of the Louisville Police Department presented this transcription. It and the following transcription are presented by the police department under the direction of the Superintendent of Education, Captain J. C. Kopp. For this program, Captain Kopp introduces the 'teen aged girl who serves as master of ceremonies on this 15-minute program. She in turn introduces a girl and a boy who sing. A short dramatization during the program focuses attention on traffic safety. This Saturday morning program draws from 15 to 20 letters per week.

Mr. Baylor stated that this was an excellent example of using the amateur juvenile show, a popular type of program, to put across a traffic safety message.

CRUISING IN TRAFFIC. Station WAVE, Louisville, Kentucky. Each Saturday morning from 8:00 to 8:15 Captain Kopp broadcasts from the WAVE mobile unit driving through the streets of Louisville. He broadcasts what he sees in the way of unsafe traffic practices, gives the week's accident report, interjects traffic safety rules and gives a final appeal to hold down traffic accidents. The program has been on the air since 1937 with the exception of two war years.

Mr. Baylor pointed out that this is another example of the use of a technique which holds the audience. In some cases, this type of program includes stopping and interviewing drivers.

MEN AGAINST CRIME. Station WWJ, Detroit, Michigan. This program is presented by WWJ in cooperation with the Detroit Police Department. The transcription was played by Mr. Ted Hayhow of the Traffic Safety Association of Detroit. "Men Against Crime" is a live 15-minute public service program of WWJ. It started on Friday afternoon, but is now on Tuesday evening. The station provides professional script writing and dramatic talent. This program is particularly aimed at the hit and run problem. Each broadcast presents a dramatization of a case from the files of

the Detroit Police Department. It is pointed out that a penalty is sure to follow if a driver fails to stop at the scene of an accident. When an actual hit and run has occurred, clues are broadcast on this program and as spot announcements on all Detroit stations.

Mr. Baylor commented upon the fact that the station felt that the program was sufficiently valuable to be accorded class A time in competition with network programs. He pointed out that this is another example of adapting a proven technique to traffic safety, in this case, the "who done it" technique.

MAN ON THE STREET. Station WGAR, Cleveland, Ohio. In this program, pedestrians are interviewed on the street. Five persons are interviewed in fifteen minutes. For correct answers to questions free theatre tickets are given. Incorrect answers bring driving manuals.

Mr. Baylor pointed out that the interviewer needs a thorough knowledge of the law as well as good radio presence and ability to handle situations as they develop. In Cleveland a police officer serves as interviewer.

DRIVER OF THE WEEK. Station KOIN, Portland, Oregon. Mr. Ben F. Heinz, Director, Portland Traffic Safety Commission presented the transcription. In preparation for this program, drivers are followed for a certain distance through Portland streets until one is found who makes no errors for this distance. He is invited to appear on the program as Portland's Driver of the Week. The 15-minute program consists of a description of the driving errors of those who were followed before the driver of the week was located and an interview with the driver. He is given a certificate and a record of the broadcast upon which he appears.

Mr. Baylor commented upon the way in which suspense was maintained. This program has listening appeal and one way it is achieved is by its particular opportunity to present descriptions and individuals of local interest.

THURSDAY MORNING SESSION

October 10, 1946

General Session

Presiding: **LESLIE J. SOREYSON**, Traffic Eng., Chicago, and Vice-Pres. for Traffic and Transportation, N. S. C.

The Dayton Pedestrian Program

(Summary of Symposium)

The Safety Council

By **H. S. MONTGOMERY**

Pres., Dayton Safety Council and Pres., Ohio State Safety Council

The safety council's part in the pedestrian program in Dayton, Ohio, was carried on by the Pedestrian and Traffic Committee, one of the five committees in the council. The Pedestrian and Traffic Committee has its own budget and is also empowered to call upon the board of directors for additional funds when needed. The council's first important step in the pedestrian program consisted of active support for the city's pedestrian ordinance. The program itself consisted of the distribution of 50,000 folders to school children and 10,000 folders to service and civic clubs at the noon meetings and placing a special tabloid newspaper in every home in Dayton. Seventy-five taxi cards and 175 street car cards were used in the city's public vehicles. Theater trailers were used and additional publicity was sent out to newspapers, radio stations and house organs.

Newspapers

By **ALAN FRITCHARD**

Reporter, The Dayton Daily News

The daily newspapers of Dayton know a good thing when they see it. This is in essence the cooperation given by the newspapers to the pedestrian program. It was not a program of cut and dried news releases from the safety council but an educational reporting job which was carried on because of the pedestrian program's importance to the citizens of the community. All three newspapers gave generous news space to the pedestrian ordinance

project from start to finish. The program started in February with news stories on the first reading of the ordinance at a city commission meeting, carried through to educational stories, editorials, and features acquainting the public with the law and wound up with follow-up stories on the way in which the ordinance was working after it became effective on June 1. Our paper carried a total of 380 inches of copy specifically on this subject and the others gave comparable coverage. The aggregate daily circulation of the three papers was 250,000, covering all of the area within a 50-mile radius of Dayton. In addition to the work of the daily newspapers, the house organs, shopping news, union publications and high school papers of the city cooperated in the program.

Radio

By **STANLEY MOUSE**
Radio Station WHIO

We realized that unless the pedestrian ordinance was accepted by the citizens of the community it would be impossible to enforce. As a result, meetings were held with the safety council committee to discuss the objectives of the program informing the citizens that they would benefit from the ordinance and telling them how they could obey the law. After the radio stations knew just what was to be done, we tried to get the message to the people by using all the different radio techniques. These included spot announcements, lectures, round table discussions, dramatic presentations and short wave broadcasts directly from the streets of Dayton. The radio stations not only made available the time necessary to conduct the campaign but

Police

By **CAPT. PAUL J. PRICE**
Traffic Div., Police Dept.,
Dayton, Ohio

The enforcement of a pedestrian ordinance is an example of the use of selective enforcement. It is applying enforcement to the most prevalent type of traffic accident. The experience in Dayton clearly shows that lack of police manpower is not a valid excuse for failure to require pedestrian obedience to traffic laws. In Dayton, there was no period during which warning tickets were issued. Violating pedestrians were given citations beginning on the day the ordinance went into effect. On that day there was a radical change in pedestrian walking habits which proved the effectiveness of the education program. In the 16 months prior to the enforcement of the ordinance there were 36 pedestrian deaths. In the same number of months since the ordinance, there have been 22 pedestrian deaths.

Schools

By **LESLIE L. DIEHL**

Executive Secretary, Dayton (O.) Safety Council

The folders distributed in the schools were especially effective. They were taken home by the pupils, passed on to parents and then had a family-wide circulation throughout Dayton. Pointing out, as they did, what might happen if the children failed to obey the new ordinance, the folders were of great assistance in securing the cooperation of parents. In addition, twelve 16 mm. and six 35 mm. trailers were used in the campaign. These were filmed in Dayton and illustrated the main points of the new ordinance.

Pedestrian Programs

(Summary of Panel Discussion)

Discussion Leader: **LESLIE J. SOREYSON**, Traffic Engineer, Chicago, Ill.

Howard F. Ilgner (Supt. and Chief Engineer, Bureau of Electrical Service, Milwaukee, Wis.): There are some objectives of a pedestrian program which cannot be achieved by either education or enforcement. It is then necessary to utilize the third "E" of traffic safety, engineering, to make walking safe for pedestrians. Such engineering projects as improved street lighting, pedestrian signal lights or safety zones are sometimes the only means of safeguarding pedestrians in certain areas.

Harold F. Lillie, Dir.-Secy., Lansing (Mich.) Safety Council: Lansing recently conducted an extensive pedestrian protection program. Enforcement was preceded by a six months' program of education, of which the issuance of warning tickets for a short period of time was an integral part. The courts and the police department found that there is very little criticism of the practice of citing and fining pedestrians for violations. We have spared no one and im-

portant officials have been arrested for pedestrian violations and have paid their fines along with the rank and file of the citizenry.

H. T. Everett, Chief, South Bend (Ind.) Police Dept.: The South Bend pedestrian program was begun in 1940 after an analysis of pedestrian accidents for the preceding six years had indicated its need. The education program included stationing Boy Scouts with banners at corners, issuing warning tickets to pedestrian violators and the stunt of stopping pedestrians who crossed the street in midblock, handing them a red flag and inquiring where they would like the body sent if they were killed. School children were given maps showing the proper route to school. Theater trailers were used, sign boards were placed in theater lobbies, messages were attached to waste containers, bumper strips were carried on automobiles, signs were placed on cars and the press and radio were used

extensively. Educational activity was also directed to motorists since accident analyses showed that "turning" motorists were an important factor in pedestrian accidents. Obedience to traffic signals was 58 per cent just prior to the pedestrian program in 1940. Eight months later, it was 79 per cent. In 1946, it was 98 per cent. South Bend now has walk-wait signals in the central business district. From 1934 to 1939, 53 per cent of the traffic fatalities were pedestrians. From 1940 to 1945, they were 39 per cent.

Discussion: The following facts were brought out in discussion from the floor.

Courts should be deeply concerned about the pedestrian problem and should give full cooperation to a pedestrian accident prevention program.

The Dayton ordinance was enforced in residential areas as well as in the downtown area. It was felt that better results would be obtained by enforcement in outlying areas. In order to obtain the most efficient enforcement of any traffic law, it is obvious that all police officers should enforce it. Pedestrian violators who resided in a place sufficiently far away from Dayton that they could not be expected to

know about the pedestrian laws were not given tickets.

Experience has shown that identifying pedestrian violators is not too much of a problem since most people carry identification. In Dayton it was found in approximately two per cent of the cases where there was no identification that the police officer could usually tell whether the violator was telling the truth or lying. If the violator was found to be lying, he was taken in by the officer.

Portland, Oregon, is attacking its pedestrian problem with a new type of louver for the traffic signals. This louver makes it impossible for pedestrians to see the traffic signals intended for motorists and consequently they have to obey the walk-wait signals.

In order to encourage non-traffic officers to enforce pedestrian laws, a record can be kept in the traffic division of their enforcement activity and when it is apparent that they are not holding up their end of the program, the police official to whom they are responsible can be notified. It is most helpful if the necessity for enforcing traffic laws is stressed in the training programs of non-traffic officers.

THURSDAY AFTERNOON SESSION

October 10, 1946

General Session

Presiding: W. GRAHAM COLE, Asst. Secy., Metropolitan Life Insurance Co., and Gen. Chm., Traffic Section, N. S. C.

Where Do We Go from Here?

(Forecasts of Activities of Various Groups Based on Points Developed at Congress Sessions)

Police

By COL. CHARLES H. SCHOEFFEL
Supt., New Jersey State Police, and Vice-Chairman, Police Div., N. S. C.

During the past four days we have heard many fine addresses and discussions on:

Traffic safety and the public attitude. The city's stake and the state's stake in traffic safety.

How city and state winners of the National Traffic Safety Contest managed to win these coveted awards.

Why we should investigate traffic accidents and the use of accident records.

How one state reduced highway-railroad

grade crossing accidents 50 per cent in one year while the national average for such accidents increased 38 per cent.

The need for traffic schools was brought out. New and novel ideas were advanced as to the value of such institutions.

We discussed co-ordination of the activities of the various agencies which are involved in conducting traffic accident prevention programs. It was disclosed that considerable progress had been made these past few years in this direction. Considerable time was given to present trends in co-ordinating traffic safety programs.

The President's "Action Program" or conference recommendations stressed the need for co-ordination through public support organizations. Many, many ideas were expressed; we frequently heard the same thought three or four times. Here are some of them.

1. We need good safety programs to enlist sound and complete public participation.
2. With public opinion anything can be accomplished, without it nothing can be accomplished.
3. We must have co-operation, all pulling together.
4. Have the states establish official programs, accept their responsibility, show a good example so the municipalities will follow their leadership.
5. The states must set their own houses in order, eliminate overlapping and duplication of effort.
6. Establish proper and adequate legislative support without political consideration as to highway construction and motor vehicle regulation.
7. Have the states take the initiative in seeking public support for highway traffic safety programs. Hold highway safety conferences in conformity with the President's action programs.
8. Use the Chamber of Commerce for active participation in your safety programs.
9. Use every civic organization — the churches, the boy scouts, the girl scouts, the schools.
10. Use the theaters for showing safety shorts every evening.
11. Use public address systems on the streets and public highways.
12. Use traffic posters on intersections in down town districts.

13. Hold public monthly meetings — and meetings of city officials to map plans for continuation of the public interests.

14. Teach better walking habits to the public.

15. Use junior safety patrols to get the interest of children.

16. Use your police for traffic safety talks.

17. Strange are the ways of public opinion.

18. Traffic safety programs must consider the public attitude.

19. We need solidarity of public opinion to accomplish results.

20. We need a united public will.

21. By enforcement we have attempted a job that should have been done initially by or through public education.

22. With a complete understanding of what is wanted and what is expected of them, the people will ultimately support any program for the common good.

23. The present programs for traffic safety are excellent if public support is rallied.

24. Mention was made of personal contact with hatless men to find out why they did not wear hats. This thought was developed purely to point out that the way to reach the answer to any question is to establish personal contact with the fellow who has the answer—the public.

25. We must admit there is no organized opposition to a good traffic safety program, however we have failed to get public support because we have failed to enlist the services of those who we know are needed to do the job properly.

In summing up these suggestions, we find one predominating factor—one word which stands out above all others—that is the public, public participation, public aid, public support. We come to one conclusion—to do a job, efficiently, adequately, we must obtain the public confidence, their good will, their complete support, that the job we have set out to do is the concern of every man, woman and child in the nation. We need uniformity of ideas, uniformity of action, uniformity of purpose. I am not advocating regimentation which is all to prevalent today, but I do see the need of a uniform policy readily understandable by all the people so they will definitely understand what is expected of them when driving an automobile or when

as a pedestrian they are subject to death and injury by the automobiles on our public streets and highways.

We are informed that interstate traffic of automobiles is a national problem.

That we need better enforcement planning, particularly in the small police department.

Developments in the nation should be watched—there is no "magic formula" for this problem of ours.

To reach all of the people, we must reach into the home, the school, the church, reach industry and commerce. We must teach fundamental principles first and keep hammering home the need for traffic safety, for personal safety, for proper driving habits, for proper walking habits, for proper attitude, and proper consideration and courtesy toward everyone.

Just recently while attending a conference in the city of Washington, I heard one of the conference speakers state that we must redesign all of our highways because they are outmoded—we must rebuild new ones to take care of modern day traffic trends. He stressed the fact that highways built to carry 30,000 cars a day now must carry peak traffic loads of 60,000 or more cars daily. He also mentioned that our investment in good automobile roads the past twenty-five years has reached billions of dollars.

I cannot agree with him that an expenditure at this time of billions of dollars is feasible or within our capacity to pay for many years to come. The answer, partially at least, to the entire problem before us is a new approach, a realistic one on the part of everyone, a real desire to meet the challenge that confronts us, a real desire to greater coordination of effort in promoting traffic safety and allied progress which will materially aid in the reduction of accidents, deaths and injuries on our highways. Many speakers have directly or indirectly given you their thoughts on this subject. They sum up to the following:

Officials of the nation, of the states, the counties and the cities must develop a co-ordinated plan of action in uniformity of purpose, in planning and carrying out safety ideas. We have at our disposal millions of dollars, the best talent obtainable, ideas of large advertising corporations who so

successfully sell the products of industry and commerce.

We have hundreds of thousands of interested people who are willing and anxious to help.

This job is a tremendous one, too big for you and I alone, too big for any single state agency to tackle. We must enlist at the state level motor vehicle departments, state police, highway departments, the department of education, the public utility commission, which is concerned with vehicles in intrastate traffic, and many others concerned in the project.

In the cities, the same ideas of organizing a program must be followed, agencies with comparable duties to those mentioned previously must be urged to participate.

The next step is the support of all available civil agencies, as mentioned before, the home, the church, the civic clubs, industry and commerce.

There must be developed a sound public education formula utilizing every instrument at our command, the press, the radio, the billboard, and so forth.

Mr. Darr stated and truly: "The public can be made to change, if properly approached through an adequate and effective system of education."

All we need is an enthusiastic and capable leadership on an overall basis, that we have right here in the National Safety Council.

In the 35 years they have been operating they have made enormous advances in the interest of safety, they have gone further than any other organization in this matter of bringing home to us and forcing on us the need for national safety, not only on the streets and highways but in the home, on the farm, in the factory and elsewhere.

The National Safety Council has offered their services, offered to guide us in our work in promoting safe and sane driving and walking habits. We accept their offer. It is really a challenge to their initiative, to their ability and virtually to their existence. To do the job we must all pull together and follow the advice of our good friend, Sidney Williams who has stated: "We must get on our overalls and get out in the field; we must work and sweat and endeavor to swing public opinion to help themselves. If we all do just this, it is impossible to fail."

Traffic Court Judges and Prosecutors

By JUDGE JOSEPH M. WYATT

Chief Justice, Baltimore City Traffic Court, and Vice-Chrm., Traffic Court, Div., NSC

The sessions just concluded were the best represented and most informative in recent years with 28 states and many of the larger cities of the nation represented. The various sessions and discussions brought out some of the following important facts which it would be well to carry away with us.

Judges and prosecutors should strive to educate the public to accept good strict judicial action. The support of newspapers and radio and all other channels of public information should definitely be sought. The public support program is highly important, but to obtain maximum effectiveness, it should be worked out carefully with all the factors weighed and tested to make certain that it is a sound program.

One of the things the court should strongly approve is a traffic school for

juvenile traffic violators. In addition, they should lend their support to the driver training classes and courses which are conducted for high school students. Such schools should not only give the students a knowledge of traffic laws and the principles of safe driving but should also provide an opportunity for them to acquire "behind the wheel" driving experience.

The support of the courts is essential to the success of a pedestrian control program. Such a project as a program to control pedestrians at signal lights would end in failure without the wholehearted support of the courts of the city involved. However, it is well to remember that a campaign of public education to solicit the hearty cooperation of the citizens themselves must be a forerunner to the pedestrian program.

Traffic Engineering

By EARL J. REEDER

City Traffic Eng., Miami, Fla

To attempt to summarize several hours of discussion into a few minutes—ten minutes to be exact—is perhaps a very large assignment.

With the Traffic Engineering field in mind, my function as I see it here is to bring together, bring out a few, some four or five of the rather outstanding things which I visualize as important developments and important lessons which we can take home from this Congress.

I think perhaps I should like to take the liberty of supplementing the deliberations in the Traffic Engineering field in this Congress by some of the things that were brought out last week in the Institute of Traffic Engineer's annual meeting at Columbus.

Now, the outstanding, the number one headache in the traffic field at both conventions was brought out to be parking. Streets are filled with cars that are attempting to move at the same time that they are

filled with cars that are attempting to be parked.

The problem is one which seems to have two general approaches so far as cities are concerned. The number one approach is the providing of some of the parking terminals around the fringe of the central business districts of cities and having those terminals serviced by shuttle buses that are going to and from the different parts of the downtown area, the purpose being to get out of the downtown area as many of the vehicles that we can that are seeking parking space, and substituting for them buses.

Another thing that has been brought out and one which I am happy to say we are attempting at the present time to put into effect in the City of Miami, is the requirement that all new buildings shall have adequate off-street parking and loading facilities to take care of the increased demands which they are producing or gen-

erating for parking and loading space in proportion to their needs.

That has been before the City Commission of the City of Miami and is now being studied from the standpoint of attempting to bring together some conflicting thoughts concerning it having to do mainly with the central business districts, but it is highly important that such a remedy be extended to the entire city, especially with the present amount of additional building in residential and outside business areas and industrial areas that seems definitely to be ahead.

Those two things, the fringe parking around the central business district, and the off-street parking requirements imposed upon new buildings seem to be the two outstanding things that are brought out in connection with the parking problems.

Mass transportation has been in for its share of discussion at these two meetings—and very properly. The outstanding thought concerning mass transportation is that we must have a much larger percentage of the people who are coming into the central business districts coming by mass transportation.

One thing that needs to be pointed out in connection with that is that we are not going to legislate the public into greater use of mass transportation. We could do that during the war—we could have ordered it; but now with the war over, we can't legislate it. It has to be produced by improved service which will make mass transportation a more acceptable means of getting to the downtown business districts than the private automobile is.

The penalty if that is not done is that the private automobile can take people to some other section of the city or to even another city if it is necessary to do that to find ease of access to business places.

One thing that was brought out at the Congress which seems to be of great significance, and one that has a great deal to do with looking forward into much improved conditions in the building of cities, is the control of the development of subdivisions to require that in new subdivisions there should be incorporated those things which we have found so necessary for safety and for efficiency in the use of the streets.

It seems we must rapidly get away from the day when it is possible for the developer of a subdivision to say, "We will not have sidewalks. We will sell the idea of green grass from your front door to the curb." That is a thing which, of course, is a very serious menace to pedestrians. We must get away from the day when the subdivider can say, "We won't worry about how we are going to light our streets. We'd like to think of this as an area that is very close to nature, you know, and where we are not going to worry about street lighting." But again, pedestrians and traffic must have their places.

Provisions for off-street parking in those areas are very important, because otherwise, as we have seen from the years of experience with pedestrians and drivers, streets parked full of cars and curbs lined with cars will be the hiding places for persons who inadvertently get out into the street and get seriously injured if not killed in traffic.

The building of view obstructions as a part of the scenic beauty of the subdivisions is something that cannot be permitted. On the contrary, we must do away with existing obstructions that are creating real hazards to drivers approaching intersections.

Then there was a subject on which some very excellent information was presented in this convention, and I refer to the winter hazard problem—which I feel unqualified to discuss.

It seemed to me that the information brought out as a result of research last winter and in other research that has been carried on during the years by the National Safety Council concerning winter driving hazards has been of great value.

One important thing that was brought out very emphatically, not perhaps directly in the way that I should present it, but it seemed to me to be the background of a considerable part of our discussion in several of the talks, was that we in the traffic engineering field, as well as you in some of the other fields of traffic administration and promotion, must sell the things that we have developed for public use.

I am strongly sympathetic with that viewpoint because it seems that regardless

of how effective we may be in developing good measures for the improvement of traffic conditions, unless those things can be put into effect and can be used effectively by the people who must use them regardless of what they may be, signals, or signs, or markings, or off-street parking facilities, or what else it may be; if they are not sold to John Q. Public who must use them as pedestrians and drivers, they are not going to be used effectively. We might

as well have done something else as to design the methods.

Another point that was brought out which seemed to be extremely effective and important was that we need in our design to take into account and to confer with the people who are going to be the main beneficiaries from those things if they are put into effect, otherwise we have not sold the thing we are striving to put across, and consequently they are not effectively used.

Traffic Safety Education

By EDWIN S. SMITH

Dir., Hamilton (O.) Safety Council

In every concoction, whether it is a chocolate cake you are going to bake or a cement sidewalk you are going to lay, there is always some ingredient that holds the thing together, that makes it a cohesive unit. It seems to me that public education is the thing that coordinates and holds together the whole traffic program. I think safety council managers will go along on that idea, but before I finish here I hope you will agree that public education is the thing upon which we can all meet on common ground and work together.

During the time we have had these meetings, some very fine public education programs were presented. We had two types of programs primarily — state and local. Right after the President's Highway Safety Conference last May, a few states began to work on this problem of coordinating the whole state program so far as public education was concerned. In my own state of Ohio, a fine job was done. A complete program was drafted by the Department of Highways, and cities all over Ohio were asked and urged to come into the picture and cooperate.

It is all very well for the state to do that, for that's their job, but unless the communities themselves get into the picture and put these programs into effect the programs are apt to be just that much paper.

The thing that came out of the meeting the other day when we were talking about coordination of these state programs was that we must all get into the picture as local communities and put these programs

into effect if they are going to be any good. We also had some very fine city programs presented, and the one I want to mention is Dayton, Ohio, which has initiated a pedestrian program.

Every city in the country today is worried over that pedestrian problem, and Dayton has done a marvelous job in putting together a pedestrian program that has secured results. Captain Price told us this morning how pedestrian deaths despite the raise in traffic, have declined since this coordinated attack on pedestrian accidents.

A pedestrian ordinance was enacted after a year of work. Prior to the enactment of that ordinance, a public educational campaign was conducted in which the newspapers, the radio, leaflets, and posters by the thousands played an important part so that every citizen of Dayton was exposed to the fact that there was going to be a pedestrian ordinance in effect, and it related what everyone should do personally to come in line with that program.

Every agency in the community needs to work together to put over a public educational program. I wonder if that's happening in your community. It could be a great deal better in mine. However, just think of the other forces in your community which are interested in traffic safety and bring them into line, work with them, cooperate with them, offer your cooperation. It is only then that we can secure the effectiveness that we want.

Safety organization to be effective according to the consensus of opinion must

conduct a vigorous program in safety education, a vigorous program that goes on all the time; not spasmodic campaigns. Also, the Safety Council must work with officials, support the officials, and try to be the link between the officials and the community at large.

Radio has been shown to be one of the most effective means of public education, but there is another caution. There was another sounded at the meeting on radio. You are competing when you go on the radio with some of the highest paid advertising men in the country. So, when you go on with safety it better be good or it won't be listened to; and the suggestion was made by the radio men that you tie your program in with an established program that has a listening audience.

It was suggested that your news program is a natural to tie in safety messages. There are other instances in local programs, I am sure you can develop to tie in perhaps a five minute safety spot. There you have a ready-made audience. You don't have to develop your own. The second point on radio is if you are going to develop a program, go to your station people, radio people, and ask for their help. They are professionals, they know what you want, they know how to develop it, and with their help you can put over a much more effective public education program on the radio than if you tried to develop it yourself.

I have been asked to say a word of the future—what does the future hold in public education?

Let's make our program move fast, and then let us plan it so carefully that it goes smoothly with no hitches, so that once you start your program it goes right through

to its finish without a hitch. Then make sure that your program is widely advertised. Get it out before the public, and then you are going to get results. Col. Lynch of Los Angeles brought in such a program. It was a program that was developed for nation-wide use. This program had a different safety traffic subject for every month of the year with the idea that every community in the country would be working on that subject during that particular month.

The advantages of that approach were simple to receive. No. 1, you get national wide publicity for your program. No. 2, you get a tremendous amount of respect for your program locally because it is going on all over the country at the same time. No. 3, you can tie in local units of national groups in your community because those national groups have notified their local units about the program. In this connection I am thinking of PTA groups, and I am thinking also of such civic groups as Rotary Clubs and others who want a part in your traffic and safety program if you give them a chance.

I believe that the program presented by Col. Lynch was the most forward looking one that has ever been presented in recent years on safety and education. I hope that program is made available to every community in this country on a national scale and that we can have this national coordination which is so important.

So, to sum it up, I would say that the whole structure of our effort lies in how well we can get together and work together, coordinate our efforts in traffic education, and then let us get going fast, let's be sure it is a smooth program, and let's advertise it widely.

Driver Licensing

By GLENN V. CARMICHAEL

Staff Rep., American Assn. of Motor Vehicle Administrators

The licensing of drivers on a state-wide basis goes back to 1904. Now, 42 years later, driver licensing has reached that stage in most states where it is said that life begins at forty.

This year there is greater public support and demand for good administration of

driver license laws because there is more interest on the part of the officials to administer the law as it should be administered. I have seen proof of this state of development in our own local communities, and I am gratified to report for motor vehicle administrators that our members in

a number of instances have improved procedures and have strengthened the standards of licensing.

For instance, the standard of passing on the road rules or law tests has been raised from 70 to 80 per cent in Utah. It seems to this observer that the value of driver licensing is a weapon in the war on accidents as stated most ably in this Congress by Major A. F. Temple of Texas.

Said Major Temple: "The most effective and direct approach to the control of the driver lies in the rigid enforcement and administration of a good driver license law." Driver licensing as you know is made effective in reducing traffic accidents through two major activities of the division. One, the examination of drivers, and two, the improvement of drivers through suspensions, re-examination, interviews, and other like procedures.

In the first instance we expect to see in the very near future in every state the examination of all original applicants for a license. That examination will consist of a vision test, a sign test, a road rules test, and a driving test. It is reliably reported that Minnesota, Montana, and North Dakota will adopt this procedure. We hope that five or six other states not measuring up to par will do likewise. The President's Highway Safety Conference and the association which I represent are on record advocating the conduct of these examinations by full time state examiners properly selected and trained. The public support for driver licensing is so evident that the legislature, the administrator, the safety organization should take immediate steps to place the examiners in that class.

Check the status of examining in your own state to see if your state can measure up to recommendations. If it does not, you know what to do. Certainly there is a target at which to aim your sights in the future.

There is another. The traffic court division has as one of its objectives better court rooms in which to conduct traffic cases. Judge Porter of Evanston pointed out in session on Monday, the most favorable attitude of the public because of the new Evanston courtroom—the Cathedral they call it. The driver licensing official has a pronounced parallel in examination rooms.

When we consider that examinations in most localities are conducted in rooms not designed for testing purposes, often garages, drugstores, fire stations, courtrooms on the third floor of the court house, halls, and other equally unsatisfactory places, is it any wonder that the public often is led to believe examinations are not important? Do you remember the surroundings in which you took your license test? Were you favorably impressed?

I think the future holds in store the construction of a series of locations for driver examinations expressly designed for that purpose. I look for the raising of standards and all phases of examination comparable to the example set by Utah as previously mentioned.

Mr. Ted R. Smith of Pasadena was one of several who reported during this Congress that drivers applying for a license are helped in regular training courses conducted by motor vehicle personnel so as to be able to qualify for a license. We hope to see adopted by more states as a requirement for licensing the successful completion of a course in driver training. The more training the higher the standards for qualifying and the better the driver.

Turning to the second phase of licensing, driver improvement, we see a field that will yield big dividends in safety if the state will only cultivate it. Already, techniques of plowing, so to speak, harvesting, and so on are known. We have yet to persuade many states to turn to this crop. The field is as fertile as examinations. You as administrators, judges, police, prosecutors, safety engineers, and civic-minded citizens should demand adoption of a driver improving program now when conditions are so favorable for you would reap a good harvest of safe drivers.

Our association advocates the policy of utilizing driver records, accident reports, arrests, conviction reports, warning tickets, complaints, and so on. If 90 per cent, let us say, of suspensions and revocations are for driving while under the influence of intoxicating liquors, it is an indication that the state is not making full use of its driver license law as recommended. If drivers with bad records are not given immediate attention by the driver licensing division in an effort to change them into

good drivers, then now is the time to go about remedying this deplorable situation.

The concept of driver control through suspension or revocation has been offered almost imperceptibly within the past five years. The next five years will see a complete metamorphosis. More examinations of drivers will be given on the basis of their records. More interviews and investigations to determine attitude will be accepted as part of the driver license division function. More effort will be expended by the division in every known way to change bad drivers into good ones.

E. P. Lee of Minnesota in a panel discussion on Tuesday stated most accurately how the driver license law should be administered. We hope that before long we can point with pride to every state as being in an exclusive class as described by Mr. Lee. He said that the driver license law should be administered so that the courts, the police, the prosecutor, and the public will know what the division will do and does do. If these groups and persons actively cooperate with and support the driver license division, there is no limit to

the good that can be accomplished with a good driver license law.

Paraphrasing Mr. Earl Hall, a state either has a driver license law or it doesn't have one. If a state has a law it is either administered as it should be or it isn't. You personally know the score at home. If you, and you, and you will do your utmost to bring about (1) a standard examination given by properly selected and trained personnel in the proper atmosphere to all original applicants, and (2) a driver improvement program that effectively controls drivers with bad records, driver licensing will bring fruition to the desires and hopes of all of us for safety, for you, and yourself, and me.

CHAIRMAN COLE: I was particularly glad that you emphasized the growing thought concerning the development of schools for drivers. It is my humble opinion that we should come to the point some day where no applicant for a driver's license will be considered until he can produce certification that he has had some instruction in this vital problem of how to drive an automobile properly.

Transit Section

Executive Committee 1946-1947

General Chairman—ARTHUR J. NAQUIN, Safety Counselor, New Orleans Public Service, Inc.

First Vice-Chairman—J. G. DICKINSON, Superintendent, Accident Prevention, The Milwaukee Electric Railway & Transport Co.

Second Vice-Chairman—L. B. ENNES, Superintendent of Transportation, Cleveland Transit System.

Third Vice Chairman—M. C. BULLOCK, Safety Director, St. Louis Public Service Co.

Secretary—E. F. MEHRBENS, Director of Safety, Omaha & Council Bluffs Street Railway Co.

Program Committee Chairman—ALEXANDER SHAPIRO, Director of Personnel, Capitol Transit Co.

News Letter Editor—HALLIE L. MYERS, Safety Counselor, Indianapolis Railways, Inc.

Membership Committee Chairman—V. B. CHURCH, The Baltimore Transit Co.

Immediate Past General Chairman—J. P. TREYTON, Vice-President and General Manager, Indianapolis Railways, Inc.

Members-at-Large—

LEE F. DAVIS, Director of Claims and Safety, Virginia Transit Co.

C. DOWELL, Supervisor, Accident Prevention, British Columbia Electric Railway Co., Ltd.

JOSEPH P. GAYNOR, Safety Supervisor, Chicago Motor Coach Co.

W. S. HELMER, Safety Engineer, Chicago Rapid Transit Co.

JAMES D. HILL, Asst. General Manager, Austin Transit, Inc.

M. A. KRAFT, Director, Department of Personnel & Accident Prevention, American Transit Association.

E. J. KREN, Manager, Accident Prevention Department, Philadelphia Co.

D. I. MACDONALD, Safety Director, Winnipeg Electric Co.

CARL RAWLINGS, Safety Director, Phoenix Transportation System.

C. A. TESHIGAHARA, Safety Director, Los Angeles Transit Lines.

Counselors—E. E. GROVER, Manager Claims, Columbus & Southern Ohio Electric Co.

ROBERT MCARTHUR, Safety Director, Public Service Coordinated Transport.

H. W. WHITCOMB, Superintendent, Accident Prevention Department, Philadelphia Transportation Co.

Staff Representative—PAUL H. COBURN, National Safety Council, Inc.

TUESDAY AFTERNOON SESSION

October 8, 1946

Presiding: J. P. TAYLOR, Vice-Pres. and Gen. Mgr., Indianapolis Railways, Inc.

Management's Interest in Accident Prevention

By EDWIN C. HOUGHTON
Gen. Operating Mgr., Nat. City Lines

I firmly believe that every individual and every business establishment owes something to the safety and general welfare of the society of which he is a part;—and, that TOP MANAGEMENT of any business should be conscious of their responsibility for the general safety of the community in which they operate . . . and the reason is NOT entirely altruistic,—it is SOUND BUSINESS, for there is a BIG PAYOFF in cold dollars and cents in successful accident prevention.

Also, to my way of thinking, safety clears the way for more efficient and profitable work, and a good safety record is the PROOF as well as the RESULT of competent management.

In most industries, given a shop condition where an accident may occur, it is merely a matter of luck as to when the accident WILL occur. Analysis of accident causes in industrial plants of all kinds show clearly that practically all of the conditions from which accidents arise come WITHIN the scope of management control. In transit the conditions are reversed because our industry is a type of business where the individual reigns supreme. Individuals operate our equipment through streets literally packed with traffic hazards—heedless children, careless pedestrians and fast moving vehicles. Added to this accident exposure, we are engaged in transporting human beings, and psychiatrists will tell you that the human mind seldom appears more foggy and inadequate than when faced with the problem of finding where the human body wants to go, getting that body aboard the carrier and persuading it to pay its fare and sit down. Finally, our operator has to run the gauntlet of the fumbling passenger, the belligerent rider, the talkative person, the aimless wanderer and about every type of the many oddities which occur in human personalities. NO OTHER INDUSTRY,

its equipment or employees, have to face as great an accident exposure.

The objective of transit management is to gain smooth operation, good public relations, good employee relations,—and PROFITS. Management knows that to secure profits it must give the public what it wants, by wooing the hypothetical Siamese triplets which are inseparably bound together . . . SAFETY, COURTESY and SERVICE.

The brothers Fitzgerald recognized these triplets in their early bus pioneering days (that would be about 1918) and they thought so well of the trio when they first organized National City Lines that they adopted the triplets by including "Safety Courtesy Service" as the company slogan.

Men in charge of transit safety promotion must realize that management stands between the stockholders on the one hand and the line and staff organization on the other. It is in reality a body which is pulled by two apparently opposing forces, one calling for more profits and the other calling for more benefits. Because of this tug-o-war it is the safety man's job to make the application of the safety program look so good when presented, that management can go along with his principles. When management seems skeptical or indifferent you had better examine both the program and your accompanying sales talk. Give your program some soul-searching and thoughtful study, then reorganize, rebuild, and dramatize your sales presentation. TOP MANAGEMENT does not want to be "penny wise and dollar foolish" for it can not make profits following such procedure. And, when management can not make profits the investor invariably seeks a new management.

All of us know that you can't ring the bell with a tack hammer,—so don't blame

management if it hesitates to adopt many of the ballyho approaches to safety. THAT HESITANCY is backed by good sound reasoning for Americans continue to set high records for fatal traffic accidents DESPITE the fact that nearly every weapon and educational medium at society's command has been brought to bear on the problem.

Since V J Day the most intensive propaganda campaign in history, organized and unorganized, has been directed at reducing the increased traffic accident toll—without success. It is a problem that puzzles the publicity experts and confounds their philosophy. In the face of this great campaign traffic fatalities are running 40 per cent ahead of last year.

The reason for this campaign failure is because of the fundamental blind ego that is in all of us. The educational and publicity campaigns HAVE NOT reached the consciousness of all the people because the majority of drivers feel THEY are excellent drivers. They feel that all this ballyho on Safety IS NOT INTENDED FOR THEM,—that it is aimed at the "other fellow." No one will ADMIT that HE BELONGS to the group that is composed of the "other fellows," consequently the campaigns are DIRECTED TO NO ONE.

The traffic toll will DECREASE when motor vehicle drivers generally accept the fact that THEY are the "other fellows" potentially and literally. Until we have explored that angle and completed our full share of aid toward educating the motor vehicle driver, have explored ways and means of clearing the "foggy lands" using our service, and HAVE WIPEL. 'T the exalted opinion that any of our operators may have of their abilities to handle our equipment, it appears to me that we are trying to ring the bell with a TACK HAMMER. We, in the transit business need a strong safety program which lays stress on human behavior.—A "SLEDGE-HAMMER" to do the job.

Within a few months we will have that "something has been added" feature. Automobiles will come tumbling off the assembly lines in a veritable flood. That means MORE "other fellows" on the streets along with the present motor cars which are tired out, worn out and ready to fall apart, according to prewar stand-

ards. Our industry will be fighting for space on the streets and we will be fighting for our very existence. Transit management, therefore, is vitally interested in successful accident prevention.

If National City Lines has anything to offer that will help others toward successful accident prevention you will find us ready and willing to cooperate, for there is no more tragic waste of human lives, no more unnecessary background to human suffering, no more needless source of financial loss, than passenger and motor vehicle accidents. Every transit operator is an integral part of the social and economic life in the community where it operates, and safety is inseparable from efficient operation.

We look at safe operation as an obligation FIRST to the community in which we operate; second, to the public who reside within the community and use its streets; third, to our customers, the rider; fourth, to the investor's equipment which we operate; fifth, to the employee; and sixth, to the company itself.

To fulfill our obligation to the community, we offer and secure full cooperation in the community organization for safety which includes: community safety councils, police and fire departments, traffic engineers, industrial plants, commercial fleet operators and newspapers. In these communities we endeavor to spearhead the traffic safety movement. Through advertising and publicity we promote safety within the community. We endeavor to secure cooperation with other users of the streets and to lead public thinking toward the fact that our equipment operating on their streets is mechanically perfect.

We carry on a consistent campaign to our riders through the use of front rack advertising cards which are so placed that they can be seen by all riders. We also use side rack cards from time to time. These cards attempt to secure public cooperation in safety,—and employee cooperation with riders.

We play up driver training and safe driving practices to our operating personnel and inform our public through advertising and publicity. Through reverse action methods we do our best to build employee cooperation while placing the public mind in the receptive mood for better cooperation with our operators.

We recognize that safe operation practices are a necessity for the preservation of equipment, the smooth operation of equipment and the wear and tear of vital parts. N C L management considers its equipment not only as an investment but a potent sales medium. Safe driving practices are a necessity for rider habit promotion. In our obligation to our equipment we have continuously maintained what we consider a fine preventive maintenance program which has held road failures to the absolute minimum. In the operation of our equipment over city streets we fully recognize that driving a motor bus is the commonest of skills and that operators have served no apprenticeship in learning their craft. While in theory great responsibility attaches to the job, in practice, half of the male passengers aboard any bus, and some of the women, could deliver the coach to its destination.

On larger properties regular driver training schools can be set up and, if instructors or supervisors understand the art of teaching, driving habits CAN BE improved. On smaller properties, where regular employed instructors are not maintained and the instruction job is spread among several regular employed drivers, an intensified selling job on safe driving practices and equipment conservation is necessary.

N C L also considers safety an obligation to the employee as an individual. Through cultivating and promoting safety we believe we have helped to make the home safe, and safe driving a home topic. We are continually trying to show the family that safety pays dividends on the home front as well as on the job—and that safe operation of our vehicles IMPROVES job security for the bread winner of the family. Publication of courteous acts, safe driving awards to individuals and the group as a whole, helps elevate the employee's standing in the community and adds to the glamour of the business.

Because the individual does reign supreme in our business every property should have at least one man whose business is to sell the idea of safe operation to other employees. His program necessarily should be a continuous one, day in and day out, year after year. NO LASTING BENEFIT can be derived from a sporadic short lived safety program. The idea of safety

must be kept constantly before those who are apt to have accidents.

In human behavior—we find that after the individual has learned to operate a vehicle (passed the learning operation) his own motor mechanism becomes as automatic as the engine of the bus which he drives. He guides it cleverly over its route, the right muscles working at the right amount of pressure at the proper time and in proper order. A passenger standing at the corner, a car ahead or the honk of a horn is stimulus enough for his eye or ear, his nervous system responds, adjustment is made as though it were a reflex. He acts by force of habit—an acquired reflex. At the start, unless he has an exalted opinion of his own capabilities, he is continuously alert. As soon as he has gained experience and has become familiar with the equipment, the route and the job of loading and unloading passengers,— . . . THEN, lack of training, lack of proper knowledge, lack of enthusiasm, bad driving practices, poor attitudes, health and mental disturbances, and carelessness all join together as little gremlins in building up accident possibilities. Unless he is checked and rechecked, and RETRAINED through proper supervision, ONLY LUCK can hold the individual from becoming an accident prone operator.

Good supervision will secure GOOD JOB PERFORMANCE— . . . and good supervision means that the supervisor gets his people to do what he wants done when it should be done, and according to the standard and quality required.

Students who have studied the history of transit operations tell me that following the days of consolidations and mergers, when traction franchises made ours sort of a monopolistic business, accidents were treated as a nuisance. Claim departments were the thing, and smooth talking buffers were used to convince the claimant that he had little or nothing coming. When the buffer failed, the claim agent stepped into the picture and offered settlement.

The monopolistic character of the business, soon led to a "take it or leave it" basis . . . and public relations suffered.

Then came the great spawning of automobiles during the 20's. Accidents increased in leaps and bounds. Claim departments, during breathing spells from adjusting, be-

gan to question the age-old theory of chance distribution of accidents.

During this era transit management LOST the tug of war to stockholders for mass transportation holdings, generally speaking, had been set aside for "loss deduction" against "profits" purposes in the electrical end of the business. Management was stymied, for most people thought that no one could ever again make a profit in the street car business. Buses,—well,—they were only an excuse to keep from renewing track and making extensions. To continue in operation in the face of automobile competition it was necessary to reduce cost of service.

By the late 20's and early 30's management was thoroughly conscious of the fact that the increases of automobiles on the streets, had made accident prevention a necessity, but declining revenues created procrastination. Steadily mounting repair and insurance costs, plus growing public sentiment toward reducing traffic accidents sent claim agents scurrying to find ways of eliminating accidents before they happened.

Penalties and bonuses were probably the first step taken, (it was that way in the bus business)—then came intensified training and retraining of personnel, followed by incentives and ballyho with the idea of making the employee safety conscious.

With the inauguration of the national defense program, followed by wartime production and shortages, traffic skyrocketed as did the importance of successful accident prevention. Accidents to vehicles and lost man hours were likened to sabotage,—and great efforts were made to stamp out carelessness.

With NCL we recognize the great importance of driver training, and we are also conscious of the fact that we are dealing with TWO MACHINES—the vehicle and the human—and we know from long experience that any safety program has to be a selling job. Experience has shown that in a glamorous business such as ours it is VERY DIFFICULT to educate workmen to enter into the spirit of such a program and to cooperate voluntarily.

In dealing with the vehicle machine we have set up a preventive maintenance program which has been constantly perfected over many years. The plan is set out in

detail in our company manual and is rigidly followed at all properties. Numerous checks and double checks have been added in the form of reports because humans carry out the program in its entirety.

We believe that PREVENTIVE MAINTENANCE has played an important part in safe operation.

To create interest, recreate interest and foster enthusiasm for proper care of equipment in the shops, we carry on educational campaigns to supervisors and staff.

In dealing with the human machine we have three types of machines—

the operator OF the vehicle
the passenger IN the vehicle
and, the "OTHER FELLOW" using the street,—

and ALL THREE HUMAN MACHINES have almost as many varieties and personalities as the population of the community in which we operate. ALL have fixed habits and an automatic nervous system which has been tuned to habit formation by repetition.

We all know that habits are formed by repetition, but we do not always realize that habit formation and learning are one and the same thing. Thus the human machines with whom we deal feel that they know all the answers. The pedestrian believes that he knows how to walk, the motorist is sure that he knows how to drive . . . and the passenger believes he knows how to board our vehicle, where to sit and where to stand. Any mistake, delay or unusual incident quite naturally is made by the "other fellow,"—and when the human mind is quick to realize that the mistake is of his own making, he instantly reacts emotionally and aggressively because he does not want to appear to be the fool in public.

Our safety men are now busily engaged in exploring this field of human relationship. We are moving into this field by easy stages, building upon the known to reach the unknown.

In dealing with the HUMAN MACHINE which operates our vehicle it should be recognized:—

that driving is the commonest of skills, that the trainee has a reflex system already adjusted, that the trainee has an exalted opinion of his own capabilities,

that he may have unrecognizable physical defects, that he may have an unpredictable emotional character, that he may have many psychological shortages, and that driving a bus is a glamorous job, appealing particularly to individuals of emotional character—a fundamental desire for excitement and a desire to be seen and admired.

Assuming that all individuals are equally susceptible to accidents and maybe equally helped by training, the teacher must train the student in correct methods with emphasis on safe driving habits. One telling and one demonstration IS NOT ENOUGH, for such action must be done over and over again and then elaborated upon. The number of repetitions necessary to FIX A THOUGHT in the mind of the trainee depends, to a large degree, upon his experience with, and understanding of the subject matter. Humans learn best by instructions based on their own experiences and knowledge and it is unquestionably necessary to connect the new ideas of driving with the old experiences and go forward step by step until the new desired method of operation is fully disclosed.

It must be remembered that **WE LEARN** only that which gives us satisfaction. The reward for the effort involved in training is derived by a clear understanding of its purposes. If instruction is given in a manner that makes learning difficult we may be sure the instructions will soon be forgotten.

A well trained employee leads to satisfaction and less opportunity for friction on the job due to misunderstanding, and to better job performance with less effort.

Unfortunately, in our business, the new trainee is thrown immediately upon his own resources, and an element of fear is liable to be present over a period of time. This emotional upset tends to destroy the knowledge gained in proper training and induces a return, or partial return, to old habit formations.

A good training program is management's first move toward successful accident prevention, but it **CAN NOT STOP THERE** for the mental state of the human depends upon interest and degree of satisfaction. The employee morale (or state of mind)

must be maintained at a **HIGH LEVEL** or every phase of the training job suffers,—performance, public relations, life of equipment and passengers. A safety department naturally follows in management's scheme of accident prevention,—and thereafter it is the safety man's job to create interest, recreate interest and play all the psychological factors that produce "a desire" in the human machine for continuous safe driving and working practices.

Professional results naturally cannot be expected from amateurs. Special training and knowledge is essential in the control of accidents and their physical and psychological factors.

The history of accident prevention in the industrial plant field parallels the technological development of industry itself. As industry developed new machinery, processes and methods, safety engineers concentrated on equipment safeguards, then good housekeeping, working conditions and personnel characteristics. Recognition of certain psychological aspects of the accident problem resulted in proper placement of individuals and studies in emotional maintenance.

Our accident prevention men have greater hurdles to make and an unpredictable behavior common to our industry. Our best approach is a continuation study of human behavior, accident proneness and the many psychological factors that surround accidents. Periodic conferences of safety men with proper leadership will help.

The field of driver selection, training, motivation and supervision offer great opportunities for improvement.

The war focused attention upon training of men and psycho-screening in the selection of personnel, which suggests to my mind that we adopt a continuous screen process from the moment the applicant is interviewed. Psychologists, you know, still regard accidents as symptomatic behavior.

With us—the individual comes for employment because he wants to exchange his labor for job security and an animated life. On the other hand we want an employee who will perform perfectly without collision and passenger accidents; one who will operate our vehicle smoothly, thus giving our customers a comfortable ride; one who can manage his moving store so as not to

miss revenue and at the same time render individual courteous treatment to the riders.

In exchange for his labor he accepts employment and **ACTUALLY INTENDS** to deliver his part of the bargain. His physical examination uncovered no defects. His training is then completed and he is placed in service.

During the war it was inevitable that supervision would deteriorate as a result of manpower shortages but improvement in the labor market has again made it possible to tighten our controls over driving practices. Much can be done in this field to bring about better safety practices and in our search for the accident prone.

Close supervision, with good human relation technique,—correction in the friendly way,—**WILL IMPROVE** morale and secure better job results.

Accident prevention must be regarded as the work of the entire organization and **NOT** the isolated responsibility of the safety man. It calls for the closest co-operation between safety men, superintendents, supervisors and instructors with the psychological rather than the engineering point of view. Far sighted **MANAGEMENT** is now getting a head start on accident proneness, attempting to uncover hidden causes before accidents start, or at least as soon as an individual suffers his first mishap.

Here are a few of the many psychological conditions which may result in accidents. This small list may touch off a hundred others within your thinking machinery.

The absence of the **RYTHM CHARACTERISTIC** in operators produces an individual who "fights his job." He can not catch the feel or slip into the pulse and the beat of his job. Lack of this quality results in mental irritations, discourtesy and emotional upsets. It kills enthusiasm for the job and he gets sour. During this plain "don't give a darn" attitude, anything can, and usually does happen.

REACTION TIMING is very important. It can readily be appreciated when we understand that individuals vary anywhere from 14/100's to 8/10 of a second. This variation is of far more significance in accident prevention than either the speed or brake efficiency of the vehicle.

SLOW PERCEPTION is another factor in accident causes. The fellow who acts quickly and yet at the same time has slow perception speed is dangerous. He usually reacts to a situation before he has perceived its meaning and can do the wrong thing as well as the right.

DECLINING HEALTH. Development of an disability or bad health condition leads to mind preoccupation of self and less attention to the job. A good example is the development of diabetes. The individual so affected is subject to early fatigue which starts a cycle of worry.

EMOTIONAL STABILITY. Emotional upsets are large contributors to accidents. Upsets result in a distortion of capacity for making sound judgment and also result in poor muscular coordination.

JOB FEARS and anxieties cause "gaps in consciousness" which lead directly to accidents. It matters little whether such fears are real or imaginary so far as its effect on accidents are concerned.

DISCOURAGEMENT is one of the human being's worst poisons for it causes wide gaps in consciousness. It takes the greatest will power and the greatest courage to throw it off. Ofttimes what a fellow thinks is true is of equal or greater importance than what is true.

Recognizing these few shortcomings of the individual, it is readily understood that safe driving must become a **FIXED CONSTANT QUALITY** of the mind. Because of this reality, motivation is necessary, to secure and preserve voluntary cooperation. Sales promotion technique should be applied for humans, as a rule, have great difficulty in maintaining a steady, adequate flow of interest in almost any object or subject.

A number of activities should be developed and should be sufficiently comprehensive to affect the variety of characteristics of each operator, and the whole group of operators. The overall plan must be set up to fit all ages and all types.

In the field of motivation such incentives as individual safety awards, participation in company, inter company, or national contests or other methods of giving recognition for safe operation are recommended. Great care should be used in the incentive field, so as to separate extra effort reward

from that of the regular salary check. This means a continuous change in your program of reward so that the employee identifies the reward AS A REWARD and NOT as a part of his regular income. Variation, too, is what makes contests attractive.

To raise SAFE OPERATION to a FIXED CONSTANT QUALITY of the mind, the first step after training is CREATION OF INTEREST which will produce enthusiasm in safe operation practices. That is where motivation activities come in, for ENTHUSIASM SPRINGS from the age old desire to win, to overcome obstacles and to excel. Knowledge of the job and activities produces interest and interest produces enthusiasm. Not only that, but enthusiasm develops into the quality which we call loyalty. Loyalty in human personality is the direct result of being enthusiastic about anything.

In setting up motivation activities, the program planner should know something about instinctive behavior,—and his drive to create interest and enthusiasm could center around these few instincts which apparently spring from some conscious or unconscious action of self.

This first big fundamental quality is the instinct of self preservation. Everyone possesses that instinct. It is the strongest instinct in man. It not only works toward preservation of the body, but to our social self as well. By that I mean, what our family or neighbors think of us is almost as important in the self preservation instinct, as preservation of life.

Possession is another of the powerful instincts. People are prone to retain those things which they once get into their possession. In other words, it is harder for you to give up something which you possess than it is to give up something which you have merely looked at.

Companionship or sociability is another. It is apparently born within us. Possibly one per cent of the people in this country are hermits. All the rest of us want friendship.

Pride is still another of the powerful instincts and everyone has a certain amount of it. In fact, there are very few people who do not possess a strong strain. We admire ourselves. We think our judgment is good. We think our family, our chil-

dren, what we have done, and what we do is just about tops.

Imitation is another instinct that should be carefully investigated for we all imitate and we cannot help it. By planting the seeds for safety carefully, this characteristic of the individual can be used effectively.

Curiosity is one of the most powerful of the human urges and every one of us are curious. Don't overlook this incentive in your contests, your meetings and your overall program.

The strongest of all instincts is the love of father and mother for their children. Ninety-nine per cent of the fathers and mothers in this world would give their lives for their children. This instinct, therefore, should be thoroughly explored for tie-in relationships to motivation activities.

In planning to capture safe operation as a FIXED CONSTANT QUALITY of the mind, it is well to remember that there are two ways of selling,—directly by means of logic, or indirectly by the use of suggestion,—and there are three . . . the intellectual which uses basis of fact and logic by specific application. He uses three-fourth's reasoning and one-quarter suggestion in making decisions . . . the muscular type, or man of action, who is susceptible to an appeal to emotions in the way of suggestion. They use 50 per cent reasoning and are acceptable to 50 per cent suggestion.

Then there's the vital type which is more common than the other types,—and more emotional, hence the power of suggestion is more acceptable to them than an extremely careful analysis.

It is also a well recognized fact that MOST PEOPLE do not like to think,—and it is up to us to get them thinking and to keep the stream of thought flowing without interruptions.

I have often been asked what should be included in motivation activities. My answer naturally is "meetings, safe driver awards, contests and any idea that has dynamic power enough to put the idea of safety into the driver's mind, develop it so that it will blossom and flourish until it produces accident free operation." To get that idea across is a hard job for the human mind moves fast; it can jump in two billion different directions. As the mind is jumping back and forth you have to grab it, put a splash of "idea paint"

here, another splash over there. You have to paint your picture on a moving canvas,—and your touch is an important part of the job.

In the administration of any program designed to create and hold driver and shop employee interest, the safety man has certain obligations.

He should be human and have a fairly good understanding in human relations. He should never forget that "people should be treated as individuals," not as numbers nor units in accident statistics. This is a prerequisite to obtaining respect for his safety program.

He must be a good listener, giving the employee ample opportunity for free expression. Criticism should be the substitute for criticism and used as often as possible.

He should be factual, withholding decisions until he has gathered all the facts. This will be recognized by the employee as justice. After the facts are in and you are not sure that he was at fault, don't treat him as if he were. If you do he will rightfully think you are unfair.

He should be courteous. Remember that punishment can be meted out without fire and brimstone. The rule breaker will be more likely to understand the reasons for criticism and action, and more likely to CORRECT his errors if handled properly.

When the ground work has been laid for sound employee relations, the program can proceed with reasonable hope for its success. After all, the man in charge of accident prevention will be rated not for his technical knowledge but for his ability to use it in obtaining the desired performance. The supervisor who is in charge of safety gets his results through people, and the success he attains is directly related to the degree in which he understands them.

To have good human relations on the job, it is necessary that each supervisor understand and apply the principles for building and maintaining them. Some of these basic principles are:—

BE FAIR WITH THOSE YOU SUPERVISE.

BE SURE THE EMPLOYEE KNOWS HIS JOB.

TELL HIM WHEN HE HAS DONE A GOOD JOB.

HANDLE CHANGES.

Our accident prevention program is outlined in detail in our official management manual which is followed to the letter on each subsidiary property. One of the principal features is the comprehensive and accurate method of employing, training and supervising of operators. A program of education on accident prevention is emphasized, rather than a drastic penalty and censorship method.

The superintendents on our 31 properties are charged with the responsibility of safe operation. Our safety department is a service organization for these superintendents.

The safety men analyze accidents and their causes and supply factual statistics. Our engineers who cover the 30 properties check equipment, routes, accident traps, and analyze employee driving practices paying particular attention to the accident prone. While at properties they hold general safety meetings, not of the statistical type, but get-togethers with educational features that have a lean-to for entertainment. They use motion-pictures, sound pictures, sound slides and dramatized monologues with employee participation.

A national contest, in which each company participates, is broken down into four groups, and trophies are awarded twice yearly to the two leaders in each group. This contest is changed around each year so as to eliminate "sameness." Originally it was called an interstate contest. Three years ago we revamped it, gave it a new dress and name—"the Sayfmyathon"—and had our advertising and publicity departments introduce it to both employee and public. They gave an accounting for the choice of name, the reasons for its use, and tied it to the first transcontinental walk across America. The contest was developed along the line of an arm chair journey across America to the oddities and queerities along the route. The following year it was somewhat different—a "V" shape trip signifying "Victory Over Accidents." This year it was switched to a "beat your own record" contest wherein each property competes monthly with its safe mile average of the past 4 years. If this year's per-

formance is behind the scenes, the property is shown "in the red" on the score sheets, and you can readily understand that no group wants to stay in that position. The contest this year was given an Egyptian twang emphasizing the Sphinx and Pyramids for attention getting and interest arousing purposes in connection with a pyramiding of prize points in our man-to-man contest on local properties.

In this individual employee contest we give prize points monthly for safe job performance plus a pyramiding of extra points for continuous safe job performance. These prize points may be redeemed for merchandise ranging all the way from can-openers to household furniture.

The Superintendents also figure in this prize point incentive. Their awards however, come from property performance in damage claims and collections, and ratio between premiums and claims.

On each one of the local properties there is also a contest in motion between teams of employees. The winning groups are made heroes at a summer picnic and a winter dinner.

At all properties, periodically, executives or leading community personalities are designated to give special recognition to safe drivers. Distribution of safe driver awards are arranged with great care in keeping with the emphasis given to safe performance. This careful arrangement is made so that the driver leaves the meeting with a rightful sense of pride. Special pins are given to men with records of from 1 to 5 years and a graduating prize point award to men who show 6 to 20 years without "at fault" accidents. Certificates of merit cards are also presented with pins or prize point awards.

Group meetings and individual interviews of accident repeaters are always being held at properties.

Each month the safety department releases three colorful posters, issued by the National Safety Council. Twice each month it also releases home made posters for bulletin board display, and once each month it releases the standings in the Sayfmylathon contest.

Our regional managers and district supervisors are continually urging personal

satisfaction and persons' work in their contacts with the property supervisors. Their help is of great importance for there is no substitute for personal contact with the men in the shops and on the buses. Through this continuous form of activity toward creating and holding interest, our men on the properties know their men's records and so safe driver slips away from a good record by neglect. If the safe driver talks to our Superintendent about his record there is no danger of creating disinterest due to unfamiliarity. We play this personal contact feature because, while it is true that a small percentage of the operators have most of the accidents they do not have all of them. The infrequent accidents of the larger group are also likely to be costly in life and property.

In closing, I want to say that the prime requisite in successful accident prevention is that management should take the lead in carrying out a program for safe operation.

Employees are sensitive to every attitude in the general manager's office. If safety is there regarded as of great importance, then this attitude will certainly be reflected down through managers and supervisors to every employee. If safety is merely a side issue, a half hearted experiment, the supervisors and all employees will unquestionably have in their work practices exactly this same attitude toward safety work.

The man in charge of the men on the front line, in the shops and on the street, is the KEY man in any safety program, but he will never truly enter into it, nor sell his men on it, unless his superiors, and the main office staff clear up to THE GENERAL MANAGER AND PRESIDENT are also thoroughly sold on the worthwhileness of the program. Therefore, a sane safety program must be organized from the TOP down.

Accident prevention is good business, good enough business for the management to give it full and serious attention. Accidents cost money but actual out-of-pocket costs represent only a small part of the total cost.

Looking at it cold-bloodedly, simply from a profit and loss standpoint management owes just as great an obligation to the stockholders to initiate, direct, and stimu-

late an efficient accident prevention program as to direct the operational personnel. The safe way of doing a job is, on the long run, the best way of doing it. A man who does his job safely will do a better job.

Yes! Management has a vital interest

in successful accident prevention. Thanks to you for your interest in a spokesman for management—and I hope that I have been able to plant a few little acorns which may grow into mighty oaks, in this all important subject of safe operation.

Adequate Driver Training for Bus and Street Car Operators

(Panel Discussion)

Discussion Leader: E. F. MEHRENS, Dir. of Safety, Omaha and Council Bluffs Street Railway Co.

Participants:

WILLIAM HACKBARTH, Supt. of Transportation on Training, Milwaukee Electric Railway & Transport Co.

M. A. KRAFT, Accident Prevention Eng., American Transit Assn.

H. E. PALMER, Asst. Supt. of Transportation, New Orleans Public Service, Inc.

MR. HACKBARTH: There is no supply of skilled operators on the market. This means that every new employee must be selected carefully and trained intensively. The problem of retraining also assures sizeable proportions. Some years ago it involved the change from conductors and motormen to one-man operators. Then came the need for retraining street car operators to man buses, and in most recent years the newest vehicle, the trackless trolley, has arrived.

We have been training men for operating jobs since the company has organized, half a century ago. In the early days selection and training were exceedingly informal. Selection was through interview, usually brief and measured by one man's opinion. For training, the applicant was sent out on the streets under the guidance of any operator who was willing to take on the added responsibility. Such instructors often knew little about training, and if the student was assigned to a different instructor each day and received conflicting instructions, no one seemed to care very much. When the student felt that he could get along all right alone, the training period came to an end.

Present selection of an applicant requires first that he must be able to pass certain requirements of the employment office. He then must pass a medical examination which investigates visual acuity, color perception,

hearing, heart and lung condition, and freedom from hernia and varicose veins. The applicant then is ready for the selection test which are conducted by the educational division.

Selection tests, which our applicant must pass, comprise three parts: a personality interview, an observation and judgment test, and a performance test.

The purpose of the personality interview, which takes about fifteen minutes, is to place the applicant at ease and to observe, so far as possible, his civil, home, and economic conditions, his appearance, personality, habits and interests, and his attitude toward his prospective job. On the basis of this interview, the examiner judges whether or not the outlook is for permanent employment, whether the applicant can meet the public pleasantly and patiently, and whether he has the intelligence and judgment necessary for satisfactory public relations.

For the observation and judgment test the applicant is given a picture of an accident which he is to study for a limited time. The picture is then removed, and he is given a test paper. In the course of the paper test several questions in multiple-choice form are asked about the accident picture. In addition to the accident picture, questions, there are several multiple-choice questions intended to test common-sense judgment. There are also several problems involving simple mental arithmetic to test the applicant's ability to make change for fare collection purposes. This observation and judgment test requires about thirty minutes to complete. When completed, it is scored, and the applicant is then given the performance test.

A comprehensive study was made of the operators job to determine just what abilities a man must possess to become an efficient operator. With this in mind, the performance test was developed to measure the physical and mental abilities of the applicant.

The test equipment consists primarily of a signal board, an operating pedestal, and a recording device. Visual and audible signals are transmitted from the signal board, and the applicant responds to them with hand and foot operations recorded by the recording device by which it is possible to measure reaction time, coordination of hand and foot movements, ability to learn, general nervous condition, fatigue, and tendency to be distracted.

Administration of the performance test is divided into two periods, the training period and the test period. During the former, the applicant is taught the responses to the signals and allowed to practice them. The training time is recorded as well as the errors made. For the test the signals are given at an increased rate and are interspersed more than for the training period. The test is scored.

In effect the idea of the performance test is very simple. We give the applicant a little sample job, train him in the performance of this job, observe the time required for training, and then test his ability after he has been trained. Observing and measuring the manner in which the applicant learns this new job is the secret of the whole thing.

The entire selection test procedure requires about one and a half hours per applicant. Our experience with it has demonstrated conclusively that through it applicants who are not suitable for the job are immediately weeded out. We know that an applicant who has passed the tests is a man whom we can train to be an efficient operator.

After passing the selection tests the applicant is given a final interview by the superintendent of transportation who gives final approval for the student to enter training. The student then reports to the supervisor of training at the transportation training building and is given a cap, badge, punch, and money changer, and then is assigned to a class.

The practice track incorporates regular road features and provides the student experience in meeting practically every type of operating condition which he will encounter in operation over our system later. Laid out with hills, curves, street crossings, and regular stops, and equipped with an electric track switch, block signals, and section insulators it has proved an ideal training ground. The regular stops, which are on level ground and on grades, are given street names which the student calls in standard manner. We also have practice routes for this and trackless trolley operation.

In addition to training track, road and equipment it is, of course, essential to have an adequate staff of instructors who are well suited to training activities. The supervisor of training and his assistant conduct the training program with the aid of eleven regular instructors, all of whom have been long in the service and who hold the same rank as street supervisors. We have also organized a corps of 47 platform instructors. A platform instructor is a regular operator who by experience, aptitude, and training is best qualified to carry on the training of student operators during the time they are in training under actual operating conditions out on the system. The platform instructors were picked for this work through interviews and selection tests.

The transportation training division is provided with adequate clerical help and keeps complete records of every operator's performance.

Our student training program can best be considered as divided into three periods. The first period consists of three days of training at the training building and on the training track. This is followed by a period of about fourteen days during which the student is assigned to a platform instructor from the car station where he is to work upon completion of training. The third period, of one day, takes him back to the training building for a check-up and final examination before being turned in as a regular operator.

Even then, his training is not entirely completed. Regular instructors are assigned to follow up and ride with him at least once a day and frequently twice a day. This regular follow-up is continued for from

two weeks to one month or until the regular instructor believes such close follow-up is no longer necessary. Then for two or three months the regular instructor rides with, instructs, and rates the new operator regularly but not so frequently. Finally he is placed in the regular schedule of follow-up instruction in use for all regular operators.

Careful follow-up has become a very important part of our program, particularly during the first few months of operating experience.

With our student training program we believe that we have control of all the information that gets to a new operator. We feel certain that the habits formed are correct habits, and that careless and wrong instructions will not conflict with the best practice. There are many situations which occur infrequently and are very confusing to a new operator, but if the training program provides instruction on these infrequent happenings, we are able to get uniform performance in most of them. We have attempted to incorporate every important situation somewhere in the training program.

After an operator has been on street car work for a reasonable length of time, he is sent back to the transportation training building for retraining for bus operation. This program is very similar to that followed for student operators except that during the practice training there is no duplication of work already covered. Instruction and training on the bus practice road are given by the regular instructors and then the applicant is assigned to a platform instructor on regular runs. A final examination is given and follow-up instructions are made by regular instructors until the retraining is considered complete. Manuals and instructional material are issued to augment this training.

When an operator has operated a bus satisfactorily for a reasonable length of time, he is again sent back to the training building for trackless trolley training, at the transportation training building and on the practice road, a period of operation with a platform instructor, final examination, and then follow-up inspections by regular instructors.

Follow-up instructions are made regularly by instructors who cover the entire

personnel. We long since abandoned the idea of instruction reports giving single gradings such as "good" or "excellent." Our present plan requires that rating be according to a definite plan. A manual which describes all of the operating faults that an operator might be subject to is used as a guide for follow-up instruction. The operator is given a grade on each of seven general classes of operating skill, and a report is sent to the training division. We have learned that it is much more satisfactory for follow-up instruction reports to be made in this manner.

All of this training work is supplemented by numerous other activities. We use National Safety Council material freely to help keep accident prevention before our operators. Sound-slide films, including seven of our own production, have been exhibited to most of our operators at car stations. This series of programs covered subjects pertinent to good public relations. Our employees magazine carries articles each month on training, accident prevention and related subjects.

All accident reports are routed through the training division where each case is posted on the individual operator's record. This continuous record furnishes at a glance each operator's accident experience and makes possible quick investigation when needed. As soon as a chargeable accident is posted, we refer the case to a regular follow-up instructor who immediately gets in touch with the operator to review with him the cause or causes which resulted in the accident and to provide any instruction necessary to correct the difficulty. Whenever an operator experiences two chargeable accidents within a year, he is sent to the supervisor of training for an extensive interview, reviewing his record completely. Follow-up instructions are also scheduled immediately, and all effort is made to discover and eliminate accident causes. This procedure is also followed in cases of operators whose records indicate too frequent non-chargeable accidents.

Naturally, we are keenly interested in the results which are attained through our extensive program for selection, training, and retraining of operators. One measure of accomplishment is found in the declining record of accidents and accident costs.

In 1927 we began classifying accidents as chargeable and non-chargeable. Since that

year the number of chargeable accidents has been reduced more than 50 per cent. At the start of the record 22 per cent of the operators completed the year free from chargeable accidents. In 1945, 1144 operators, over 76 per cent of the operating personnel, had no chargeable accident recorded. Accident costs are a sizeable figure in transportation operation. Money spent in settlement of claims produces no profit and furnishes as tangible results only a file of releases.

Since accident costs are a major operating expense, it is natural that we measure the effectiveness of our training program in terms of accident figures. We believe, also, that there have been other accomplishments which are not so tangible. The program has produced substantial improvement in operation and has been a benefit in public relations.

Experience since the start of the training program has convinced us that transportation safety depends on training.

MR. KRAFT: As most of you know, the American Transit Association has a rather extensive project on the development of procedures in the selection of employees and has recently issued four manuals, one main one and four supplements on that subject, so I am much more familiar with the subject of selection than I am with training.

I might go one step further and say we hope to do a comparable job in the development of working manuals on training for street car, trolley coach and motor bus operators, and we hope it won't take us too long to get that material out.

The first defect, I think, that exists on many properties is the use of the training school as the selection procedure. They will not develop their selection procedures well enough and do not let their training school disqualify persons whom they judge unfit. This means you have a terrific waste in your training program. Actually, in some properties you will find that the disqualifications in training sum up to 50 per cent. So you are spending training time on a good many people that could be prejudged. You should be able to get between 80 and 90 per cent of qualification if you have a good selection procedure.

The second defect seems to be a lack of a logical organization of the training pro-

gram, which is not laid out in logical step-by-step sequence or by the use of what might be termed a unit instruction system. In addition, there seems to be an incompleteness of instruction and also some surplus instruction.

By incompleteness, I think I can illustrate that by making reference to a job specification which contained in the appendix in this manual, whereby this one company listed things to do and things to know. It is surprising how many things they expected their operators to do and to know that they had not covered at any point in their training program. I think it would be well to set up a job specification and check the training procedures to make sure that you have actually given that man a chance to learn all of the things you expect him to know.

Occasionally we find properties where the mechanical department gives the instruction on the fundamentals of vehicle operation and maintenance and ends up by giving a course of instruction for a mechanic. I don't believe it is necessary that your operators should be expert mechanics. You want them to know the fundamentals but you don't expect them to do both the operation and the repair. To cite a question that you might ask of yourselves in connection with your own training program, I would like to quote from a recent report:

"In preparing instruction material the question should be constantly asked: 'Does the instruction prepare the operator to drive his coach with the greatest comfort and convenience to passengers with the least possible likelihood of excessive wear and damage to equipment or injury to passengers through accidents and with the greatest likelihood of safe, correct operation.'"

A third deficiency is failure to provide suitable practice facilities away from street traffic. It seems to us that it is very important that the new trainee gets a sound initial training; that he be given a chance to get the feel of the vehicle and form habits which he will carry with him the rest of the time. If this cannot be done by practice on heavily traveled streets, some companies give a man just one day along with another group of trainees, so perhaps he ends up with an hour or an hour and fifteen minutes of actual practice in the operation of vehicles and then he is turned

over to an instructor in passenger service. I certainly don't believe that you can give him all of the instruction in emergency operation and operations in varying weather conditions in one day or in one hour and fifteen minutes. I think that if considerably more attention were paid to initial practice, it would pay dividends.

The fourth defect is the inclination to assign too many trainees to one instructor. It runs up to perhaps six to eight trainees to one instructor for the initial practice and certainly that instructor cannot devote as much time with each man as needed.

Another defect that I think is being rapidly corrected, is the failure to utilize visual training aids as much as possible. The Army and Navy certainly learned the value of visual training aids and it is encouraging to see the extent to which the companies are now going into the development of training materials to supplement the voice with photographs, diagrams, motion pictures and the like.

Still another one is illogical selection and the inadequate training of so-called line instructors. In the past it has been common practice to pick the oldest operators, those on the top of the seniority list, and say, "We will pay you 15 cents an hour more and you are a line instructor," and that is the end of it. I certainly believe those men should be given the instruction. First they should let the men teach other men and then they should be given training themselves. Then there is the question of how to teach. They are teaching in accordance with the established procedure and practice is given to the man before he reaches this line instruction.

Another defect is lack of uniformity in instruction and in the rating of trainees. That again, is caused by failure to properly teach your instructors in the manner in which they are to instruct so that each man, no matter which instructor the trainee is with, is taught to do the same job in an identical manner.

Following that is a lack of a well planned follow-up and retraining of both new and old operators. I commend Milwaukee for having a well organized and well planned follow-up program. I think that you lose a great deal of efficiency in your follow-ups until you do plan and organize both for your new and for your older operators.

Finally, there is the failure to base the subject matter of your training program and the emphasis to parts of your training program upon some factual material, such as your actual accident experiences; your records of operating vehicles, and the matter of complaining. You may give a lot of attention to one phase of operation when actually there are many other phases that create your activities and are involve in your operating which you completely overlook. By making your training program and your follow-up retraining program a real selective one, based upon your own experience, much can be done to increase the effectiveness of your entire program.

MR. PALMER: In thinking on this subject of adequate driver training, I thought of the following definition: An adequately trained driver is probably one who performs his duties in accordance with the regulations set forth by the management.

During the war years there were innumerable unforeseen problems which caused us to wake up to the realization that we were trying to operate in 1942, 1943, and 1944, with 1900 methods. We realized for the first time just how inadequate our training program actually was. I expect if we were to ask ourselves this question: "How do we rate our training procedure?" every one of us would say we have the best in the country. Probably every person has a right to feel that way about his business. I would like to stress the fact that I am not implying that we have the best one. We were so far short of the best, two or three years ago, that anything we did would be an improvement. Frankly, we don't know how to rate our program. We have gotten very good results compared to our operations two or three years ago, and it is with that in mind that I would like to talk briefly about how we discovered our shortcomings and a very few of the things that we have done to overcome some of them.

In my company we hired, and pretended to train, over 3900 operators over a period of about four years, with the maximum complement of some 1300. You can imagine the turnover and the training job that we had. I imagine many of you have had problems equally as big. When we tried to train these employees we had accidents and we had acts of discourtesy and just about

everything that we should not have had. We awoke to the realization that we should start a training program. We found out quickly that we had a very big percentage of our supervision who were definitely untrained. So then we had to start all over. We started a training program for our supervisors. We sat down and formulated our own ideas and plans and got some supervisory training courses.

First, I would like to mention also that we did not confine this training to the line supervisory group; we took the division superintendents, the station foremen, the fire station personnel; as a matter of fact, the supervisory group, the instruction group and the dispatched group. The first topic we discussed was the new supervisor.

The next topic, "The Foreman as a leader," "The Foreman as a representative of management," "How to develop the proper attitude among workers," "Trouble shooting for grievances," and incidentally the grievance division has proved to be the most important of the entire course. None of us have given very much thought to it and I will comment briefly on that particular topic later. Another subject was "Making proper contacts with the operator." As far as we know, we broke a little ground on this subject. We searched everywhere to get some information in training transit supervisors in making contacts with their operators. We didn't find any so we wrote our own chapter on that one.

On the topic, "Accident Prevention," we spent several weeks. We spent several weeks on the subject of "Customer Relations," and then had a review of our railroad problems—pre-war years as compared to the war years. After we held conferences for teaching our officials and the key-man group, we decided we might be qualified to go out and begin to train the new operator as well as the old. Then we visited a few of the properties, that we knew had good records and had done a lot of work along this line. We made a little trip up to the Milwaukee property and made a study of their operations. They certainly confirmed some of our own thinking and helped us to convince management that we had to do something about our problems and it made the job much easier for us to put our ideas across.

The next step was to build a new training school. We operated for a number of years without adequate training facilities, and we tried to convince management again that we needed everything possible to train street car motormen, conductors and bus operators. We were able to get very good cooperation and we think we do have a fairly good training school.

Incidentally, I would like to stop a minute to say, we have had a request from a number of the properties over the country such as inquiries by letter and telephone calls about the training facilities. I have some photographs of this training school. If you care to look at them, they are here for your observation. We then put the responsibility on the instruction group. We taught our staff instructors and our line supervisors that it was their job, particularly the staff instructors, to be the Father Confessors and the teachers and the good will professors and everything else and make the new operators feel happy. It affords an excellent opportunity to test your tests.

We don't know yet what the results will be. While the national accident trend has been upward for sometime, ours has been progressively downward. We can attribute that only to the effort that we made on our property to help the situation. We are well satisfied with the results thus far.

I believe a very careful analysis of your training procedure may point out some weak points. We found many of them. We now realize our needs for more study and we intend to give it careful consideration. In this operator training procedure, we are putting all of our operator groups through a two-day refresher course, which we have found very helpful. We cover the conditions operators confront every day. We have outlined them in detail. We have found the cause and are trying to effect the remedy.

M. G. BULLOCK (St. Louis Public Service Company): Mr. Palmer, I am glad to note that you had a two-day refresher course for the operator group. Are you referring to the operators that are so-called platform instructors?

MR. PALMER: We are taking every opportunity to take both the old ones and the new ones. We start at the top and at the bottom. We are taking some thirty-five or forty daily for a two-day refresher

course and are bringing the older men in with the newer ones. If the new operator decides he is getting an unfair break because of his little seniority, the old timer is there to protect him so we just bring them in from the top and bottom.

MR. BULLOCK: Do they get the regular run time for that?

MR. PALMER: We pay them their regular pay. In other words, what their run would pay on those particular days.

CECIL M. DRAPER (Denver): Mr. Hackbarth—You have your platform instructors, as you call them. Presumably you pay them an extra amount for that work. How do you handle it with the union on this seniority business? In other words, how do you get rid of an incompetent platform instructor with a lot of seniority?

MR. HACKBARTH: We wouldn't take him in the first place. When we want a platform instructor we put up a notice, and then the men make application for the job. Then we have a record of every man's operation; that is, his accident record and his operation as a driver. If we find that he isn't the man we want, we just don't take him. That is all.

MR. DRAPER: You have no union?

MR. HACKBARTH: So far, no. Every platform instructor receives ten cents an hour extra for the time that he has a student.

RALPH SNYDER (Oklahoma Railroad Company, Oklahoma City): Mr. Kraft, you made the statement that the secret of training is to select qualified operators. We have incurred considerable difficulty in the selection of operators. I would like to ask two questions. Have you found that a training program will cure accident proneness and the second question is, on your pre-training schedule or your pre-employment selection, can you determine accident proneness by any standard test?

MR. KRAFT: I will answer that last one first. Of course, the question of what is accident proneness is somewhat intangible. I think Mr. Holden gave us quite a bit to think about as to what causes accidents in terms of a man's emotional stability and personal characteristics. In the development of this selection procedure which has been developed over a period of quite a few years and after considerable

research, we believe that we have the procedure which will assure a company of a man who is capable of operation with the minimum of accidents. As to the evidence, we suggest that you make use of three tests. One is the mental ability test which is quite widely known as a standard examination. The second one is a new test which is only now being released for general use which has been in experimental use for several years. It is the personal reaction test which is a measurement of emotional stability, temperament or attitude, or whatever you want to call it.

MR. SNYDER: Who developed the test?

MR. KRAFT: It is one we developed ourselves and tested out in the industry. We believe that when used in conjunction with others it will be helpful in enabling you to do a better job of selecting the man who would be least susceptible to accidents and do a better job of public relations.

The third one is the motorability test. It was developed in Milwaukee. Subsequently one was put in Cleveland and then in Pittsburgh. We have perfected the Pittsburgh model. Results are very encouraging, and we shortly hope to be able to publish our results of a year and a half of research work. We have definite statistical evidence that we can predict, with a high degree of success, the susceptibility of a man to accidents by means of this particular apparatus.

Now, as to what the training school can do, I think that if you start with a man who appears to be capable of absorbing the kind of training your school is giving, it will keep the accident proneness from developing. Of course, a man may not be accident prone and have a good record for a period of years. Then certain conditions come up which lead you to believe that he is accident prone because he becomes a man of higher accident frequency. I like to make a distinction between accident proneness and high accident frequency because I think they are two different things.

MR. ERNEST STOTT (Georgia Power Co.): I would like to ask Mr. Hackbarth, approximately how many hours, in your basic training, do you devote to accident prevention and how is that divided as to amount of time that you spend on accident

reporting—public accident prevention and the personal injury angle of accident prevention?

MR. HACKBARTH: These things are taught through his entire training period. We tell him everything that we know about prevention of accidents and every man that I turn in, before he is turned loose to go for himself, I take him in hand and I drill him on accident prevention. That is approximately a three-hour program alone, and I have a man give a talk on accident prevention. I have found that to be very successful. I teach these men to keep their mind on what they are doing; their eyes on the road ahead and to anticipate what is the other fellow going to do. You can teach those three things to a man, and if you are successful in that you won't have any accident proneness. We haven't any in our company.

CHAIRMAN MEHRENS: About how many hours over the period of actual training would be devoted to it—what percentage of time over the entire training period is devoted to accident prevention, Mr. Hackbarth?

MR. HACKBARTH: Well, I don't know that I can give the exact time that was put into that, but we are preaching to him all the while we are with him on the cars on the track. Our platform instructor follows right up on that. He talks of nothing but safety all the way through his training period and keeps reminding him of it all the time.

MR. KRAFT: It has been called to my attention a number of times that if your management doesn't show an interest in the safety of the employee, how can they expect him to show an interest in protecting the safety of others? I believe that is a very good point and the record of the transit industry shows it is one of the more hazardous industries to work in. I think it is certainly a sad state of affairs and when you look around, the only conclusion we can come to is the fact that management just doesn't seem interested. The principal reason for that perhaps is the fact that for every dollar that is paid out because of accidents of all kinds, only three cents is paid out because of the employee accidents. They are more interested in the other ninety-seven cents.

I think two things have to be kept together and you undoubtedly would get better results from your public safety activities if you paid a little more attention to the employee's safety.

MR. STARK (Milwaukee Electric Railroad Transportation): There was a question raised in my mind yesterday. What is the difference between training and accident prevention? Personally, I don't know what the difference is, because one of the greatest parts of our training program is accident prevention and when you try to separate the two, training for the job and accident prevention, I hardly see how it can be done because if you train in the correct methods, all those correct methods are set up first on accident prevention for the man; for the company, and all concerned, and as far as breaking it down into percentages of time taken for each one, we can't do it because the two are so tied together that you just can't separate them at all. We are talking safety all the time but we are talking about operations because our operation is set up on the basis of the safest way to do the job.

MR. HENDERSON (Cleveland): Mr. Palmer, are the older employees humiliated when asked to attend that refresher course?

MR. PALMER: No, they are not. As a matter of fact we started the refresher training course some seven or eight years ago. At the outset there was considerable doubt expressed among the older group. They went so far as to say that here we are 69 years old, or 75, and we are being taken back to the little red school house for primary work. They showed some concern about it at the outset, but after the first two or three groups attended, they received it very well and open-mindedly. As a matter of fact they now look forward to the program. In some cases they may look upon it as being a couple of days' rest, but they actually inquire as to when we will start the retraining program. We have not had any trouble whatsoever since the outset.

MR. LAWRENCE TUCKER (Georgia Power Company, Atlanta): In changing over from street cars, we have had a lot of trouble from shaving of tires and completely destroying tires on the curves. I am just wondering if any of the gentlemen have had anything in their training program along that line?

MR. PALMER: We are still able to go around on certain occasions and pick up a handful of rubber, in spite of all the efforts that we have made to prevent that sort of thing. I think the only solution is to remove the hazard. If that can't be done, we put the burden of responsibility on our staff instructors. They are the boys who stay on the vehicles and ride with these operators. As a matter of fact, we assign a given number of operators to each instructor. He is responsible for that group of operators. Regardless of what the difficulty may be, he is the person to correct it. The course is closely followed and observed by the Superintendent of instruction, and through that medium we have been able to reduce the scuffing of tires along with many other such practices.

MR. HOUGHTON (National City Lines): We conceived the idea of painting the outside of the tire white, on the curb side. Then every operator is responsible for scrubbing that tire. That man who relieves him should walk around and see whether the tire had been scuffed and report it on his defect card. For awhile it caused the driver to get too far from the curb, but they gradually found their way up to the curb without scuffing the tires.

MR. PALMER: I failed to add that right now we are toying with the idea of drawing sketches of various turning radii—uses of the different types of vehicles and have these placed on the locations where we are having tires damaged. We hope to be able to incorporate that in our training program. We don't know how it will work, of course, but we have an engineer right now making sketches of those bad locations. We intend to take moving pictures of the operations of such locations with the thought of teaching the new operator how much area is required to turn at that particular location. Whether or not it is going to help I don't know.

MR. TENGBLAD (Los Angeles): We have quite a complicated transfer structure which seems to be a bugaboo with students. I would like to ask whether you give instruction on fare structure and transfer structure early in the program or do you carry it on later in the program? In other words, the operator comes in and he wants to operate; that is the most important thing with him, to complete the training. Collect-

ing fares and punching transfers is secondary but complicated and sometimes it discourages them.

MR. STARK: When a man starts training, he wants to see what makes it run. We do not take up fares the first day. We don't take it up the second day. We take it up the day before he goes out on the road to practice because the simplest fare structure, to a new man, appears rather complicated. Then you have to build up from something he already knows. Practically every one has ridden on a railroad train. You compare the fare structure with that. You say, "Well, it costs so much to go here and so much to go there," and various things of that kind. Try it on your particular properties. Whatever it may be, the idea is to build up on something the man knows about fares. Let him get interested in the job the first couple of days so that when he arrives at the point where he thinks, "By golly, I can handle it; I'm going to show them I can handle it," then you can start, in easy stages, to develop the idea of a fare system. I wouldn't give it to them all at one sitting. Give them a little bit at a time.

MR. C. DOBELL (British Columbia): I would like to ask Mr. Kraft what he considers the minimum number of hours it takes to satisfactorily train an employee, and further should there be any difference in the number of hours required for street car training as compared to trolley bus or motor bus?

MR. KRAFT: I would prefer to answer that six months from now. There are a great many variations in the length of time. Some, I know, are too short and some are perhaps too long. I would venture a guess that after we have done the work that we have in mind, we will come up with a training program of approximately eighteen days.

MR. DOBELL: You can't base that on the whole training period, can you? Doesn't it depend upon the area you have to cover?

MR. KRAFT: Well, there is, let us say, one big variation in the training program. There are a number of lines a man has to be qualified on so that may add to it appreciably, but I would not believe that you would cut it off much. From what I have studied already, an eighteen-day period

would do the job and do it well. If you had a lot of lines that would go on well beyond that.

MR. DOBELL: What would be your idea of basic training?

MR. KRAFT: My idea is that it should be a minimum of three days in the operation of vehicles before the operator is put on a passenger carrying line, and I am not so sure that it shouldn't be more than that. The more you devote to it, although it may be a more expensive type of training, the better results you are going to get in the end. What that may mean in days, I am not sure; we don't want to commit ourselves to a program which we are starting to develop. Those are some of the ideas I have had from years of observation and discussion.

DELEGATE: You said 3 per cent of the money paid out was to the injured employees. Is that right? I would like to know what that is based on; if that is

taking into consideration the entire cost of doctor bills, etc.?

MR. KRAFT: That figure is based upon the items that are normally charged to our so-called injuries and damage, which includes workmen's compensation and medical expenses.

DELEGATE: I asked that question because in my opinion the employees' injuries are very sadly neglected. If it was brought to the attention of management probably a great deal more attention would be placed on the employees' injuries.

MR. C. L. HAMMONS (Safety Director, Seattle Transit Co., Seattle, Washington): With reference to equipment, do any of the men here have the practice of using outside rearview mirrors on their right front corner of coaches? That is a problem which is bothering us just now.

CHAIRMAN MEHRENS: With your permission, we will hold that question until tomorrow.

WEDNESDAY AFTERNOON SESSION

October 9, 1946

Presiding: J. P. TERTON, Vice-Pres. and Gen. Mgr., Indianapolis Railway, Inc.

Traffic Engineering for Transit Safety

By J. STANNARD BAKER

Director of Research, Northwestern University Traffic Institute, Formerly Transportation Safety Engineer, City of Detroit, Department of Street Railways

Traffic engineering as it applies to transit operation has two phases: First, planning routes, schedules and equipment to give the most attractive service possible within existing economic limitation, and, second, preventing accidents. Only the second phase is to be discussed here.

Traffic engineering for transit safety is hooked into many other activities. It plays a part in planning routes, touches the Transportation Department in developing operating procedures, cooperates with the Claim Department in accumulating data on accidents, with the Mechanical Department in effecting improvements, and on the outside engages in joint undertakings with the traffic police and municipal traffic engineering organizations. Facilities for doing this sort of work must be strategically

located within the transit organization so as to prevent accidents with the least friction and waste. How traffic engineering shall fit in usually depends on personalities and physical facilities in the particular organization. All transit companies do some work of this kind. The organization's problem is, therefore, one of placing and staffing it so that it may be a beneficial function carried as far as possible rather than a haphazard activity which wastes money on safety devices that do not prevent accidents, while overlooking changes which can, without cost, promote safety.

It will pay any company serving more than a million people to employ a full-time engineer for such work if he can be properly integrated with the organization.

Smaller companies should assign it as a definite part-time job for somebody in the Safety or Engineering Departments. It may be combined either with general traffic planning work or with safety work on equipment. The latter, particularly, involves quite similar steps and the same kind of use of accident records.

The place of traffic engineering in a transit safety program must not be exaggerated. In rail operations other than in subways or on elevated structures, and in all bus operations more than three-quarters of all accidents can be prevented exclusively, or at least most easily, by improvement in the quality of work done by some or all of the motormen and drivers. Hence, the development of a traffic engineering program for safety work should not be given preference over the development of a human engineering program for the same purpose.

There are four main conditions which call for traffic engineering studies or investigations as the basis of making decisions about safety matters.

1. Complaints of hazards.
2. Suggestions for safety measures.
3. Planning changes in routes.
4. Review of accident experience.

These are listed in the order of the urgency they usually present, although the last, which is an engineering investigation in its own right, is likely to be the most fruitful in achieving reduction in the number of accidents.

Regardless of which channel produces the demand for it, a traffic safety investigation, if it is to qualify as an engineering undertaking, requires a factual approach. The materials for such an attack on the problem are usually easy to gather together with the exception of reliable data on past accident experience. To begin with, therefore, the methods of making accident experience accessible for traffic engineering work will be considered.

The main requirement for this purpose is that we be able to find out easily just how many and what kind of accidents occurred during the least the past year at any given location. If such data are not available at a cost of a few hours of careful work, most of the solutions to the common problems will be guesswork and not engineering.

Police departments often have accident reports filed by locations. Often they may be useful but they are inconvenient to look up and, if only the more serious ones are reported, they usually include less than one transit accident in four.

Spot maps, while interesting, help little in specific problems and may be misleading by the emphasis they give to the locations where traffic is heaviest.

There are three methods of keeping accident records which serve transit purposes satisfactorily.

1. *Filing the accident report* or a synopsis of it by location. If the original reports are used such files are bulky although the cost of setting them up is small. The reports may be lost or misfiled. Unless the original form is especially designed for the purpose, studying location experience from them is slow and tedious.
2. *Posting on a card* for each location the essential facts about the accidents which occur there. The posting is slow but can be done by low priced clerks. The files are very compact and in most cases the information can be found and reviewed in a few minutes.
3. *Tabulating cards* punched or notched with location codes and other data for mechanically sorting out the information as needed. Two systems are available: L.B.M. or R.R. punched cards or the Key Sort notched cards. The former is rarely practical unless equipment is available where used for other purposes, or where the volume approaches a thousand accidents a month, or the number of special studies to be made is several per week. The latter is practical on a smaller scale but requires a very large and relatively expensive card unless the amount of data is very greatly limited.

Which of these three is most suitable in any case depends on other uses to be made of the accident data, the number of the accident reports to be processed, and the extent to which engineering personnel is available to make use of it.

All three methods, however, require an indexing or coding system of locations which is the key to the whole system.

While the methods currently recommend for location files in police departments and arbitrary location numbering from a street map will work, they are clumsy for transit operations which lend themselves easily to refinement which, without appreciable extra cost, will greatly speed and simplify the review of accidents by location and by certain groups of locations. With the intersection of streets, as the primary basis of location, this refinement departs from cruder methods by treating separately each direction of travel, thus recognizing the fact that the safety problem of a transit vehicle approaching Main and Fifth, for example, from the north may be quite different from that of one coming in from the east or south. In arranging files or codes, preference can also be given to a few of the main streets. Doing so will speed the filing and coding because so many of the accidents fall on such heavily traveled highways and it will also simplify studying the accidents on them. Carrying this refinement to the point of filing by line is not practical, particularly where several lines use the same streets, because the complete accident experience at any point is accumulated only by studying the record of each line which passes that location.

Treating locations on a directional basis implies that when two transit vehicles collide, the location experience for each be separately posted or coded even though both vehicles are moving in the same direction. This means that the transit vehicle involved and plot the accident itself is the unit of record keeping.

An example of such a system is one developed for Detroit although not fully in use there. Five main, radial arteries, Woodward, Grand River, Gratiot, Jefferson and Michigan and one important circumferential thoroughfare, Grand Boulevard, receive filing and coding preference in that order. New clerks quickly memorize this many, but a few more would make quick memorizing difficult. Numbered streets follow in numerical order. That is easy to remember. All other streets come in alphabetical sequence. Code numbers are assigned to all such streets in the official list, even though many such will never be used, to accommodate new lines, special trips, detours and similar changes. Cards for posting or individual reports are filed or the coding fields are arranged in this order:

1st—Street on which the transit vehicle was traveling at the time of the accident. If the vehicle was turning from one street to another, the street on which it approached the intersection is used.

2nd—Nearest intersecting street.

3rd—Direction of travel on the first street.

Thus arranged, it is easy to lay hands on the accidents at any intersection (and they are already divided by direction of travel), on any street or on any line.

If a posting or tabulating card is used instead of a complete report, the following are the minimum data which must be provided. These facts will be sufficient for about three quarters of the studies made.

WHERE	Location Code	Street transit vehicle is on
		Nearest cross street
WHEN	Direction from intersection: @ N, S, E, W	Direction of travel
	Distance from it in hundreds of feet	
HOW	Date	
	Time of Day	
WHICH	Class of vehicle: streetcar, coach	
	Type: traffic, passenger, incident	
	Circumstances	First Group Second Group Third Group
	Identification of original report	

The code of classification of type and circumstances of accidents is important for the quick and accurate review of selected data but details of such classifications are a little beyond the scope of this discussion.

If space on the card and the clerical help for recording are available, some or all of the following data, which are listed roughly in the order of their usefulness, may be added.

- The severity of accidents: damages and injuries
- Cost of accidents: claims, compensations, repairs
- Brief description of occurrence
- Violations by our operator: lights, etc.
- Violations by others: drunkenness, speed, etc.
- Road condition: slippery, defect, etc.
- Weather conditions, light
- Functioning of traffic control
- Equipment number or exact type
- Operators: number, experience

Methods of Procedure

With the accident data, street maps, run schedules, and other facts available, the traffic engineer is prepared to handle most complaints and suggestions. Each of these is, of course, a special problem, but the steps to its solution usually follow a pattern.

- Find out what the accident experience has been. How many of the pertinent types have happened at the place under consideration? This gives an idea of the importance of the problem. Many complaints turn out to be matters of annoyance rather than hazards and should be handled as such. The severity and cost of accidents may be considered in this connection.
- Consider the situation at the location. Study the Map: that may be sufficient. Go out and look at the place or have somebody do so and report on it. Prepare a rough sketch or diagram if the situation must be explained to others.
- Study the proposal or devise one or more remedies. Discuss the practicability of these with the Transportation Department, Police Department, municipal traffic engineer, public util-

ities, or others who may be involved. Estimate what part of the accidents will be eliminated by the proposed change. Reach an agreement with others as to the desirability of it.

- Estimate cost of the change. Will the savings in accidents warrant the expense?
- Prepare a formal recommendation. Get the necessary approval and appropriation. Issue instructions and specifications necessary to have the change made.
- Follow-up inspection to see that the change is made as planned or that instructions are being carried out.
- Check the accident experience a year later to find out whether the expected results were accomplished.

Many suggestions and complaints are about hazards which involve transit operations but do not contribute to traffic accidents. For example, pedestrians running from behind standing coaches to be struck by passing automobiles, and collisions of automobiles with streetcar loading zones. Transit accident experience will be of no help in such cases, but cooperation with traffic authorities is essential. Such co-operation, even if it entails some expense or trouble, will usually pay off by reciprocal assistance in other ways, such as improved enforcement of parking regulations at bus stops or adjustments in signal timing to accommodate transit operations.

In handling route and other similar changes the traffic engineer studies the proposal and, in the light of experience on existing lines, considers what would happen on the new route, where danger points will be, and what could be done to minimize the hazards. For example, crossing through streets at unsignaled intersections is to be avoided; left turns from arterial highways are a risk; loading points which encourage alighting passengers to run in front of vehicles or across heavy traffic, to make connections or to reach places of business or pleasure, are risky.

Plans for route changes should be approved by or at least discussed with, the traffic engineer before they are made. Looking at them from the safety angle he can often make suggestions which will avoid later difficulties. The municipal traffic en-

gineer should also be included in such discussions.

Investigations initiated by the traffic engineer to bring to light situations which might possibly be remedied are, unfortunately, usually neglected because matters proposed by others seem to have greater urgency even though of trifling importance. When they are made, such studies ordinarily begin by pulling out the records for the locations with the most accidents in the past year or two years. Each of these is then examined for repetition of the same type of accident, collision diagram are drawn if they seem to be necessary, and methods are considered for dealing with such repetition as in the case of complaints or suggestions.

One must take care not to fall into the easy habit of issuing bulletins to operators to be more careful at high-accident-locations. If you cannot be specific about an operating practice which will definitely prevent one type of accident at a certain point, do not issue operating instructions. Remember that the high accident intersection is not necessarily more dangerous than others. It may have more accidents merely because more transit vehicles and other traffic use it. In general, the collision hazard to transit vehicles at any intersection varies approximately as the product of the number of transit vehicles entering it and the number of other vehicles entering it. Hence, calling operators' attention to a high accident location where the risk of an accident each time he enters it may be much less than at some other point with fewer total accidents, disarms him psychologically at the other points. A true relative evaluation of hazards can only be obtained by dividing the number of accidents per year by the number of transit vehicles entering the location in the same period, preferably considering both the accidents and the number of vehicles entering from a single direction. On the basis of such rating it is possible to point out to operators the most hazardous locations with reasonable expectations of securing some results at these points.

Examples

A few specific examples from experience in Detroit will serve to illustrate these procedures.

Simple solution of specific hazards at a definite location involving only bus operation. Two main streets, Gratiot and Vernor, intersect obliquely but Vernor leaves Gratiot two blocks away from where it enters, Vernor traffic merging with that on Gratiot for this distance. Gratiot bus drivers complain that passengers signalling for a stop at Orleans, which is between entering and leaving Vernor, force them to weave quickly through this merging traffic. Records show unusually numerous same-direction collisions. Observations confirm drivers' contention. Recommendations made that stop be skipped at Orleans. Cost: Signs at discontinued stops directing persons to board coaches a block away and a few gripes from the small number of people using the stop (easily silenced by explanation of the reason). Results: Accidents reduced and schedules eased.

Cooperative problem of traffic accidents not involving transit operations. Collision diagram of signalized, diagonal, intersections with street-car loading zones show numerous collisions between vehicles going through parallel to the tracks with those crossing from their left. Study and observations show that when cars wait on signal at diagonal cross-walks the one on the left obscures the view to the left of cars waiting on the right of it. The latter start across without being able to see a car coming through on the cross street yellow. The remedy is to put cross-walks and stop lines on the right half of the street at right angles to the curb. This means moving the streetcar safety zones back about 25 feet. The main problem is one of who pays for the moving. Streetcar operation is neither benefitted nor hindered by the change.

A joint project of mutual benefit appearing from review of records. An unsignalized intersection had an unusually high number of right-angle, vehicle-streetcar collisions for the amount of traffic. It looked as though motormen were hitting a blind corner too fast, but further study showed four out of five had stopped for passengers before accidents and observations indicated unusually cautious approach by the men who all recognized this as a risky spot. Further study showed that traffic signals on cross streets a block away in each direction were timed so that groups

of vehicles from left had just cleared the intersection when groups from the right started to pass by thus leaving small gaps for crossing streetcars. Signalization also encouraged speed on the cross streets to make both signals on the green. To avoid being held up indefinitely, motormen had to risk the use of barely adequate gaps in traffic, but, starting from a standstill took much more time to clear than anticipated by hurry-up drivers on the cross streets who, therefore, hit the cars back of the center if the car tried to make it through ahead of the auto or ahead of the center if the car stopped. The situation could be remedied most easily by the city, immediately and partially by some speed enforcement at that point and later but more effectively by retiming traffic signals at the adjacent intersections to give a better gap or, if necessary, by signalizing the intersection even though on an accident rather than a traffic violation warrant. Retiming would be relatively inexpensive. Continued enforcement or new signals would cost more, but the latter would pay off in about four years if half of the accidents were reduced.

A systemwide problem in economics. A costly collision between two streetcars, one of which had run an open switch, brought the suggestion from an important quarter that signal lights be installed on all switches to show their position. Such a signal, with dual flashing blue lights overhead controlled from a box in the pavement, would cost an estimated \$230 for materials and an additional \$325 for installation. To equip the 227 facing switch points on the system would cost nearly \$155,000 with an annual maintenance of at least \$3000 per year.

A study of accidents showed about eight of this type per year resulting in

damage. Some of these definitely would not have been prevented by the signal. Damage claims cost about \$550, repairs of \$400 and compensation of \$40 for a total of \$1000 per damage accidents. Assuming conservatively that two or three accidents could be prevented, that is, about five per year, a saving of \$5000 per year would be only \$4000 more than the maintenance cost which would mean that the investment would not be written off in more than 40 years, by which time the equipment would have worn out and many of the lines would have been abandoned. Obviously this was no profitable undertaking.

However, one switch had been run four times in a year, three times resulting in collisions which cost a total of more than \$800 for a period. Observation of operators here indicated that a signal might prevent at least some of these accidents. Even if it prevented only one a year, it would pay off in a few years. This one signal is being installed and its result on the accident experience at this point will be watched.

Conclusion

There is no magic to traffic engineering in transit safety. It is merely a matter of arranging for the facts to be reasonably easy to assemble, tackling the problem jointly with others involved rather than passing it around from department to department, using the good common sense of everybody interested and not being discouraged if reasonably neat remedies cannot be found for more than half the sore spots which come to light from one quarter or another.

Numerous additional examples of this kind of work have been accumulated in the report of the Committee on Transit Operations of the Institute of Traffic Engineers in October, 1946.

Effective Devices and Engineering of Equipment to Provide Safer Transit Operation

(Panel Discussion)

Discussion Leader: E. F. MEHRENS, Dir. of Safety, Omaha and Council Bluffs Street Railway Co.

Participants:

M. G. BULLOCK, Safety Eng., St. Louis Public Service Co.
E. J. KREH, Dir., Accident Prevention Dept., Philadelphia Co.
L. G. ANDERSEN, Supt. of Shops, Chicago Surface Lines.
RALPH JAMES, Regional Mgr., National City Lines.

MR. BULLOCK: Equipment design is important because we are dealing with the human factor. We are going to have careless people who are going to have accidents, so I am a believer in eliminating all possible hazards. I am also a believer in pooling our thoughts and experience. I am optimistic because I believe this way: What little that I can inject into this meeting is negligible compared to what I expect to get out of it, because we have knowledge here.

We tried a few things, that I pick out at random to project discussion here. We had single toggle switches for the center door, one for the front section and one for the rear section of that center door, and the Safety Operator said, "Why don't you fellows tie those two together?" We found that one enterprising man was selling a gadget for these toggle switches for 75 cents apiece, and, believe it or not, the operators were buying them. It operates both doors at the same time.

The Maintenance Department studied those toggle switches and put both door controls on to one and put a spring extension on to that one single toggle switch. Now the operator can feel along that control panel, look into the mirror and watch the alighting passenger without taking his eyes off of him. He can do it by sense of touch. We had a lot of compliments from the operators.

The next item is headlights. We had 170 Mack buses, back about a year and a half ago. They weren't too old but they had old style headlights on them. The buses enroute through the more dimly lighted areas were passing up passengers because the operators couldn't see the people who

wanted to board the buses. Sealed beam headlights were installed. It took a lot of work, but it paid off.

One of the operators came up to us and asked, "Why don't you paint a yellow line about 18 inches from the street car loading zone parallel to the track? The object being as a clearance line for the vehicle?" I had occasion to observe that the other day. I stood in one of those areas there overlooking the track and the gadget works. The people do stand behind the yellow line such that the operator then has a better opportunity to move his vehicle down through the crowd. It is a simple thing but it works.

We have mirrors over the front doors in some of our buses. They were installed on the equipment when bought. The operators liked the idea and asked why we didn't put them on all bus equipment. We made a survey of mirrors on PCC cars and didn't prove a thing to the best of our knowledge. Possibly the reason is that people block out the vision in that mirror, or that it is right over the step. Consequently, it is useless to the driver.

We believe firmly in the comfort of the operator and in anything that will reduce fatigue and at the same time reduce accidents. We bought fifty buses about a year ago that had seats that were uniform; therefore, lacked adjustments, but it was the only type of seat available at the time. They created so much comment; so much antagonism among the operators that recently we were able to get the better type of seats which have full adjustments so the operators can adjust the seats as needed.

Heaters for the operators were altered. Particularly on some of our street cars we had the old type heater. They were altered to create better conditions and more comfort. Some of them were moved so it wouldn't be too hot for the operator.

Ventilation on the PCC cars has been improved. Immediately over the windshield a sliding gadget was attached so the air

could come up over there. The PCC cars were terribly hot in the summer time.

Another question is, "What is the safest door?" There should be a lot of comment on that. We have been advised that the pushout door is the best. Down South they think a lot of this type and have very good records to substantiate their opinion; but as a matter of fact there are a lot of people who think the treadle door is the best. I would like to see some facts that you can show management and then you can show them what it means in dollars and cents.

Mr. Kraft and Mr. Royster showed a film sometime back reflecting the alighting habits of women, and as I recall it demonstrated that women invariably carry packages in the left hand and use the right hand to hang to guard rails as they alight. You still see equipment designed so that they are supposed to use the left hand on the guard rail. In other words, it seems to me the manufacturers are still trying to insist that passengers alight the way we would like to have them alight. Let's design the equipment for the way the passengers do alight. Ninety per cent of the boarding and alighting accidents involve women, so I think this item needs attention.

We recently made a survey of the height of the steps of our buses. As I recall off hand, the height ranged from 11 inches to 18 inches from the pavement to the first step. That represents a lot of equipment and a variety of equipment, but recently we had to take 100 buses that measured 16½ inches from the pavement to the top step. Our accident records reflect this unfortunate circumstance.

Many buses are so designed that during peak loading conditions, where you get a lot of people in the bus, the operator has a slim chance to see to the right. The right windshield is blocked in spite of the yellow line. It was almost impossible in St. Louis, to get them to see behind the line. It seems to me the design of the equipment in the first place should be corrected.

I understand that the ATA has a Committee on Equipment Design. I understand it is doing some good work, but I think that it is about time that management gets busy and backs up this committee and tells them they want results and that they are interested.

People develop riding habits and variety of equipment design breeds accidents. Let's try to standardize. If we have a lot of various bus manufacturers, every one has his own ideas and thoughts but let's try to standardize if it is at all possible. With much new equipment coming up in the future, the study of equipment design should be a "must." In St. Louis, there are 400 or 500 buses on order. We want to get these things corrected now, because this equipment will be with us for a long time.

Let's get together; let's compare notes. What is the safest way; the best design; I think present design can be improved and will result in the prevention of many accidents.

MR. KREH: I think the real purpose of this discussion is to direct more attention toward the value of engineering in our safety promotion work. I happened to have had the same experience as Mr. Mehrens. I spent about twenty years in claims work myself and during those twenty years I ran across many instances which made it very evident to me that the transit industry apparently did not pay a great deal of attention to vehicle or equipment design from the standpoint of safety. I know I paid a lot of claims solely because of inferior design. It is my hope that if we go out of here this afternoon with an idea that we can do something about improving design of equipment that we will make a great step forward in our program.

When we bought our first 300 new PCC cars, we thought we had the step treads, the step risers, step heights, grab handles, locks and everything just about the way we wanted them. The cars came on the property and they made a very splendid record of performance. Our alighting accident rate was reduced tremendously over the old conventional type of car.

When opened, the edge of the door was flush with the edge of the side of the car. Somebody got the idea we could put those doors out three inches further so that the rubber which was three inches wide would extend beyond the door edge and produce a kind of a whisker, so that when they came up to an automobile, they simply opened the door and if the rubber cleared the automobile the operator would know that he had proper clearance.

That seemed like a good idea. The

height of the steps was not disturbed; the grab handles were not disturbed; everything was the same excepting the doors were moved out three inches. It wasn't engineered; we went along and accepted it and the next 100 cars were with doors extending out three inches. What happened? The alighting accident rate doubled on those cars. Everything else was the same.

We still have those 100 cars. We investigated those cars and found we all behave about the same way as people going down steps. In going down the steps people were looking for the edge of the step as a sort of a guide. They were using the door edge as a guide to where the step edge was, and as a consequence, overstepped the edge of the lower step and caught the heel of the foot forward and consequently fell.

This job of design, it seems to me is a very important one. I have seen buses where we had door operating levers run back so that when the operator opened the door he would ram the lever into the shinbones of a passenger sitting in the first seat. I have seen buses with step heights of 18 inches and sloping step treads. I have seen buses with step treads 14 inches wide. Well, is it any wonder we have people fall? I have seen steps so high that old women get up on one knee and crawl up on their hands and knees to get up on those buses.

When they had the old conventional type cars years ago on our property we made a study to find out why we were having so many alighting accidents. In order to make that study, we actually went out with a slow motion picture camera to study the behavior of people to find out whether grab handles were located on the doors properly. Through the slow motion pictures, we quickly learned that the grab handles were too low. You could see the hand feeling for something but no grab handle was there. It was down too far. That grab handle was put on there by some maintenance equipment man and he probably said, "This is a good place to put it." He put it there with no real appreciation as to whether or not it should be put there.

On the old time cars we have air brakes. We have a fuse which is connected to the circuit which operates the motor driving

the pump. Sometimes that fuse blows. As a result there is no air and the operator applies the brakes, has no air and a collision results. Why don't we have a warning signal in addition to the air gage? Perhaps the equipment man will say, "The air gage is adequate, why shouldn't you look at the air gage?" Can we expect a man to be constantly on the alert all the time watching his air gage? Why shouldn't we have a signal. If his air gage fails, there is an audible signal in addition to a visual signal.

I remember on our old type cars we had a cabinet right above the operator. The door is hinged and it swings out. At night time when the car is put in the barn you pull the switch. Many times the operator would get on his car in the morning and whenever he took his car out, if he was absent-minded he would forget to put in the pump. As a result he would get out on the road without any air. We put an inch square block on the inside of the door so he couldn't close the door unless he had his pump switch in. In other words, if he started out with the pump switch out, the door was swinging on the hinges and would tap him on the head and let him know he didn't have any air, so that solved the problem.

Mel Bullock mentioned something about door operating levels on the PCC cars. You have a panel with a lot of buttons which the operator pushes. In order to prevent becoming confused, our operators took an elongated piece of rubber to mark that particular door. Why shouldn't designing engineer have solved that problem?

I recall, referring again to poor design of cars we had years ago—they had an air whistle connected with the air tank which operated the brakes. If the whistle blew too long there was no air for brakes. That was another problem for the engineer to solve, which should have been thought of when the car was designed.

There are other things that I might mention in these old conventional type cars. For example, years ago we had cars made with strip flooring with drops about half an inch deep and a half an inch across. They were wide. I suppose it was meant to prevent slipping on the floor. We had the floors with trap door handles in them.

In my old claim days, I remember paying claims because of projecting trap door handles, and people tripping down ramps and falling. Those cars were designed by an engineer years ago and perhaps he had no idea of the cause of accidents. Perhaps if he had known the accident producing factor of these floors and also these ramps we would have had the level floor and the non-slip covering, years and years ago. Many, many dollars undoubtedly have been spent by the transit industry solely as a result of poor design of floors.

I want to leave this thought with you. If every one of us would really study this problem and really try to find out wherein poor design of equipment is playing a part in our accident causes we could help those who are now charged with the developing of vehicles of safe design. I think we know too little about it. I don't think any one property knows the answer. I don't think any one person knows the answer, but it will be through the cooperation of every one of us in contributing ideas; throwing our experiences into the pot, so that the designing engineers now on the job really can come up some day with a safe vehicle.

MR. MEHRENS: I am happy to present Mr. L. G. Andersen, Superintendent of Shops of the Chicago Surface Lines.

MR. ANDERSEN: I have outlined the various devices that we in the maintenance field feel are effective for safety on cars and all types of equipment.

The first item is brakes. We will spare no pains in improving our brakes. Some one in our company years back had great fear of a brake rod breaking on a street car. If a brake rod was broken there was no safety device. He developed a safety hanger near the floating levers on the car. Should a brake rod break then there would be brakes on the remaining truck. This was a device that apparently was accepted without much investigation. We investigated it recently and we found out that this device which protects you in case of a brake rod failure, which is a very rare occurrence, was also designed so it didn't provide sufficient travel of levers to allow you one full day's operation. Seventy-five per cent of the cars were operating with half brakes. We merely removed this device altogether. Now, if the brake rod breaks, which I say is very rare, the operator has no air brakes,

true, but he still has the power reverse control and he can stop the car. If he does not have power, he merely reverses the controller. That has improved the brakes we feel, on old design cars. On new equipment, we are putting stress on increasing the length of the dynamic brake on our PCC cars and trolley buses. You can bring it down to about a mile and a half per hour. The main safety advantage of an electric brake is that should your rail conditions or road conditions become slippery and your wheel slides your electric brake works, but you use the motor as a generator and as soon as your wheel slides the breaking force is off and your wheel will immediately take hold and start turning again and your braking force is immediate, automatically, which we feel is a very good advantage over the electric brake.

The next item is doors and step-wells, among the principal causes of alighting accidents. Keep your step edge rough so that it will not be slippery and feet will not slip from the edge. Keep the step-well non-skid. We are using a vulcanized step-tread on practically all properties now. They have vertical fibers and remain non-skid in wet or dry weather. We feel it gives us a good tread.

That leads me to floors. The rule of maintenance on floors, of course, is to keep the worn spots repaired. We also want a floor that will remain non-skid, wet or dry. There are several types of floors that do that. The floors that we are using in most of the new equipment is a flooring composed of rubber with fibers. As the floor material wears down you still have short pieces of fiber which give you a non-skid surface. It is non-skid, wet or dry. The main disadvantage of rubber is that it becomes very slippery when wet, unless it has fiber or something in it.

Another item on accidents in cars is stanchions. We had a rather interesting experiment on one of the properties. We required 80 cars to be equipped, 40 cars with stanchions. The other 40 cars had a very few stanchions in them. The cost of equipping 40 cars was a \$1,000 in round figures. After a year's operation they examined the results of accidents on the two types of cars and found that the cars with the stanchions will save their cost in reduction of accidents in one year. Our

new cars have stanchions on every other seat. We feel they are very fine.

We didn't want to paint the first order of our PCC cars the same color as the old red and cream design. We felt we should identify the old equipment. We selected a color scheme which was unobtrusive. It was a cream top and a grey bottom. If you are in maintenance work you can see why that is a good color scheme. It is easy to maintain and grey doesn't show the dirt and it doesn't show dents or other defects as bad as a brighter color. These cars, in order to give clearance on curves were slightly tapered front and rear, before and after the trucks. We found we had an excessive number of side scrapes on these trucks. They would start past a car and find too late they didn't have enough room. We had that problem before, so we decided to try a system of painting horizontal stripes through the grey to accentuate the width of the car. They run half way to the back of the car, to give the car a wider appearance. We found the number of sideswipe accidents on those cars were reduced considerably because it showed the actual width.

On the new cars we are adopting this idea: Instead of having the grey lower part of the car, which is a good maintenance color, from an accident standpoint it blends in too much with the background. You don't see the car's width quickly enough. On the new cars we have adopted a scheme of light green colors on the lower part which gives the approaching vehicle an idea of the width of that car, and we hope to accomplish the same purpose there that we have with the stripes on the grey.

There is one point I neglected to mention on the step-wells. Our PCC cars have doors which fold in. We were having about seven accidents a week by people getting their feet caught behind that door. The Safety Department designed a guard that would prevent a person from placing his foot behind the door and overcome that source of accident.

MR. MEHRENS: Thank you Mr. Andersen. Next panel member is Mr. Ralph James, Regional Manager, National City Lines.

MR. JAMES: I have yet to find the man in transit who doesn't think he is an engineer who is going to redesign the

equipment. The manufacturer never makes it right, and we are here this afternoon, apparently with the thought of making some recommendations to the manufacturers. Let's give the manufacturers the benefit of all experience before they make the bus the wrong way. It is easy enough to sit on the sidelines and after the job is accomplished to find fault with it. I ask you gentlemen, what are you doing directly to inform the manufacturer, and help him design bases that you are going to like when you get them?

We are here under the auspices of the Safety Council. Why don't we get together and get something going? Tell the manufacturer what you want. How does he know if you don't tell him? I happened to have been an equipment salesman for a number of years and sold a number of buses and I never found a case where one was delivered but what something was radically wrong which might have been corrected if they had known. They make every attempt, I am sure to design the equipment to be as safe as possible.

All of us have old pieces of equipment that we would replace if we could get new equipment. Instead of spending our time talking about some of this equipment that should have been out of circulation over three years ago, why don't we deal with the new equipment that has come out in the past year and think about the equipment that is going to be produced in the next year and formulate some definite ideas here on standardization.

This idea of kicking it around among ourselves without getting to the source of the trouble doesn't get any of us any place, and I strongly recommend that a committee be appointed to investigate these conditions of which we are hearing so much and formulate some definite ideas as to how high should the step be? Somebody says 11 inches; some say 14 and sometimes 15. Can we all decide collectively on how high the step should be; how wide the treads and where the grab rail should be; on the right or left? Can we decide whether the mirror should be over the door, under the door, in front of the door?

Let's find out what we want and then tell them. We don't have to wait until our purchasing agents go to them and tell them that is what we want. If we tell them be-

fore the equipment is built they will be very appreciative and very thankful for any concrete ideas we can present to them.

Human nature doesn't act the same every place. When you go to Pontiac, Michigan, they want a mirror on the left side at a certain height and a certain size. Then go to Canton, Ohio, and they say "you're crazy, I want it over here and up there." It is all a matter of how they start out in this business.

I believe that there is a great deal that you gentlemen could do towards setting up some definite "rules." Definite standardization of the height of the step; the height of the second step; the depth of the step and all of these things that are causing you so much trouble and causing so many accidents. I might mention a point in this matter of stanchions and grab rails. We have a number of Ford buses in operation in some of the smaller towns. We can't get the people to go to the rear of the coach because there isn't a grab rail up at the top. If for no other reason at all, we want to pack a few more in to get a few more nickels. We are not thinking of safety; we are going to put a grab rail in so they will move back so we can get a few more nickels in the front door. Of course, I am a great believer that the closer you pack them, the less chance they have of falling after they get into the bus.

I do think that there is a great deal that can and should be done by this group. If you develop any definite ideas, you should, by all means, take them to the manufacturer as recommendations of the National Safety Council, not as an individual here, there or elsewhere. Let us decide among ourselves. We should come to a decision. We will have many differences of opinion, but let the majority rule and decide what should be the pattern that they should work toward. I am quite convinced that you will find the manufacturers will give you good cooperation.

There are things that the operating department and the maintenance department would like to do to help manufacture safe equipment. There is a limit to what we can do. I earnestly recommend that you follow a pattern in trying to develop some definite ideas.

MR. C. L. HAMMONS (Seattle Transit Co.): I would like to repeat my question of yesterday afternoon as to whether the

operating companies use right hand rear-view mirrors or on the outside right quarter, and if so, we would like to know what real advantage there is in preventing accidents and perhaps some idea of size and shape.

MR. KREH: We tried them on buses and we also tried them on street cars but we can't keep them on so we don't have them now. They were knocked off. That is all I can tell you about them.

MR. JAMES: We received some equipment with right hand mirrors but they were taken off. There was no complaint from the operators, because as my friend mentioned, if you don't take them off they seem to get knocked off.

MR. HAMMONS: They don't have a great deal of advantage?

MR. JAMES: Apparently not.

MR. BAKER (Detroit Street Railway): All the buses in Detroit now have outside right hand mirrors. We tried to take them off some of them and the operators kicked. They look back to see whether the person is cleared and that is a considerable help in getting away from this packed crowd in the front. You can't see around the right. We found they were being placed too low. About 20 per cent or 25 per cent of our pedestrian accidents involved being struck by buses pulling into loading zones. The newer buses have them on. They are mirrors about nine inches across. On an overall average we do have some benefit from them. I couldn't reduce that to figures, because my figures weren't that good yet. However, the men insist upon them and there hasn't been too much trouble with having them knocked off. Some of them do come off, of course.

MR. SPRINGSTON (St. Louis Public Service): We tried those for about three years, but we had so much trouble with them getting knocked off that we had to give up the idea. We do not use them on buses.

MR. TENGBLAD (Los Angeles): I have been experimenting with outside mirrors on PCC cars for about five months. The cars came equipped with mirrors over the door, but that was no good because when your car was loaded, when the operator needed visibility, he couldn't see the mirror. The only possible place that I can see where a mirror will do any good is

if the operator could see it through the windshield. We have been experimenting with a mirror on the front corner on the outside.

That brings up one point along with Mr. Bullock's question and that is, the people continue to crowd to the front end. First of all, we have to get the front end clear. There should be a grab bar coming into the coach or street car. It is the inclination of manufacturers to have the bar pitched toward the windshield to get a few more people in that front corner. The bar should definitely come straight in. That is, from a line from the front corner of the door—the front door to the fare box so as to leave that little area open so that the operator can see some of the right side of the car. Definitely, the operator needs a mirror on that side. However, I haven't seen any one yet who has an answer for it. I am having the same problem of trying the mirror in the front corner through the windshield. As yet, I don't have an answer to it.

At the present, we have a long mirror that we are just trying out on one car, but again we have the same argument that Ralph put up awhile ago.

One thing I have found out though, whatever kind of mirror you put in there watch it because if it is too hard for the operator to see, it is going to take him too long to focus, and he is going to run into fatigue.

We tried a convex mirror. Well, that distorted everything. We tried it with the idea he could see the doors as well as the rear end of his car to see whether he had clearance or not. As yet, we don't have the answer to it but I definitely don't believe there is any advantage in having that mirror as it came on the PCC cars right over the doors and because we have a crowd we need to see out the right hand side. The operator can't see because the crowd is there.

I believe there are two things we will have to fight for and which I would recommend for standardization. One is that the bar coming into the front end of the car or coach would be such that it keeps the people back and prevents them from getting into the windshield. If we can develop a mirror that we can see through the windshield with, it will help a great deal.

MR. JAMES: This gentleman from Detroit knows the Ford has the bar right across the front from the door. When you get into a town like Saginaw, the boys want to lean on the bar, and I have been trying to figure out a way to take the bar out. Now who is right?

MR. TENGBLAD: It depends upon how you put the bar up and the height of the bar.

MR. JAMES: There are various heights.

MR. TENGBLAD: We definitely eliminated that jamming up in front end.

MR. JAMES: I have seriously considered eliminating that.

MR. SNYDER (Oklahoma City): We have partially solved the problem but not completely. The bar again—it caves in against the windshield and completely covers it up. We felt it was absolutely necessary to keep an area open there so that the driver can see out of the right windshield. We test for tunnel blindness, but in a bus sometimes the driver was rendered blind on the right side by this crowd, so we fastened a chain to a stanchion directly behind the operator, and when they started piling in, he snapped the chain. He snapped it through a hook or a ring on the stanchion right by the windshield where the bar comes across and down. It is strong and people crowded against it. We never had a break on it yet, and it kept them away from the front corner of the windshield.

I wish to add we tried the right hand mirror on the outside and it has not met with too much success. The only advantage it was to the operator was to see if the rear door was closed.

MR. GALE (Beloit Bus Company): I might say on this question of knocking off the right hand mirrors that we did have that experience of knocking them off on poles too close to the bus stops. Our maintenance man came up with an idea that might be of benefit to some others. He installed a screen door spring on the mount that the mirror is on and also designed the mount for the mirror and made a goose neck to it came out beyond the front of the windshield so that the operator can see out of the windshield even with a full load up to the windshield. With the spring in the

mount if it comes up against something it bounces back again. It saves considerable money.

MR. ANDERSEN: We have the yellow line pulley bars. I believe by this time we have them in all our buses. There is a bar from the right front corner of the bus right over that and keeps the people back. If we put a white line down there I am afraid some of my drivers would be fighting.

CHAIRMAN MEHRENS: Is it a hazard to the passengers boarding or lighting?

MR. ANDERSEN: People stay back away from the bus. They like it. One thing that has been bothering me though; we have 50 PCC cars with two doors in front and two in back and I would rather see one wide door than either one of them in both places. I can't see the use of two doors either in front or in the back.

MR. HOUGHTON (National City Lines, Chicago): Regarding grab bars on the PCC cars on the exit doors, when old people get out they hang on them. They hang on too long and get caught in the door. How can this be prevented?

MR. TENGBLAD: In California, we have a lot of elderly people. They seem to come there to spend the rest of their days. We have had a number of accidents whereby they get off the cars, stand there and hold the bar. We have taken the grab bars off the doors entirely and we have reduced our alighting accidents on the PCC cars. There is a stanchion that they can hold on to long enough to steady themselves until they get on the street but the minute their foot is down on the pavement, they drop the bar because they haven't the reach. However, as long as that grab bar was on the door they would stand there and hold it for quite a while and naturally, get their arms caught in the bar.

MR. SPEED (Birmingham, Alabama): Push doors were mentioned awhile ago. Our experience on push doors over a period of several years is that we just don't have an alighting accident from push doors. It is based on a peculiar thing. The responsibility is placed on the passenger, himself, to hold the door open. He holds it until he is on the ground and then the door releases. They use these doors in San Antonio and El Paso and you just don't have accidents on push doors.

CHAIRMAN MEHRENS: It is well to have all the equipment with the same type of doors however, as you have to educate the public.

MR. SPEED: We have a hodgepodge of everything, but on the buses they have the push type doors. We don't have alighting accidents.

MR. DAVIS (Virginia Transit Co.): We had an interesting experience with a push type door. We had about 1937 model buses or they were purchased about that time, and up until recently we have had the push type doors. Accidents are almost nonexistent if the doors are kept in good mechanical order. We were trying to decide whether to put in the push type or treadle sensitive edge doors on our new buses, so we made a study and found out that claim costs on both treadle buses and push type buses were very small. We decided that the public was entitled to some consideration so we conducted a poll of our readers to determine what they liked and it was overwhelmingly for the sensitive edge treadle type door. The new buses we have ordered have that type of door on them.

CHAIRMAN MEHRENS: On the sensitive edge doors, have you found any situation where your operators have been tampering with them to slow them down?

MR. DAVIS: On the push type doors, the maintenance man has on occasion found that the operators had tampered with them.

CHAIRMAN MEHRENS: We have the sensitive edged doors with a toggle switch operation in front and encased in a little block. The fellows would get a fingernail file and trip that toggle when they were having trouble making their schedules. We couldn't figure out what was going on, until after considerable investigation, we determined exactly what was happening. So, we merely took off the block top and put slots on both sides, and imbedded them into the side of the car so they couldn't get the fingernail file back in there, and it was all right.

MR. HAMMONS: We have had treadle steps; however, we have had to rebuild the steps. Originally they operated by air with a little rubber tube which was inadequate, so they were redesigned and they no operate electrically.

We have had just one accident with the treadle steps.

THURSDAY AFTERNOON SESSION

October 10, 1946

Presiding: J. P. TERRY, Vice-Pres. and Gen. Mgr., Indianapolis Railways, Inc.

Employee Accident Prevention in the Transit Industry

By CECIL M. DRAPER

Claims Attorney, The Denver Tramway Corporation

Desirability of Accident Prevention

Is an organized employee safety program in the transit industry desirable? Is it necessary? Can we hope for effective results? Will such a program pay its own way?

In 1945, the frequency rate of the transit industry in this country was 26.81, more than two and one-half times the maximum frequency rate thought to be necessary. As compared with this, the communications industry had a frequency rate of 2.97, electrical equipment, 6.43; tobacco, 6.85; steel, 7.23, and air transport, 7.25. The average rate for all industries was 13.63. Of the forty major industries reporting to the National Safety Council, transit ranked thirty-fifth in its frequency rate and was topped only by meat packing, woodworking, marine transportation, coal mining and lumbering. The transit frequency rate was roughly two and one-half times the rates of such industries as automobile, chemical, quarry and glass, and roughly twice the rate of such industries as electric utilities, gas utilities, machinery and petroleum.

The transit industry ranked only a little better in its severity rate. There it was twenty-seventh out of the group of forty.

So much then for the need of a safety program. But what about the cost? Will the savings in employee accident cost equal or exceed the cost of the program?

Many companies are, of course, not at present in a position to give an accurate estimate of their present employee accident cost and before this can be accomplished, it may be necessary to make a complete survey. In some instances it may be difficult to convince management that an exhaustive survey should be made. But once this is accomplished, half the battle is won. Such a study should cover a period of at least six months or better a year and should include all injuries, even those where only first aid is given. An even more accurate

survey would result if all accidents—"occurrences which interrupt or interfere with the ordinary progress of the work"—were included even though no injury resulted, because even these may be costly. The work should be assigned to one person and made his first order of business. He should be authorized to make full investigations of accidents and even reenact the accident if that is thought to be necessary. Above all, the investigation should be prompt and should follow the accident within a matter of minutes or hours. Unless this is done, many costs, such as work stoppage, repairs and so on, will escape notice. Definite figures should be entered as to all costs.

And what are those costs? It is obvious that insurance or workmen's compensation payments, medical expense and legal and court expense are proper items of accident costs. Frequently these are the only costs noticed. But there are other costs, so-called hidden costs, which are sometimes greater than these which are so obvious. These hidden costs would include the time lost by the injured employee—not the time during which he is actually off the job and being paid at the compensation rate, but rather the time immediately following the accident and the time after his return to work when for a temporary or a permanent period his efficiency is low. We must include the time lost by other employees due to their attempt to aid or their sympathy for the injured employee, to shock, diverted interest, curiosity or some other reason. We must include also the time lost by the foreman while he aids the employee, investigates and reports the accident, arranges for others to do the injured employee's work, trains a new employee to take his place and attends hearings and court proceedings. And we must include the loss due to the stoppage and damage of the machine involved in the accident and the material which may have been spoiled by the accident.

In addition to these, we have other, per-

haps more intangible losses. A bad employee accident report is apt to cause bad public relations and is detrimental to any firm. A bad employee accident record is apt to lead to bad labor relations. Perhaps there is no better method of improving labor relations than a wholehearted effort by management to eliminate injuries to the employees themselves. Not only this, but the safety psychology engendered by an employee safety program might be expected to carry over into the public accident field. Humans find it difficult to change stripes on one side only. A man who wears a dirty shirt is probably wearing dirty underwear as well. Probably his automobile hasn't been washed either. In the transit industry, where something over four per cent of gross operating revenue is paid out in public accident cost, if the employee safety program resulted in only the slightest decrease in public accidents, the saving would go a long way toward paying the entire cost of employee accident prevention.

Surveys of accident cost have been made by many companies and in many industries. What such a survey would show in your company is problematical. But as furnishing some idea of what might be expected, in the surveys which have been made, the average ratio of indirect or hidden costs to direct costs (compensation payments plus medical and legal expense) has been found to be four dollars of indirect cost to each dollar of direct cost. In a public service industry, such as the transit industry, I suspect the ratio would be even higher.

But, based on the approximation that the full accident cost is five times the cost of insurance or workmen's compensation plus medical and legal expense, how much of this can be saved by an accident prevention program? Again the answer is problematical. One group of large manufacturers found that \$1.60 in accident cost was saved for each \$1.00 expended in accident prevention. A large stone company with some 40 quarries computed the savings at \$2.00 in accident cost for each \$1.00 expended for safety. But the financial gain is greater than the balance sheet can show because of the many immeasurable, but none the less real, benefits that accrue from an effective safety program, some of which I mentioned a moment ago.

Assuming that some safety program

should be put into operation, what form of organization should be adopted?

Several forms are in use, but whatever the form, if it is to be successful, it must have forceful executive direction. Safety must begin at the top, and I really mean at the top. Unless you can get the president interested, you won't get very far. While employees must be made safety conscious and must be induced to cooperate, still safety is primarily the responsibility of management, and management must really want to eliminate accidents enough to give accident prevention the same vital attention as that given to costs, quality of service and profits.

The form of safety organization will depend somewhat on the size of the company or operating unit, the interest, ability and wishes of the chief executive and other factors. Making allowances for variations in detail and the fact that each type tends to merge into the others, three general types are in use.

(1) The first is the line organization. Here safety is directed by the chief executive in the same manner as he directs all other operations of the property. If the property is quite small, the entire safety program may be in the hands of the president or plant manager. He will plan his operations and purchase his tools, equipment and materials with safety ever in mind. He will personally train and supervise each employee in safe methods of work. He will make his own inspections and encourage safety suggestions from his men. He will know each of his employees as an individual and will be able to put each on the job which he can do with greatest safety. He will personally investigate accidents, formulate rules to prevent their recurrence and keep adequate records.

For the line organization to be effective, the chief executive must become an expert in the safety problems of his business. But on large properties, he may not have time to acquire this specialized knowledge. To meet this, some executives have employed a safety specialist to function as a technical assistant. If the assistant proves capable and shows strong qualities of leadership, he may take over increasing responsibilities and thus bring about a gradual change to the safety director type of organization.

The strength of the line organization lies in the fact that the responsibility for safety is placed squarely on the head of each operating unit. He plans safety in the same way that he plans production and necessarily must become the most safety-minded man in his unit.

The weakness is that the head of the unit, from the president down, is apt to be occupied with other production problems thus relegating safety to a secondary role. He may be too busy to find time in which to acquire the specialized knowledge necessary to reach high standards of safety performance. Often the knowledge acquired will be after the event, and progress will be slow and costly.

(2) The second type of organization is that headed by a safety engineer or director. To do a good job, the safety direction must be under the supervision of and report directly to the chief executive. He, of course, must be competent and skilled and, above all, must have the confidence and backing of his chief. Unless it is understood that he speaks for top management, supervisors and workmen may think of him as an outsider bothering them with unnecessary precautions. His effectiveness will be in direct proportion to the amount of responsibility given him by the "boss" and his ability to secure the confidence and respect of every department head, superintendent and foreman.

A somewhat heated controversy has raged in the past few years as to whether the safety director should act in a supervisory or an advisory capacity. The better opinion now is that he should act entirely in an advisory capacity. He should realize that his is a "service" job and he should not encroach upon the authority of the supervisory force.

In short, the safety director must first think of the help he can give the supervisory force; secondly, attempt to know the viewpoint of each so that his help will be accepted; thirdly, know his facts and be careful of his conclusions, and, above all, keep the "boss" informed.

(3) The third general type of organization is the committee set-up. It has the advantage of bringing together the viewpoint of several persons whose joint judgment is normally better than that of any single individual. Also it is an effective

way of securing cooperation in a safety program. But a committee at best is weak in execution. The way not to get a job done, it is said, is to appoint a committee to do it.

Workmen's committees, whether made up entirely of workmen or under the chairmanship of a foreman, can have great value in bringing into the safety program the viewpoint and practical knowledge of the men, in stimulating worker interest in safety, and in the investigation of accidents. But there must be a sincere desire on the part of management to enlist worker aid. Such committees should not be set up unless the work and place of the committee is accepted as an important cog in the safety machine and unless all recommendations of the committee are to receive prompt consideration. If recommendations made by these committees are accepted, the action should be prompt. If rejected or modified by the chief executive or a higher committee, the reasons should be clearly explained. If the foreman is chairman, he should function as the chairman of a committee of equals—never as the "boss." Unless these rules are followed, cooperation of workers cannot long be maintained.

Where there are numerous committees, the safety director should be a member of each, usually acting as secretary. This is in order that the entire safety program may be coordinated, that management may be properly advised and that recommendations of the subordinate committees be promptly reported to higher committees or to the chief executive and the action on the recommendation as promptly reported back.

How long should committee members serve? On the policy or governing committee there can be little change. But because the experience of serving on a safety committee has high educational value, it may be desirable to change the membership on foremen's and workmen's committees periodically, every six months or perhaps even oftener. The value of the committee member to the safety program should increase with his length of service and the committee, to be effective, must have a core of members familiar with its work. As a result, the change in membership should be staggered so that there is never a full turnover at any one time.

Safety Work

So much then for the desirability and organization of a safety program. There remains only the question of the operation of the program. And here, unfortunately, because of the breadth of the subject and the limited time at our disposal, we must be most brief. For the most part, the matter can be covered only in the most general outline form.

The work of a safety department naturally divides itself into two departments. The first is discovery; the second, action.

The first—the finding-out process—again may be divided into two parts, discovery before and discovery after the accident.

The safety inspector's job is primarily to study the conditions existing before an accident occurs in order that defects, either in plant or equipment or in work processes, be corrected and thus the accident prevented entirely.

Discovery after the accident takes the form of an investigation, a report of the accident and an analysis of the reports of all accidents.

From a safety standpoint, the purpose of the investigation is to determine the cause of the accident, not who was to blame. If the latter consideration is injected, a "covering up" attitude is apt to develop. The question of how, when and by whom the investigation should be made must be passed with these two observations: First, the investigation should be prompt and made by persons—more than one—familiar with the equipment, operation or process. Secondly, it should remain out of the control of the foreman involved. Few people can be unbiased about a condition involving their own work.

The accident report serves two purposes, first, to furnish information necessary for the compensation of the injured employee and, secondly, to guide preventive action. They will keep management informed of the rate, seriousness and sources of injuries. And they will furnish information for the compensation of frequency and severity rates, accident costs, the types and sources of injuries and the operations out of which the injuries arose.

Neither accident reports nor investigations, however, can serve their full purpose unless periodic analyses are made. Such

analyses should be made at regular intervals, usually monthly, semi-annually and annually.

And what then? We have inspected; we have investigated; we have reported, and we have analyzed. But all that will constitute so much wasted effort unless the indicated preventive action is taken.

Affirmative accident prevention measures must be pointed in two directions. The first should be directed toward the plant, the equipment and the machines which make up the property; the second, toward the men who operate those machines.

The plant and equipment must be designed and constructed, not only for efficient production, but for safety as well. Production need not be sacrificed for safety; indeed one tends to complement the other. It may seem at first odd, but it has been demonstrated time after time that the low points in plant production are usually the high points in accidents. It is because of the desire for safety in plant and equipment that the purchasing agent should be made a member of the safety organization. Mechanical safeguards should be provided where the accident hazard can thereby be reduced. These would include guards, guard rails, shields, goggles and so on. Not only should safe equipment and machines, adequately protected, be provided, but such machinery and equipment and the processes of the plant should be arranged and placed to give maximum safety.

But a safe plant alone will not do the job. For the program to be effective, the gospel of safety must be carried to the personnel from the president down to the lowliest track greaser. How can this be accomplished? There are three general methods, by education, by training and supervision and by the development of a safety psychology.

Education teaches the workers, and their supervisors, to recognize the hazards of their work and how to avoid them—what to do and what not to do. In order that educational work may be effective, management must not only know the hazards but the methods by which the work can be done safely.

Training increases the worker's skill in doing that which education has explained. It is given by instruction, by demonstra-

tion and by repetition under supervision. The foreman is the key man in any safety program, and the effectiveness of the training will depend upon the quality of the supervision. But the entire responsibility cannot be shifted to the foreman. Safety is still the responsibility of management, and it up to management to plan and direct the program and insist that proper attention be paid to safety by the supervisory staff.

Psychology is the science of human behavior. As applied to industrial safety, it deals with the behavior of persons at work in its effect on their safety and the safety of others.

Although no two men are alike in physical and mental characteristics, in any average group approximately 20 per cent will be found to be superior, 60 per cent normal and 20 per cent inferior. From the top 20 per cent will come the leaders and superior workers. The accident-prone and problem cases will come, for the most part, from the inferior 20 per cent. The remaining 60 per cent will respond satisfactorily to reasonably well-conceived and administered programs of education and training.

Every normal human being possesses certain desires which may be appealed to in the furtherance of safety. Safety experts disagree in part, but there seems to be pretty general agreement that most normal persons possess the following:

- (a) Fear of personal injury.
- (b) Desire to avoid personal loss.
- (c) Desire for reward.
- (d) Desire for leadership.
- (e) Desire to be outstanding or to excel.
- (f) Desire to prevent injuries to others.
- (g) Fear of creating an unfavorable impression.
- (h) Fear of punishment.

In stimulating these desires, safety arguments and means should appeal to such traits of character as (a) selfishness, (b) ambition, (c) pride, (d) the sense of humanity, (e) the sense of responsibility, and (f) the sense of loyalty.

Not all individuals possess all these desires and character traits, certainly not in equal degrees. The safety director must, therefore, exercise care in framing his contest or campaign. A picture of a bleeding stump may breed in one man a wholesome fear of injury but may cause another to lose his self-assurance and self-confidence. Some men respond quickly to the lash of ridicule while others may resent it or even react against it. Here again the foreman is the keyman. He will know his men personally and often something of their domestic relations, their finances, background and environments. He learns by experience the best method of getting each to respond to his orders and suggestions. The traits and desires to which he has successfully appealed in his efforts to secure quality and quantity production are the same to which he will appeal in his efforts to arouse interest in safety.

In safety psychology, impressions, particularly first impressions, are important. If a new man walks into a shop which is disorderly and dirty with machinery unguarded or guards not in use, he is not apt to consider safety suggestions very seriously. Similarly disorderly and unsafe conditions make it difficult for the foreman to convince old employees that he is really serious in his campaign for safety. The foreman cannot hire clean-up crews nor can he purchase guards, but he can see that his own men practice good house-keeping and keep available guards in place, and he can bring major maintenance and equipment problems to the attention of management. A safety minded management may then be expected to do its part.

As stated at the beginning, employee safety is a wide field, a field requiring specialized knowledge and training, but it does not rest on either involved theory nor unusual technical skill. Instead it rests on safety mindedness in management and men, and the practice of good common horse sense. A safety program which produces an "ever active attention to safety in every detail of each day's work" cannot avoid being successful.

APPENDIX A FREQUENCY AND SEVERITY OF THE DENVER TRAMWAY CORPORATION*

	1945					1945 1945				
	FREQUENCY		SEVERITY		Yrs.	FREQUENCY		SEVERITY		
	Rate	Rank	Rate	Rank		Rate	Rank	Rate	Rank	
ALL INDUSTRIES.....	13.63	—	1.16	—	3	13.41	—	1.16	—	—
COMBINED RAILWAY, BUS AND TROLLEY										
All Companies.....	26.6	—	1.48	—	—	24.9	—	1.60	—	—
Thirty-Seven Companies with over 500 Employees.....	27.2	—	1.41	—	—	25.9	—	1.64	—	—
Denver Tramway Corp.....	16.0	4	2.49	34	3	18.3	7	3.76	22	—
ELECTRIC RAILWAY										
All Companies.....	29.4	—	1.75	—	—	28.1	—	2.12	—	—
Twenty-Nine Companies with over 500 Employees.....	29.6	—	1.71	—	—	27.9	—	2.11	—	—
Denver Tramway Corp.....	19.4	6	3.30	24	3	23.0	7	4.96	11	—
MOTOR BUS										
All Companies.....	24.6	—	1.23	—	—	23.3	—	.94	—	—
Thirty-Three Companies with over 500 Employees.....	26.0	—	1.12	—	—	24.8	—	.94	—	—
Denver Tramway Corp.....	4.3	1	.09	2	3	3.80	1	.06	—	—
TROLLEY COACH										
Eleven Companies.....	21.5	—	1.09	—	—	18.0	—	1.42	—	—
Denver Tramway Corp.....	4.3	1	.05	2	—	1.50	1	.02	1	—
COMBINED RAILWAY, BUS AND TROLLEY—TRANSPORTATION										
All Companies.....	23.7	—	.99	—	—	23.8	—	1.39	—	—
Thirty-Five Companies with over 500 Employees.....	24.3	—	.91	—	—	24.9	—	1.31	—	—
Denver Tramway Corp.....	8.8	4	.11	3	2	8.9	3	.09	2	—
COMBINED RAILWAY, BUS AND TROLLEY—SHOPS, CARHOUSES AND GARAGES										
All Companies.....	37.8	—	2.16	—	2	39.9	—	2.01	—	—
Thirty-Five Companies with over 500 Employees.....	38.8	—	2.00	—	2	42.0	—	1.95	—	—
Denver Tramway Corp.....	27.3	8	.81	16	2	20.9	3	8.88	22	—
COMBINED RAILWAY, BUS AND TROLLEY—MAINTENANCE OF WAY										
All Companies.....	45.8	—	5.21	—	2	44.3	—	4.80	—	—
Thirty-Four Companies with over 500 Employees.....	46.1	—	4.99	—	2	44.6	—	4.99	—	—
Denver Tramway Corp.....	44.0	17	.94	18	2	42.4	11	.71	9	—
COMBINED RAILWAY, BUS AND TROLLEY—ELECTRIC AND POWER										
All Companies.....	24.8	—	3.45	—	2	18.2	—	2.71	—	—
Thirty-Two Companies with over 500 Employees.....	26.7	—	4.02	—	—	19.9	—	3.35	—	—
Denver Tramway Corp.....	32.0	24	64.4	32	2	27.5	17	33.27	21	—

National Society for the Prevention of Blindness, New York, N. Y.
 Conservation and Utilization of Eyes in Industry.
 Oil-Dri Corp. of America, Chicago, Ill.
 Oil and Grease Absorbent.
 Onox, Inc., San Francisco, Calif.
 Athlete's Foot Preventive.

G. H. Packwood Manufacturing Co., St. Louis, Mo.
 Industrial Skin Cleansers.
 The Patent Scaffolding Co., Inc., Chicago, Ill.
 Safety Ladders, Scaffolding and Work Stands.
 Peda Spray Co., Inc., New York, N. Y.
 Athlete's Food Preventive.
 Phister Manufacturing Co., Cincinnati, O.
 Maintained Air Pressure Liquid Fire Extinguishers.
 Portable Products Corp., Pittsburgh, Pa.
 Safety Hats and Safety Belts.
 Protectoseal Co., Chicago, Ill.
 Safety Devices for Hazardous Liquids.
 Pulmosan Safety Equipment Corp., Brooklyn, N. Y.
 Industrial Safety Equipment.
 Pyrene Manufacturing Co., Newark, N. J.
 Fire Extinguishers, Compounds and Systems.

Reece Wooden Sole Shoe Co., Columbus, Neb.
 Wooden Sole Safety Boots, Shoes and Sandals.
 Rose Manufacturing Co., Denver, Colo.
 Industrial Safety Equipment.

Safety Clothing & Equipment Co., Cleveland, O.
 Industrial Clothing, Gloves and Equipment.
 Safety Engineering, New York, N. Y.
 Publishers, Safety Engineering Magazine.
 Safety First Shoe Co., Holliston, Mass.
 Safety Shoes.
 Safway Steel Products, Inc., Milwaukee, Wis.
 Tubular Steel Scaffolding, Suspended Scaffolding, Grandstands, Bleachers.
 W. H. Salisbury & Co., Chicago, Ill.
 Linemen's Rubber Protective Equipment.
 A. Schrader's Son, Brooklyn, N. Y.
 Pneumatic Safety Control Devices.
 Scott Aviation Corp., Lancaster, N. Y.
 Self-Contained Breathing Apparatus.
 Sellstrom Manufacturing Co., Chicago, Ill.
 Face and Eye Protective Equipment.
 Spencer Turbine Co., Hartford, Conn.
 Industrial Vacuum Cleaners and Dust Collecting Equipment.
 Standard Safety Equipment Co., Chicago, Ill.
 Personal Safety Protective Equipment.
 Steel Scaffolding Co., Inc., Brooklyn, N. Y.
 Sectional Steel Scaffolding.
 Stepan Chemical Co., Chicago, Ill.
 Skin Cleansers.
 Stonehouse Signs, Inc., Denver, Colo.
 Accident Prevention Signs.

Sugar Beet Products Co., Saginaw, Mich.
 Skin Cleansers and Cleaners.
 Surty Manufacturing Co., Chicago, Ill.
 Safety Appliances for Machines and Underfoot Hazards.

S. G. Taylor Chain Co., Hammond, Ind.
 Iron and Steel Welded Chains.
 G. H. Tennant Co., Minneapolis, Minn.
 Floor Cleaning Machines, Floor Seal and Floor Wax.
 The Toidey Company, Fort Wayne, Ind.
 Safety Aids for Babies.
 Trimont Manufacturing Co., Roxbury (Boston) Mass.
 Forged Steel Safety Tools.

United States Safety Service Co., Kansas City, Mo.
 Industrial Safety Equipment.

Wahlert Products Corp., Brooklyn, N. Y.
 Industrial Safety and Fire Equipment.
 Watchmocket Optical Co., Inc., Providence, R. I.
 Industrial Eye Protection.
 Waverly Petroleum Products Co., Philadelphia, Pa.
 Oil Absorption Materials.
 Weaver Manufacturing Co., Springfield, Ill.
 "Safety Lane" Automatic Service Equipment.
 Welsh Manufacturing Co., Providence, R. I.
 Industrial Eye Protection Products.
 West Disinfecting Co., Long Island City, N. Y.
 Personal Protection Safeguards and Plant Sanitation Products.
 F. H. Wheeler Manufacturing Co., Chicago, Ill.
 Industrial Protective Apparel.
 Wiseman Manufacturing Co., Dayton, O.
 Power Press Guards, Guide Pin Cover.
 The Wilkins Company, Cortland, N. Y.
 Lens Cleaner and Dispenser Cabinets.
 Williams Jewelry & Manufacturing Co., Chicago, Ill.
 Safety Awards, Badges and Trophies.
 Willson Products, Inc., Reading, Pa.
 Personal Protective Equipment, Instruments.

INDEX

A

- Accident Statistics: Methods of Keeping Records of Accident Repeaters. Panel Discussion, 17-18.
Standard Student Accident Reporting System (Clark), 79-80.
See also Specific Subject.
Advertising. See Publicity.
Abern, J. J.: Progress Report—Illinois Institute of Technology, 158-159.
Allen, Homer: The Responsibility of Athletic Officials for Accident Prevention, 96-99.
American Association of Health, Physical Education and Recreation: Mobilizing for Safety Education (Sangren), 72.
American Association of Teachers Colleges: Improving Teacher Education for Safety (Sangren), 80-81.
Mobilizing for Safety Education (Sangren), 72.
American Automobile Association: Mobilizing for Safety Education (Sangren), 71-72.
American Home Economics Association: Report on State Safety Program (Ward), 99-101.
American Red Cross: Mobilizing for Safety Education (Sangren), 72.
American Vocational Association: Report of Joint Safety Committee of the AVA and NSC (Peterson), 135-138.
Animals. See Farm Safety.
Athletics. See Sports.
Automotive Safety Foundation: Mobilizing for Safety Education (Sangren), 72.

B

- Baker, J. S.: Traffic Engineering for Transit Safety, 300-311.
See also Safety for the Bicycle Driver. Safety Education Clinic, 181-183.
Blaisdell, P. H.: The Function of the Public Support Committee in Relation to Education, 111-114.
Blake, R. P.: Uniformity in Training Safety Engineers, 146-149.
Boblen, A. W.: Present State Programs Compared with President's Conference Recommendations, 238-242.
Boswell, Dr. F.: The Flammability of Textile Fabrics, 56-58.
Bonus Plans. See Rewards.
Bradley, Col. C. R.: Reducing Highway-Railroad Crossing Accidents, 218.
Brandon, Lory: Organizing and Conducting a State Committee, 36-38.
Buses. See Transit Industry.

C

- Carmichael, G. V.: Driver Licensing—Where Do We Go From Here? 284-286.
Center for Safety Education: Mobilizing for Safety Education (Sangren), 72.
Child Education: Calling All Teachers and Pupils (Mass), 159-161.

- Development of Safety Instructional Materials in School and Industry (Stanton), 133-135.
Driver Education in the California High Schools (O'Rourke), 142-146.
The Function of the Public Support Committee in Relation to Education (Blaisdell), 111-114.
Future Needs (Program and Materials). Panel Discussion, 105-107.
Home Safety in the Homemaking Education Program (W. Almon), 101-103.
Improving Safety Instruction in the Michigan Training Schools. Panel Discussion, 81-89.
Improving Teacher Education for Safety (Sangren), 80-81.
Mobilizing for Safety Education (Sangren), 71-75.
The President's Highway Safety Conference—Education Report (Eaves), 108-111.
Progress Report—Illinois Institute of Technology (Abern), 158-159.
Progress Report on the Safety Engineering Program at Georgia School of Technology (Cox), 152-154.
Progress Report on the Safety Engineering Program at New York University (D'Conner), 154-158.
Pupils Work for Safety (Long), 166-167.
Remobilizing for Safety (Silverwood), 172-175.
Report of Joint Safety Committee of the AVA and NSC (Peterson), 135-138.
Report on State Safety Program American Home Economics Association (Ward), 99-101.
Safety Education Clinic, 179-183.
Safety Education in a Large City School System (Housley), 175-179.
Schools—Dayton Pedestrian Program. Summary, 277.
Teacher Preparation in School Shop Safety (Ston-Isap), 125-132.
Teaching Safety and the Green Light for 1946-47 (Wymen), 168-169.
Teaching Safety in the Schools. Panel Discussion, 204-206.
Telling the World (Windrow), 165-166.
To What Extent Should Courses in Safety Engineering Be Provided on the Undergraduate Level? (James), 149-152.
A Total State School Safety Program (Worley), 170-172.
Uniformity in Training Safety Engineers (Blake), 146-149.
What Constitutes a Good Program of Shop Safety in Industrial Arts and Vocational Education School Shops (Gramen), 122-125.
What Each School Can Do to Implement the President's Highway Safety Conference. Panel Discussion, 114-122.
Working Together for Safety (Nicholson), 161-163.
Your Division Reports (Hoad), 75-79.
See Also Child Safety.
Child Safety: Built-in Safety: A Factor in School Building Planning (Schmidt), 138-142.
Children As Farm Machinery Operators (Turner), 39-40.
Improving Safety Instruction in the Michigan Training Schools. Panel Discussion, 81-89.
The Responsibility of Athletic Officials for Accident Prevention (Allen), 96-99.
Safety in the Selection of Athletic Equipment and in the Planning of Recreational Areas (Danjoid), 90-96.
Standard Student Accident Reporting System (Clark), 79-80.

- The Stephens College Project (Telford), 89-90.
See Also Bicycles; Child Education.
Childs, Sgt. Iatoph: Checking Enforcement Performance, 254-256.
Citizenship: Tomorrow's Traffic (Krem), 29-32.
Clark, Z. R.: Standard Student Accident Reporting System, 79-80.
Colleges and Universities: Improving Safety Instruction in the Michigan Training Schools. Panel Discussion, 81-89.
Improving Teacher Education for Safety (Saugren), 40-81.
Progress Report—Illinois Institute of Technology (Abram), 158-159.
Progress Report on the Safety Engineering Program at Georgia School of Technology (Cox), 152-154.
Progress Report on the Safety Engineering Program at New York University (O'Connor), 154-158.
The Stephens College Project (Telford), 89-90.
Teacher Preparation in School Shop Safety (Stem-Berg), 130-132.
To What Extent Should Courses in Safety Engineering Be Provided on the Undergraduate Level (James), 149-152.
Uniformity in Training Safety Engineers (Blake), 146-149.
Commercial Vehicle Section: Minutes, 1-32.
Officers, 1-2.
Community Safety. See Public Safety.
Community Safety Councils: Cooperation of Community Organizations (Seidel), 58-60.
Remobilizing for Safety (Silverwood), 172-175.
The Responsibility of the Community Safety Council in a Traffic Accident Prevention Program. Panel Discussion, 230-232.
The Safety Council—Dayton Pedestrian Program. Summary, 276.
What a State Safety Council Can Do to Prevent Home Accidents (Parker), 66-69.
Context: How We Did It. Panel Discussion, 199-206.
Cooperation: Working Together for Safety (Nicholsen), 161-163.
Courts. See Enforcement.
Cox, W. N., Jr.: Progress Report on the Safety Engineering Program at Georgia School of Technology, 152-154.

D

- Danford, H. G.*: Safety in the Selection of Athletic Equipment and in the Planning of Recreational Areas, 90-96.
Darr, J. W.: Traffic Safety and the Public Attitude, 190-194.
Dirbl, L. L.: Schools—Dayton Pedestrian Program. Summary, 277.
Divine, Capt. L. J.: Planning the Enforcement Program, 249-251.
Draper, C. M.: Employee Accident Prevention in the Transit Industry, 320-324.
Drivers and Driving: Adequate Driver Training for Bus and Street Car Operators. Panel Discussion, 297-306.
Driver Education in the California High Schools (O'Rourke), 142-146.
Driver Licensing: Use of Records (Temple), 259-260.
Driver Licensing—Where Do We Go from Here? (Carmichael), 284-286.
Driver Training in Schools to Implement the President's Highway Safety Conference. Panel Discussion, 115-116, 118-120.
The Effect of Incentives on Safe Driver Attitudes. Panel Discussion, 6-12.
Evaluation of the Driver Testing and Training Program to Date. Panel Discussion, 22-29.
How to Handle Accident Repeaters. Panel Discussion, 16-22.
The Organization and Operation of an Accident Review Board (Emond), 12-16.

- Responsibility of the Driver License Administrator in a Traffic Accident Prevention Program. Panel Discussion, 253-254.
That Woman Driver (McKay), 337-341.
Traffic Schools. Panel Discussion, 219-226.
The Value of Accident Prevention to Good Operation (Willitt), 2-6.
See Also Enforcement; Traffic; Transit Industry.
Dahelow, Dr. D. A.: What a Health Department Can Contribute to the Home Safety Program, 60-65.
Danman, Robie: The Function of the Coordinating Committee for Federal Departments, 243-247.

E

- Eastman, Chas. G. D.*: Administrative Uses of Traffic Records, 252-253.
Eaves, R. W.: The President's Highway Safety Conference—Education Report, 109-111.
Economics of Safety: Employee Accident Prevention in the Transit Industry (Draper), 320-321.
Traffic Engineering for Transit Safety (Baker), 311.
The Value of Accident Prevention to Good Operation (Willitt), 2-6.
Educating the Public. See Public Safety.
Electric Railways. See Transit Industry.
Emond, H. J.: The Organization and Operation of an Accident Review Board, 12-16.
Employees. See Drivers and Driving; Training.
Enforcement: Adequate and Consistent Fines and Penalties. Panel Discussion, 211-215.
Checking Enforcement Performance (Childs), 254-256.
Improving Traffic Courts. Summary of Panel Discussion, 260-261.
Planning the Enforcement Program (Divine), 249-251.
The Responsibility of the Court in a Traffic Accident Prevention Program. Panel Discussion, 230.
Traffic Court Judges and Prosecutors—Where Do We Go from Here? (Watt), 281.
Traffic Schools. Panel Discussion, 219-226.
See Also Police.
Engineering: Parking from the Retailer's Standpoint (John), 269-273.
Relation of Parking to Traffic Safety (Smith), 262-268.
The Responsibility of Highway Features in Traffic Accidents (Voth), 213-216.
Responsibility of the Traffic Engineer in a Traffic Accident Prevention Program. Panel Discussion, 227-228, 232.
Small City Traffic Safety and Parking Problems. Summary of Panel Discussion, 275.
Traffic Engineering for Transit Safety (Baker), 306-311.
Traffic Engineering Use of Accident Records (Fisher), 253-254.
Traffic Engineering—Where Do We Go from Here? (Kendler), 281-283.
Engineers: Uniformity in Training Safety Engineers (Blake), 146-149.
Eyes. See Physical Examination.

F

- Falls: Hospitalized Through Farm Accidents (Young), 35.
Farm Safety: Farm Safety and the Farm Equipment Manufacturer (Remington), 43-45.
Fire Prevention and Safety Work in Michigan (Farnall), 36.
Hospitalized Through Farm Accidents—Accidents on the Farm (Young), 33-35.
Let's Be Sensible About Farm Safety (Tarrow), 34-42.

- Organizing and Conducting a State Committee (Remond), 34-36.
Farm Equipment Institute: Safety Work of the Farm Equipment Institute (Remington), 44-47.
Farm Safety Seminars, 33-43.
Farnall, H. E.: Fire Prevention and Safety Work in Michigan, 36.
Federal Government. See Safety Movement—United States Government.
Fire Protection: Built-in Safety: A Route to School Building Planning (Schmidt), 150-153, 160-162.
Fire Prevention and Safety Work in Michigan (Farnall), 36.
The Flammability of Textile Fabrics (Bosmer), 36-38.
School Fire Drills: Fire Drills. School Education Clinic, 179-181, 187-188.
Fisher, G. J.: Traffic Engineering Use of Accident Records, 253-254.

G

- Grade Crossings: Reducing Highway-Railroad Crossing Accidents (Bosmer), 238.
Grams, H. E.: What Constitutes a Good Program of Shop Safety in Industrial Area and Vocational Education School Shops, 122-123.

H

- Hall, W. E.*: Coordination Through Public Support Organization, 245.
The State's Stake in Highway Safety, 1-199.
Harold, Dr. H. T.: Your Division Report, 71-79.
Health: What a Health Department Can Contribute to the Home Safety Program (Dahelow), 65.
See Also Physical Examination.
Hansley, J. A.: Safety Education in a Large School System, 175-179.
Home Economics: Future Needs (Program and Materials). Panel Discussion, 105-107.
Home Safety in the Home-making Education Program (Wilmont), 101-103.
Report on State Safety Program American Home Economics Association (Wood), 99-101.
Home Safety: Building Out Hazards (Sargent), 49-51.
Cooperation of Community Organizations (Seidel), 58-60.
The Flammability of Textile Fabrics (Bosmer), 36-38.
The Mortgage Lender and Home Safety (Organ), 47-48.
A Safety Program for Safer Home Living (Olinstead), 51-55.
What a Health Department Can Contribute to the Home Safety Program (Dahelow), 60-65.
What a State Safety Council Can Do to Prevent Home Accidents (Parker), 66-69.
See Also Home Economics.
Home Safety Seminars, 33-43.
Joint Session With Women's Programs, 51-69.
Houghton, E. C.: Management's Interest in Accident Prevention, 280-297.

I

- Indiana Farm Safety Committee: Organizing and Conducting a State Committee (Remond), 34-36.
Investigation of Accidents: The Organization and Operation of an Accident Review Board (Emond), 12-16.
Why Investigate Traffic Accidents? (Lingo), 206-211.

J

- Jamir, R. V.*: To What Extent Should Courses in Safety Engineering Be Provided on the Undergraduate Level? 149-152.
John, R.: Parking from the Retailer's Standpoint, 269-273.
Judges Group Session. See Traffic Court Judges and Prosecutors Group Session.

K

- Krem, Li. Col. F. M.*: National Committee of Tomorrow's Traffic, 29-32.

L

- Labor Unions: Driver Testing and Labor Unions. Panel Discussion, 26.
Safe Driving Incentives and the Labor Union. Panel Discussion, 11.
Licensing. See Drivers and Driving.
Lingo, Prof. J. L.: Why Investigate Traffic Accidents? 206-211.
Long, H. H.: People Work for Safety, 166-167.

M

- Machinery. See Farm Safety.
McKay, M. Y.: That Woman Driver, 337-341.
Management: Management's Interest in Accident Prevention (Houghton), 280-297.
Mason, J. W.: Calling All Teachers and Pupils, 159-161.
Mercantile Establishments: Parking from the Retailer's Standpoint (John), 269-273.
Motor Vehicles: Government as an Aid to Highway Safety. Panel Discussion, 204.
Records of Houghton Lake Skidding and Traction Tests (Meyer), 216.
See Also Drivers and Driving; Parking; Traffic; Transit Industry.
Morse, Stanley: Radio—Dayton Pedestrian Program. Summary, 276-277.
Meyer, E. A.: Results of Houghton Lake Skidding and Traction Tests, 216.

N

- National Board of Fire Underwriters: Mobilizing for Safety Education (Saugren), 72.
National Commission on Safety Education: Mobilizing for Safety Education (Saugren), 73.
National Committee for Traffic Safety: The Function of the Public Support Committee in Relation to Education (Blaisdell), 111-114.
Mobilizing for Safety Education (Saugren), 71.
National Conference on Safety Education: Mobilizing for Safety Education (Saugren), 71-73.
National Congress of Parents and Teachers: Mobilizing for Safety Education (Saugren), 73.
National Conservation Bureau: Mobilizing for Safety Education (Saugren), 72-73.
National Elementary School Safety Committee: Reports from Executive Committee, 159-160.
National Safety Council: Board of Directors, VI-VII.
Executive Board, VII-X.
Home Safety in the Home-making Education Program (Wilmont), 101-103.
Honorary Members, X.

Mobilizing for Safety Education (Sengren), 73.
The National Safety Council's Part in the Over-All Program (Williams), 248.
Officers, IV.
Past Presidents, X.
Report of Joint Safety Committee of the AVA and NSC (Pattison), 133-138.
Trustees, IV-VI.
Your Division Reports (Hedley), 75-79.
Newspaper Activities, See Publicity.
Nicholson, Mrs. L. K.: Working Together for Safety, 161-163.
Neuzeman, H. S.: The Safety Council—Dayton Pedestrian Program. Summary, 276.

O

O'Connor, W. F.: Progress Report on the Safety Engineering Program at New York University, 194-198.
Olmstead, K. M.: A Safety Program for Safer Home Living, 31-33.
Organ, D. J.: The Mortgage Lender and Home Safety, 67-68.
Organization: Employee Accident Prevention in the Transit Industry (Draper), 320-326.
The Value of Accident Prevention to Good Operation (Willett), 3-6.
O'Rourke, E. V.: Driver Education in the California High Schools, 142-146.

P

Parker, Mrs. G. P.: What a State Safety Council Can Do to Prevent Home Accidents, 64-69.
Parking: Parking from the Retailer's Standpoint (John), 269-273.
Relation of Parking to Traffic Safety (Smith), 262-268.
Small City Traffic Safety and Parking Problems. Summary of Panel Discussion, 273.
Pattison, Martin: Report of Joint Safety Committee of the AVA and NSC, 133-138.
Pedestrians: The Dayton Pedestrian Program. Summary of Symposium, 276-277.
Pedestrian Programs. Summary of Panel Discussion, 277-278.
Shoulder Lines on Rural Highways for Pedestrian Protection (Sharp), Panel Discussion, 203.
Personal Factors: Educating the Farm Worker in Safety (Turner), 41-42.
The Effect of Incentives on Safe Driver Attitudes. Panel Discussion, 6-12.
Employee Accident Prevention in the Tensap Industry (Draper), 324.
How to Handle Accident Repeaters. Panel Discussion, 16-22.
Management's Interest in Accident Prevention (Haugen), 288-297.
Physical Examinations: Physical and Psycho-Physical Tests of Drivers. Panel Discussion, 22-29.
See Also Training.
Playgrounds: Safety in Planning of Recreational Areas (Dunford), 93-96.
Police: Dayton Pedestrian Program (Price), Summary, 277.
Police Department Cooperation in School Safety Education (Hendley), 178-179.
Responsibility of the Municipal Police Administrator in a Traffic Accident Prevention Program. Panel Discussion, 228-229.
Responsibility of the State Police Administrator in a Traffic Accident Prevention Program. Panel Discussion, 234-235.
Uses of Accident Records. Panel Discussion, 249-260.
Where Do We Go from Here (Schaeffell), 278-281.

Why Investigate Traffic Accidents? (Lingo), 206-211.
See Also Enforcement.
Police Group Session, 206-211, 249-260.
Police, Capt. P. J.: Police—Dayton Pedestrian Program. Summary, 277.
Pritchard, Allen: Newspaper—Dayton Pedestrian Program. Summary, 276.
Prosecutors Group Session, See Traffic Court Judges and Prosecutors Group Session.
Psychology, See Personal Factors.
Public Safety: The City's Stake in Traffic Safety (Ridge), 194-196.
The Dayton Pedestrian Program. Summary of Symposium, 276-277.
Guiding Public Education (Smith), 236-239.
Police—Where Do We Go From Here (Schaeffell), 278-281.
Present City Programs Compared With President's Conference Recommendations (Rutland), 242-244.
Present State Programs Compared With President's Conference Recommendations (Boblen), 238-242.
Relationship of the Various Agencies in a Traffic Accident Prevention Program. Panel Discussion, 227-238.
Telling the World (Windsor), 163-166.
Traffic Safety and the Public Attitude (Darr), 190-194.
Traffic Safety Education (Smith), 283-284.
What Cities and States Can Do to Help Each Other. Summary of Panel Discussion, 217.
Working Together for Safety (Nicholson), 161-163.
See Also Pedestrians; Publicity; Traffic.
Public Safety Education Association: Joint Session With Traffic Safety Education Association. Summary of Panel Discussion, 217.
Publicity: Guiding Public Education (Smith), 236-239.
How Cities Are Using Radio. Summary, 274-275.
The Part of Advertising in a Traffic Accident Prevention Program. Panel Discussion, 236-238.
See Also Radio.

R

Radio: The Dayton Pedestrian Program (Mense), Summary, 276-277.
How Cities Are Using Radio. Summary, 274-275.
See Also Publicity.
Recreation, See Sports.
Reader, E. J.: Traffic Engineering—Where Do We Go From Here? 281-283.
Responsibility: Allocating the Transit Operator's Responsibility for Accidents. Panel Discussion, 327-335.
Tomorrow's Traffic (Kreml), 29-32.
Rewards: The Effect of Incentives on Safe Driver Attitudes. Panel Discussion, 6-12.
Prizes to Schools for Home Inspection. Safety Education Clinic, 186.
The Value of Accident Prevention to Good Operation (Willett), 6.
See Also Congress.
Ridge, M. E.: The City's Stake in Traffic Safety, 194-196.
Rensing, Martin: Farm Safety and the Farm Equipment Manufacturer, 43-45.
Rules, See Training.
Rutland, C. J.: Present City Programs Compared With President's Conference Recommendations, 242-244.

S

Safety Engineers, See Engineers.
Safety Movement—States: Driver Education in the California High Schools (O'Rourke), 142-146.

National Committee of State Officials (Kreml), 247.
Present State Programs Compared With President's Conference Recommendations (Boblen), 238-242.
The State's Responsibility in a Traffic Accident Prevention Program. Panel Discussion, 233-238.
The State's Stake in Highway Safety (Hall), 196-199.
A Total State School Safety Program (Worley), 170-172.
What a Health Department Can Contribute to the Home Safety Program (Dukelow), 60-65.
What Cities and States Can Do to Help Each Other. Summary of Panel Discussion, 217.
Safety Movement—United States Government: The Function of the Coordinating Committee for Federal Departments (Dunham), 245-247.
Sengren, Dr. P. V.: Improving Teacher Education for Safety, 80-81.
Mobilizing for Safety Education, 71-73.
Sengren, D. K.: Building Out Materials, 40-51.
Schmidt, H. W.: Built-in Safety: A Factor in School Building Planning, 138-142.
Schaeffell, Col. C. H.: Police—Where Do We Go From Here? 278-281.
School and College Sessions, 71-188.
School Safety Patrols: Student Placement on Patrols. Safety Education Clinic, 187-188.
Seidel, Roy: Cooperation of Community Organizations, 34-40.
Shop Safety: Teacher Preparation in School Shop Safety (Stonshugh), 123-132.
What Constitutes a Good Program of Shop Safety in Industrial Arts and Vocational Education School Shops (Graman), 122-123.
Silverwood, G. P.: Remobilizing for Safety, 172-173.
Smith, E. J.: Traffic Safety Education, 283-284.
Smith, W. B.: Guiding Public Education, 236-239.
Smith, W. S.: Relation of Parking to Traffic Safety, 262-268.
Sports: The Responsibility of Athletic Officials for Accident Prevention (Allen), 96-99.
Safety in the Selection of Athletic Equipment and in the Planning of Recreational Areas (Dunford), 90-96.
Sirian, W. E.: Development of Safety Instructional Materials in School and Industry, 133-135.
Stonshugh, Dr. E. M.: Teacher Preparation in School Shop Safety, 123-132.
Street Cars, See Transit Industry.

T

Telford, Marion: The Stephens College Project, 89-90.
Temple, Maj. A. F.: Driver Licensing Use of Records, 219-260.
Tools, See Farm Safety; Home Safety; Shop Safety.
Traffic: Adequate and Consistent Fines and Penalties. Panel Discussion, 211-213.
The City's Stake in Traffic Safety (Ridge), 194-196.
Coordination Through Public Support Organization (Hall), 245.
The Dayton Pedestrian Program. Summary of Symposium, 276-277.
The Function of the Coordinating Committee for Federal Departments (Dunham), 245-247.
The Function of the Public Support Committee in Relation to Education (Blaisdell), 111-114.
How Cities Are Using Radio. Summary, 274-275.
How We Did It. Panel Discussion, 199-206.
Improving Traffic Courts. Summary of Panel Discussion, 260-261.
National Committee of State Officials (Kreml), 247.
The National Safety Council's Part in the Over-All Program (Williams), 248.
Parking, from the Retailer's Standpoint (John), 269-273.
Pedestrian Programs. Summary of Panel Discussion, 277-278.

Present City Programs Compared With President's Conference Recommendations (Rutland), 242-244.
Present State Programs Compared With President's Conference Recommendations (Boblen), 238-242.
President's Highway Safety Conference—Education Report (Sengren), 108-111.
Reducing Highway-Railroad Crossing Accidents (Bradley), 218.
Relation of Parking to Traffic Safety (Smith), 262-268.
Relationship of the Various Agencies in a Traffic Accident Prevention Program. Panel Discussion, 227-238.
The Responsibility of Highway Features in Traffic Accidents (Volk), 213-216.
Results of Houghton Lake Skidding and Traction Tests (Meyer), 216.
Small City Traffic Safety and Parking Problems. Summary of Panel Discussion, 273.
The State's Stake in Highway Safety (Hall), 196-199.
Tomorrow's Traffic (Kreml), 29-32.
Traffic Safety and the Public Attitude (Darr), 190-194.
Traffic Schools. Panel Discussion, 219-226.
Unsafe Accident Records. Panel Discussion, 249-260.
What Cities and States Can Do to Help Each Other. Summary of Panel Discussion, 217.
What Each School Can Do to Implement the President's Highway Safety Conference. Panel Discussion, 114-122.
Where Do We Go from Here? 278-286.
Why Investigate Traffic Accidents? (Lingo), 206-211.
See Also Bicycles; Enforcement; Pedestrians.
Traffic Court Judges and Prosecutors Group Session, 211-213, 260-261.
Traffic Engineers Group Session, 213-216, 262-273.
Traffic Safety Education Association: Joint Session With Public Safety Education Association. Summary of Panel Discussion, 217.
Traffic Safety Education Group Session, 274-275.
Traffic Section: Minutes, 189-286.
Officers, 189.
Training: Adequate Driver Training for Bus and Street Car Operators. Panel Discussion, 297-306.
Development of Safety Instructional Materials in School and Industry (Sirian), 133-135.
Evaluation of the Driver Testing and Training Program to Date. Panel Discussion, 22-29.
Progress Report—Illinois Institute of Technology (Abern), 138-139.
Progress Report on the Safety Engineering Program at Georgia School of Technology (Cox), 152-154.
Progress Report on the Safety Engineering Program at New York University (O'Connor), 194-198.
To What Extent Should Courses in Safety Engineering Be Provided on the Undergraduate Level? (Janet), 149-152.
Uniformity in Training Safety Engineers (Blaise), 146-149.
See Also Child Education; Colleges and Universities; Home Economics; Shop Safety.
Transactions: Use, III.
Transit Industry: Adequate Driver Training for Bus and Street Car Operators. Panel Discussion, 297-306.
Allocating the Transit Operator's Responsibility for Accidents. Panel Discussion, 327-335.
Effective Devices and Engineering of Equipment to Provide Safer Transit Operation. Panel Discussion, 312-319.
Employee Accident Prevention in the Transit Industry (Draper), 320-324.
Management's Interest in Accident Prevention (Haugen), 288-297.
Traffic Engineering for Transit Safety (Baker), 306-311.
Transit Section: Minutes, 287-335.
Officers, 287.
Turner, A. W.: Let's Be Sensible About Farm Safety, 18-42.

U

United States Children's Bureau: Mobilizing for Safety Education (*Saugren*), 73.
 United States Department of Agriculture: Safety Program of the Department of Agriculture (*Turner*), 41-42.
 United States Office of Education: Mobilizing for Safety Education (*Saugren*), 73.

V

Visual Education: Development of Safety Instructional Materials in School and Industry (*Stinson*), 133-135.
 See Also Training.
 Vocational Education, See Home Economics; Shop Safety.
 Volk, W. N.: The Responsibility of Highway Features in Traffic Accidents, 213-216.

W

Ward, G. J.: Report on State Safety Program American Home Economics Association, 99-101.

Y

Willen, H. L., Jr.: The Value of Accident Prevention to Good Operation, 3-6.
 Williams, R. L.: Home Safety to the Homemaking Education Program, 101-105.
 Williams, S. J.: The National Safety Council's Part in the Over-All Program, 248.
 Windsor, J. P.: Telling the World, 163-166.
 Winter Hazards: Results of Houghton Lake Skidding and Traction Tests (*Meyer*), 218.
 Women's Activities: That Woman Driver (*McKay*), 337-341.
 Women's Activities Session: Joint Session With Home Safety Session, 51-69.
 Minutes, 337-341.
 Worthy, Gordon: A Total State School Safety Program, 170-172.
 Wynn, Judge J. M.: Traffic Court Judges and Prosecutors—Where Do We Go from Here? 281.
 Wyman, M. M.: Teaching Safety and the Green Light for 1946-47, 168-169.

Young, Dr. H. H.: Hospitalized Through Farm Accidents—Accidents on the Farm, 33-35.



	1945					1943-1945				
	FREQUENCY	SEVERITY	FREQUENCY	SEVERITY	Yrs.	FREQUENCY	SEVERITY	FREQUENCY	SEVERITY	Yrs.
	Rate	Rank	Rate	Rank	Yrs.	Rate	Rank	Rate	Rank	Yrs.
ELECTRIC RAILWAY—										
TRANSPORTATION										
All Companies	27.3	—	1.79	—	2	27.5	—	2.08	—	
Twenty-Seven Companies										
with over 500 Employees	27.7	—	1.73	—	2	27.4	—	1.99	—	
Denver Tramway Corp.	12.1	2	.16	3	2	12.7	2	.14	1	
ELECTRIC RAILWAY—										
SHOPS AND CARHOUSES										
All Companies	39.9	—	1.50	—	2	42.2	—	2.15	—	
Twenty-Seven Companies										
with over 500 Employees	39.2	—	1.56	—	2	42.3	—	2.07	—	
Denver Tramway Corp.	34.0	15	.97	17	2	26.7	3	12.10	16	
ELECTRIC RAILWAY—										
MAINTENANCE OF WAY										
All Companies	43.9	—	3.46	—	2	42.6	—	4.66	—	
Twenty-Seven Companies										
with over 500 Employees	44.6	—	3.29	—	2	42.8	—	4.93	—	
Denver Tramway Corp.	44.0	14	.94	15	2	42.4	7	.71	3	
ELECTRIC RAILWAY—										
ELECTRIC AND POWER										
All Companies	23.3	—	3.85	—	2	21.4	—	4.52	—	
Twenty-Seven Companies										
with over 500 Employees	22.8	—	4.04	—	2	20.4	—	4.63	—	
Denver Tramway Corp.	32.0	16	6.44	23	2	27.5	9	33.27	14	
MOTOR BUS—										
TRANSPORTATION										
All Companies	18.2	—	.54	—	2	17.7	—	.55	—	
Twenty-Seven Companies										
with over 500 Employees	20.7	—	.36	—	2	20.2	—	.89	—	
Denver Tramway Corp.	2.7	3	.01	2	2	2.7	3	.81	2	
MOTOR BUS—										
SHOPS AND GARAGES										
All Companies	51.4	—	2.45	—	2	55.4	—	2.19	—	
Twenty-Seven Companies										
with over 500 Employees	53.1	—	2.56	—	—	59.3	—	1.76	—	
Denver Tramway Corp.	11.6	2	.47	5	2	6.0	1	.25	2	
TROLLEY COACH—										
TRANSPORTATION										
All Companies	17.6	—	.69	—	2	16.7	—	.86	—	
Denver Tramway Corp.	4.6	1	.05	2	2	2.4	1	.83	1	
TROLLEY COACH—										
SHOPS AND GARAGES										
All Companies	34.6	—	1.73	—	2	21.5	—	.43	—	
Denver Tramway Corp.	.0	3	.00	3	—	.8	3	.80	3	
TROLLEY COACH—										
ELECTRIC AND POWER										
All Companies	49.6	—	21.35	—	2	72.5	—	.31	—	
Denver Tramway Corp.	No rating									

*Taken from statistics compiled by National Safety Council, Inc.

Allocating the Transit Operator's Responsibility for Accidents

(Panel Discussion)

Discussion Leader: E. F. MEHRENS, Dir. of Safety, Omaha and Council Bluffs Street Railway Co.

Participants:

COLIN DOBELL, Supv. of Accident Prevention, British Columbia.

L. B. ENNES, Supt. of Transportation, Cleveland Transit System.

L. D. GALE, Asst. Mgr., Beloit Bus Co.

MR. ENNES: I never had made much of a study of determining the responsibility for accidents. We still do it at Cleveland as we did 37 years ago when I came there. The division superintendent determines the responsibility of the accidents. He is the man who should know the location of the accident; know the employee who had the accident; know the equipment, etc. He is like an artist who is drawing a picture. When he picks up an accident report and he reads it over he should be able to see a visual picture of that accident. An artist, when he is drawing a picture has the finished product in front of him all the time. A carpenter looks over the blueprints of a building. He is working to that finished product all the time.

Years ago there wasn't much consideration given to the man who had the accident. He was brought in and told he was to blame for the accident and discipline was administered. That has been softened up in later years. In some places they have a board or a committee to determine the responsibility for an accident. The members on that committee never made a study of that in any way, but it seems to me that the members on the committee depended on the strength of the union. The majority of the members are trainmen and hold most of the voting rights. My orders to my division superintendents are to see and interview every man who has had an accident. You don't always get the truth from the accident report. Sometimes, the operator writes out a bald-faced lie. He is naturally a little biased in his favor. It is the duty of the man determining the responsibility of that accident to be able to determine whether or not it is a bald-faced lie and whether the man is a little confused, but to get the truth on it.

In case of a vehicle accident, he should know the location. I remember one time I was sent over to the East side of Cleveland. I never had worked over there. I came in in the morning and picked up the accident book. The old dispatcher told me the fellow had an accident; that he was out in the other room and he wanted to see me. But I wanted to know where the accident was and went out to look at the place. When I came back I studied the report and looked at the vehicle. Then I was in shape to talk to that man and be honest with him. I have always considered the company what was paying me, but in order to have cooperation of men you have to deal fairly with them. I have never had any real trouble with the discipline handed out in accidents. If it turns out to be a discharge case, the union always comes in with it, but if it is a time off, I have been able to handle it pretty well with the union. Once in a while it is pretty hot. You have to be fair with your men.

The head of the claim department made a report the other day that showed during the past 32 years accidents have cost \$25,000,000. Our accidents last year alone cost \$700,000.

I don't believe that any one who is injured and settles a claim, would rather not have had the injury than to have the money. I think we have a claim department down there that doesn't waste money. If we are to blame for an accident and have a report that shows we were to blame they go back and try to settle it and settle for a fair figure.

CHAIRMAN MEHRENS: Thank you, Mr. Ennes. I will now call on Mr. Gale.

MR. GALE: I have heard a good deal during the Congress of why top management is not more interested in the Congress and in safety work. As far as the Congress goes, I don't understand it myself. As assistant acting manager of our small operation, I felt that considering what we have to pay operators today that I couldn't afford to send any one else.

Maybe I am flying in the face of tradition in my outlook on allocation of responsibility. Many companies, I know, will look at me somewhat as a mutineer. However, I do think that the allocation of responsibility is too often a case of who to hang the blame on when there is an accident. That is practically what a lot of us do. That is the first thing that comes into the mind when an accident report comes to the desk, "Well, can I hang it on this guy or can't I?" I think that is the wrong approach to the allocation of responsibility.

If we analyze accidents and the close calls that we have, very carefully, I think that we will find that a large proportion of them in the final analysis should be allocated right back to top management.

After you have a potential employee, the first step is in determining whether or not that man has the characteristics to accept responsibility.

The next step is training. I have gone into the problem of training employees pretty thoroughly during the last few years and I am getting to the point where I realize all the things I don't know about. It is a big problem. The training is the place where the driver is finally fitted to take over that job. Not only how to operate the vehicle; how to get those nickels in; how to handle passengers and defensive driving, which must be inculcated into that trainee's mind during this period.

Then, there is the follow-up and I don't mean a certain period of follow-up training. I think follow-up continues as long as a driver is employed. I think those fundamental steps are necessary in putting any man on the job.

There is a very large question in my mind of whether or not most of us don't allocate responsibility to a driver in a manner of passing the buck. I think that most of us, if we analyze every accident that comes across our desk, will find that a large majority of our accidents can be charged directly to management.

MR. MEHRENS: Thank you, Mr. Gale. Now it is my pleasure to present Mr. Colin Dobell of B. C. Electric Company, British Columbia, Canada.

MR. DOBELL: We at B. C. Electric regard the allocation of responsibility for

transit accidents as a very important subject. We have set up quite an elaborate routine, and we find it is working out very well. We are making this system serve two purposes. First, the medium that we use gives us a pretty accurate guide as to what responsibility the operator has and also it allows us to develop norms of performance as far as accidents are concerned.

Briefly, this is the way it works. The accident is evaluated in the Accident Prevention Department. I might say the people in the department have an operating background. They check with the Superintendent and also with the Legal Department before they finally decide what responsibility, if any, should be allocated to the operator.

The responsibility is allocated on the basis of a range of numbers from one to nine. For instance, if a man has an accident that shouldn't have happened, they would say that man was 100 per cent responsible. In other words, he would get a factor of nine for that accident.

If the situation were such that the operator contributed to the accident in a minor degree, he would perhaps receive a factor of one or two or three. In that way, there are two things that give you a fairly accurate indication of what that operator could have done about it on one hand and then at the end of the year or at the end of any monthly period that you wish, you can develop a norm for all your operators and you can find out which fellows are having the most accidents or rather which are contributing most to the accidents. This information can be used in follow-up, retraining, etc.

We don't just put this information down on the records. By mailing it directly to his home we advise the operator that a certain accident, happening at such and such a time and location on such and such a date was considered preventable. Perhaps I should explain that a little further.

Before we set up this system, we had three grades of responsibility, for instance: No blame; preventable; and chargeable. Chargeable indicates major responsibility of the operator. Preventable indicates partial responsibility, and no charge, of course, indicates just what it says. Those definitions have become so fixed in the minds of our employees that we didn't want to

change them, so we continued them in the same way by regarding any accident which has the factor of from one to five as preventable and any accident which has a factor of from six to nine as chargeable.

That, gentlemen, briefly is the way it works and we have found it very valuable. Our operators, generally speaking, feel quite badly if they get a chargeable decision and they are given the opportunity to protest that decision. The employee gives all the reasons why he thinks it is not chargeable, he can come in to see the Superintendent and the accident will go before a committee composed of top flight operating men and it will be reconsidered. The man's viewpoint is thoroughly discussed and reviewed and if any change is indicated, then the change will be made. If not, the original decision stands.

CHAIRMAN MEHRENS: I would suggest now that as long as Mr. Dobell is here, and his system is somewhat different from ours and while his remarks are still fresh in your mind, that you ask your questions now.

MR. GROVER: Do you find some of your employees going scot free on an accident in the absence of definite outside evidence? In other words, what does your claim department find on some of those chargeable accidents or non-chargeable accidents. We have done somewhat the same things you have done and we have had some very unsatisfactory experience with it. Most claim men don't enjoy it and protest the Safety Department going out and touching up the witnesses. If we had two man cars they would bring in some nice reports, and of course, were not charged, but when a claim was filed and an investigation was made and an outsider was brought in they found out they were lying. That created a great deal of dissatisfaction because the honest guy was telling the truth and they know in a round about way what happened in this other case and they say, "He got off, because he lied." We had that experience and we cut it out. Did you have that among your people? Do you have any indication of that?

MR. DOBELL: We had quite a little trouble along that line. The basis we use for the evaluating of reports is simply this: What action could our employee reasonably have taken to avoid this accident,

or did some action of his cause this accident? The responsibility is based entirely on that approach. If we haven't got enough information in the original report we will then get in touch with the legal department and see witnesses on it. We, who are investigating don't see the witnesses at all. The legal department sees all the witnesses. We try to get all the information that we can from all sources before we finally make the evaluation.

MR. GROVER: Do you examine all the witnesses whether a claim has been filed or not?

MR. DOBELL: No, if the witnesses are available then we have the benefit of the evidence in evaluating. If there is any doubt as to whether there was any responsibility or not, then the employee would not get the blame, but if a claim should be made later, the legal department has a copy of the report which says no blame and they then get information which shows there should have been some blame, that man will get a letter to advise him that in view of additional information some responsibility is held attachable. He is notified of that and of course, if it is found out that he has been lying, we take some action. We have had very little trouble with that. One reason for that perhaps is this:

That all our men in reporting an accident, report to a supervisor who assists them in filling out the report form. That gives them a little skilled assistance. This supervisor can ask questions and point up certain required information in the report so that the report is correct and more satisfactory from the claims department viewpoint, from the traffic department viewpoint and also from the standpoint of the departments, because the whole story is there.

MR. GROVER: I know you handle your cases that way, but I often wondered how you got by with them. Still there are a lot of cases that they must review that you don't get a claim from, and you are buried in records. Do these other men know that man lied? We have found cases where they laughed about the other men. I am just interested in that because it is our failure and I don't think we have any real yardstick to determine chargeable cases.

MR. BULLOCK (St. Louis): Some time ago we were on this very subject of the ratio of automobile accidents in the scheme of determining what degree of responsibility is on the operator and associated problems. I have had quite a few questions from fellows who wrote me and wondered what other people were doing.

On this first item that Mr. Dobell mentioned the ratio of responsibility, or a scheme of using the factors from one to nine. Out of thirteen properties, we discovered six were using a prorated scheme of either symbols of A, B, C, and D, etc., or as Mr. Dobell and Mr. Whitcomb have of using numerical breakdowns.

Another thing of interest was the ratio of responsibility on accidents. We want to know how we can compare with other companies and I will just read the figures because I don't think it is fair that I read the property names as tied up with each individual figure, but for the interest of the record here, I see no harm in reading the property names as pertaining to this computation. Springfield, Massachusetts, New Orleans, Vancouver, San Diego, Lake Shore Coach Company, Philadelphia; Los Angeles Transit. I guess I got all around. Here are the figures. Per cent of avoidable or preventable or whatever you wish; in other words, responsibility ratio as compared to total accidents reported: 16.7; 30.5; 14.3; 19.8; 42 per cent; 39.2; 17.2; 9.6; 25 per cent; 16.06; 27.2; 26.08 and 31 per cent. There is quite a variety as you will observe there in thinking of those percentages. I don't mind saying that ours was 14.3 and I am sure that this will be of much interest to our operating personnel.

The other thing that I would like to inject in here is this: I would be interested in having someone tell me, why he uses the A, B, C, D arrangement, why he doesn't use the numerical system instead. For this reason, if you wish to have a gradation of responsibility, why not just state then that 25 per cent or 50 per cent or 75 per cent or 100 per cent. Then when it gets down to a basis of evaluating the individual's record you could have something that you could mathematically present, let us say, to your unions or to the individual, himself. You could add it up and say you had 4.25 accidents as an equivalent

of one total responsibility. I don't know whether it is feasible or not.

MR. DOBELL: In setting up this program in the first place, I took this viewpoint, as I said before, first of all, that the medium we use should provide an accurate guide as to the individual's responsibility for any accident, and any single accident and in addition it should also be capable of providing a means of evaluating group performance as well.

What we did in this case, we will add up the total points of responsibility for any man for any given period. Also we can attach a value of one to every accident regardless of whether it is responsibility or otherwise, so at the end of six months I might have a rating of 15, 20 or 25 for any one man. That gives you a ready comparison with all other men on the job. You can determine from that the average performance and if you find one man is getting a higher than average for that period, you could flag his personnel card. It is a practice we follow and in that way, point up the need for additional instruction or supervision.

The only purpose in using the numbers is that it is an easy method of grading. Actually, it breaks it down into a percentage system if you regard nine as being 100 per cent responsibility. It is pretty much the same thing you had in mind.

MR. WHITCOMB: We send out a sheet to the depot Superintendent and he is required to take some action. He must bring an operator in to reassign him, instruct him or send him back to school. When he does that, I can follow that up on his record. We might caution the operator a couple of times and a final caution and the next time the Superintendent must take some action. It is my responsibility to see that he takes action when he says he is going to. So many times, these days, final caution was given and nothing was done about it. Frankly, we are trying to get rid of our bad boys. We are using it as a means of supervising people. It is either chargeable or preventable or non-preventable.

In the follow-ups we are using points and something has to be done. They agree upon the number of points for preventable accidents. They are listed and it is not by chance that we look up in the air and say,

"This accident is preventable or not." We have listed what we determine are preventable accidents. Once in a while the Superintendent doesn't agree with us, but we usually can get together.

MR. GALE: I would like to ask a question of some of the other members of the panel or any one in the room. Just why is there a question of percentage of responsibility in any accident?

In my estimate an accident is either preventable or not. If it is preventable that is all there is to it, in my opinion. I may be wrong but if a man has a rise of preventable accidents, no matter how minor, it is an indication that the man is riding for a fall and something is done about it immediately.

Another thing I would like to inject is this: Mr. Ennes spoke of some of his operators not reporting the truth. We don't have a bit of trouble in that respect. Just last winter there were three men who suddenly found themselves at the parting of the ways with us for that reason and we haven't had a bit of trouble since. In fact, right in our contract it states that any one putting anything in an accident report but the truth is subject to dismissal without a hearing.

MR. ENNES: We did find several reports that were not properly made out. As I stated before, it is a question of whether it was done purposely or whether the man didn't understand it. They come in and make out accident reports and pass them over either to the dispatcher or some clerk there. Perhaps he is busy and doesn't study them out. This report goes on through; the claims department gets it and they go out and investigate that and find out the man was altogether to blame for the accident.

We list our accidents and then we have a "D," where perhaps some one threw a stone through a window, and there is no responsibility there—we call that a "D." We use the letters to keep from conflicting with the claims department classification.

CHAIRMAN MEHRENS: You agree with Mr. Gale then?

MR. ENNES: I believe 75 per cent of the accidents should be avoided.

CHAIRMAN MEHRENS: Mr. Dobell, do you agree with Mr. Gale?

MR. DOBELL: Not entirely, inasmuch as there are degrees or errors of commission or errors of omission.

First, for instance, if a passenger is boarding who is very elderly or handicapped in some way or another, the conductor can take some action there by studying that lady's age or something of that kind. However, the lady fell down. You can't say that he was responsible for the accident.

CHAIRMAN MEHRENS: He could have prevented an accident, in your opinion?

MR. DOBELL: There is some degree of responsibility because he didn't give extra care, but you can't say he is entirely at fault, and that is why I think this idea of grading responsibility fits a lot of cases.

Out on the coast we have a lot of fog and there are a lot of rear end collisions. I don't feel the drivers are entirely as responsible for rear end collisions as they would be in clear weather.

MR. DAVIS (Philadelphia Transit): We predicate our grading on the fact that an operator should be perfect, so there is some degree of responsibility there. If one of our operators gets out in a car and bashes in the rear end of another street car, he certainly should be charged with what you call a penalty point or discipline, and he should be charged certainly with more responsibility than a man who just merely does the slightest little thing wrong.

We have three degrees of chargeable accidents and we call it a "C," "D" and "E." A "C" is where the operator used ordinary care but he failed to use the highest degree of skill that was possible. A "D" accident is where a man doesn't use ordinary care, and an "E" accident is where he is grossly negligent. For the purpose of disciplining our operators and advising our operating men just what they are doing, we use the penalty system which is based on points. A man with a "C" accident is given one penalty point and a man with a "D" accident is given three and one with an "E" he is given six. Also a man with a late report is given one penalty. The man having an unreported accident receives three points. We revise our list every month and give the Superintendent a list of every man that he has working for him with the penalty points that have accumulated during the last year. That was the only way we could solve the thing.

Mr. Grover mentioned that reports had been made out improperly. Of course, a

lot of accidents aren't investigated by the claim department. Every accident, after it has been investigated and before it is filed away goes over the claim desk, and it has on the report in pencil the original classification which was given to that accident. If anything develops in the investigation that shows that the report was not properly made and an improper classification was given that report is sent back to the committee which originally handled that accident. Then it goes over to the Superintendent's desk and for the purpose of disciplining a man who has made an improper report. That has worked nicely.

MR. SNYDER (Oklahoma Railway Co.): We have found we can blame traffic accidents on five different things: First, our driver; second, the other fellow; third, failure in supervisor personnel; fourth, mechanical failure, and five, an act of God. Those are the only five things that can be charged. Can a traffic accident also be charged to a combination of those things? That is the reason why I particularly like Mr. Bullock's method. What I would like to ask is, on passenger accidents whether or not that same degree can be used to determine the responsibility between our driver, the passenger who has the accident or the other situations?

MR. WHITCOMB: We apply the same. If it is a preventable accident we still apply a point rate, but it won't carry the point rate. In other words, a jerky operation accident, where it is very evident that this fellow merely threw the passenger. We don't give that the same evaluation if he goes down the street and plows into the back of his leader, or into another automobile, or into an open switch. We still apply the rate to that passenger accident.

MR. HAMMONS: In Seattle we charge an accident in one of three ways. They are avoidable, unavoidable or questionable. The only time we charge a questionable one is when we don't have enough information to determine what happened or how it happened. If we get full information later we correct it. In some cases the operators will have an accident in which they are involved with a traffic department and maybe they get a citation from a police officer. He may go to court and the judge will dismiss the case. Then he will come in and say, "I want my record changed

because the judge said I was not at fault." We say the record must remain as it is at least for a time because the judge possibly did not say we will not be subject to a civil action later for damages.

MR. BULLOCK: In St. Louis, we had chargeable, questionable and non-chargeable. The curious reaction to that method of determination on the part of the operator was this: "If you are in doubt then why not give me the benefit of the doubt?"

MR. TENGBLAD: I believe in most cases the properties have the decisions rendered by the Superintendent and many times the questionable type of accident or the degree of responsibility is considered by the Superintendent who tries to hit a happy medium rather than make an outstanding decision one way or another. I am quite interested in these various decisions on the degrees of responsibility. They all have merit. At the present time we have only two types of decisions: Avoidable or unavoidable. I take that position because we try to get it into the minds of the operators that they are professionals on the streets. We can't compare them with an ordinary automobile driver on the streets. Consequently he has to take the position that he is on the defense. There is only one decision. He could either have avoided the accident or he couldn't have avoided the accident. In a lot of cases where the superintendents make the decision, and where you have a number of superintendents working, they might be taking the easiest way out.

MR. BULLOCK: I am sending out a questionnaire. I am trying to find out something if I can, but based on past experience and certainly in listening to this debate here today on the subject, I am wondering if there isn't some merit to this degree of responsibility. Mr. Gale there may not go along with me, but certainly, we are trying to determine responsibility in accidents and you have to have a common norm to begin with because there are so many factors. I think Mr. Ennes would go along with that. You have to rate your labor today with more or less mathematical precision. I mean, there has to be a definite record before you can do anything about discharging a man. It is no longer a matter of personal opinion and in working with committees you have to have things specific.

However, there is the element of human failure. Suppose I was using the scheme proposed and a man had a 25 per cent responsibility, then if that operator happened to be good at making out reports and happened to be extra good about arguing, he may get you to let it go as an unavoidable accident. The fellow who was not so good at arguing might get stuck. If you have just one breakdown it seems that tendency is eliminated and you have an overall ratio. Now, is it fair or proper operating practice to hold the operator blameless, if there is some degree of responsibility? Sure, your definition states if there is any degree of responsibility it can be classified as an avoidable accident. That is true, but the tendency is to slide away and be lenient.

MR. DRAPER: On this question of responsibility—and I have dealt with this thing from safety; from claims; from the legal department, and lately it was started from the federal courts and it has been passed on to the state courts in many cases, we have a system of discovery which is used now in law suits. On the question of responsibility I have put a question mark and the reason I have put the question mark wasn't because it was a question mark in my mind but in case some one comes in and files a law suit on that case and subpoenas your records, and they have the right to do it, when they ask for your answer, it won't be divulged on the reports. It is a secret of my own—my own code. No one knows what it means very well except me and the reason that I do it is the matter of discovery in a law suit.

MR. WHITCOMB: In my company our claims department makes some determinations as to whether we ought to pay or not; whether the driver was negligent or not, we don't care; we are concerned with a rule book.

MR. DRAPER: There are two definitions, but the thing that I am always afraid of on our responsibility is the fact that some smart lawyer will come in and subpoena your records and say, "In your own company you charge this man with the responsibility for the accident." Now, the question for the jury is, how much?

MR. BULLOCK: As a matter of legal procedure if they subpoena the records they only get the case records.

MR. DRAPER: They can subpoena any-

thing they want under federal rules and many of the states are following the federal rules.

MR. DAVIS: When we make an accident report we have a duplicate copy which comes from the claim department. There is no other duplicate copy. It goes to the Superintendent of Transportation and we mark our coding on his copy only. If it is subpoenaed it comes through on our records. We take up our file on the original accident in which there is nothing as far as chargeability.

MR. GALE: A lot of us are wandering around in a maze between the terms preventable, responsibility and chargeable. It is my considered opinion that preventability of an accident does not in any way determine any responsibility for the accident for preventability is nothing more or less than what your driver could have done to avoid that accident. That, in my mind, is the degree of responsibility. Accidents are very closely tied in with your training and with your education program. The moving factor of that educational program is defensive driving. Just as the gentleman said, "Our drivers are supposed to be professional drivers. They are supposed to lead the way in how to drive on the street."

If we started in and said such and such an accident represents 25 per cent responsibility and the other fellow is 75 per cent responsible, right away you have opened the door for the grand old barrage of alibis, and that is one thing that we are fighting all the time.

In finding out whether or not an accident is preventable, we use the method of the accident review board which we have found very satisfactory, not only in the findings but also as an educational program. Our board is made up of four members. Two drivers; one from the maintenance department and one from management, with a chairman who does not vote except in the case of a tie. We use as our Bible the good old rule book Fleet Safety Memo No. 14 of the National Safety Council. I find that it will cover any accident that might occur.

We have settled once and for all this question of chargeability and responsibility. We have no penalty whatsoever for accidents. We do have an incentive plan whereby each driver putting in a certain number of

hours with no accidents during the month, receives a certain amount—\$3.00 to be exact, which is credited to his account, which he can use in ordering uniform equipment. If they are under a certain number of hours, then they get less, etc. If there is one accident it cuts the amount right in two. If there are two, it cuts the remaining amount right in two. If there are three, no one gets anything. Instead of using the penalty system we have given them some incentive. We find that the fellow who has an accident during the month and costs everybody a dollar is very, very unpopular. It has worked out very satisfactorily.

MR. SNYDER: Don't you find on that system, where you have accidents, for example if your bus is parked at a bus zone properly and unloading and a bus rams the back of your bus, has that lost a driver his bonus for that month?

MR. GALE: Not in that case. Our vehicle is at a standstill and properly parked in the proper place. There is nothing in the world that a driver could do to avoid that accident. Therefore, if it is not avoidable, it is not charged.

MR. SNYDER: In other words, you have to determine those cases in which your operators are absolutely not at fault. You are evaluating then.

MR. GALE: We only have to decide whether or not there is anything that our driver could have done. If there was anything that your driver could have done to avoid that accident then that accident was preventable.

MR. NAQUIN: Taking that same case Mr. Dobell, would the driver of that bus get a charge of one point on your system, even though he was unable to move his bus and prevent that rear end collision?

MR. DOBELL: If there was nothing he could have done there would be no penalty.

MR. BULLOCK: I go along with the thought of an accident being preventable or avoidable and that is why we switch to avoidable from chargeable. It may be a little bit technical but it gives us an opportunity to talk with the operator in terms of avoiding accidents.

We have a problem of standardization in interpretation of what is avoidable and unavoidable because if there is a certain type of accident in this division classed as

avoidable and one over here unavoidable the union president certainly knows about that pretty quickly. It sets a precedence, so it makes your position unstable. What we are trying to do is stabilize our thinking on the matter. That is why I like the little scheme you had there of setting out specific rules to try to correlate the thinking of all of us.

MR. WHITCOMB: We have a man who charges preventables. He is in the legal department. He has a pretty good balance, but he might be out sick some day or we might lose him. We want something pretty tangible.

MR. BULLOCK: Were I an operator and I had a specific type of an accident and if you as the superintendent could show me that check sheet that states specifically this type of dispensation is the general rule; that is a preventable type, I will feel then that I am being treated like everybody else.

MR. GALE: Fleet Safety Memo No. 14 gives us the types of accidents and cuts down a lot of work.

MR. DICKINSON (Milwaukee): I can see some advantages possibly as to allocation of responsibility but, so far as standardization is concerned, there may be ten or twelve division superintendents. You have enough trouble there with two things to decide rather than taking on more. We don't indicate anything in writing in any way on our records in the way of a code. We put a check mark. We mark the chargeable ones red and the non-chargeable accidents blue.

MR. DRAPER: No one knows but you what it means.

MR. BULLOCK: Aren't we beginning to get too concerned with accident severity rather than accident frequency and aren't we beginning to learn there is too much discipline which is not a function of the safety engineer, and getting too far away from causes?

DELEGATE (Denver): I would like to ask Mr. Dobell a question. I believe you mentioned something about preparing accident reports, and that the supervisor sometimes helps the operator. I am wondering if you are not getting the supervisor's report of the accident rather than the operator's? Isn't it better to let that

operator go ahead and work the thing out.

We have had accidents a time or two where there was a platform man and students involved in the accident. Possibly a student had been operating at that time, and the two reports were identical right down to the last dotting of the "I" and the crossing of the "T."

MR. DOBELL: That was when the operator failed in the original report. All the supervisor does in this is to point out to the person writing up the report that he hasn't given the direction of the vehicle, the weather conditions or whatever he thinks should be in there. He merely points it out to the man writing the report.

There is one other thing I would like to say in defense of this point system: The reason we adopted it is this: We had to get down to brass tacks with regard to the

accident problem. As a matter of fact, last year we made a survey of a thousand motor men and conductors on the street car system and found that 218 men had no accidents whatever in that year. We found out that another 200 or so of the men had only one accident for the year and so on down the line. Then ten per cent of the men were having thirty per cent of the accidents. We wanted to concentrate our efforts where it would do the most good. The only value in this point system of allocating responsibility is that it gives you a ready means at any time of finding out which are the men who are contributing most to your accident picture and then those are the men on whom you can get busy and do something in the way of corrective effort. That is the only purpose behind the point system.

Women's Activities Session

WEDNESDAY AFTERNOON SESSION

October 9, 1946

Presiding: ANNE H. BARNARD, Director, Women's Div., N. S. C.

That Woman Driver

By MILDRED Y. McKAY

Dir., Education & Safety, Cleveland (O.) Automobile Club

How many of us who are of the so-called weaker but fairer sex, both of which adjectives have been widely challenged, have not at some time or another been called "just another woman driver." Somehow when a man uses those words, venom drips from every syllable. By nature, I am all for the woman driver and certainly would not like to be relegated to the old school that believes that a woman's place is in the home and the home only.

There was a young husband one time who refused to let his wife learn to drive on the grounds that if she did not have such comfortable, swift, and convenient transportation at hand, she would be forced to stay at home where he believed all good women should stay. This was one of the family squabbles that was brought to me. I, of course, sided with the poor rooster-pecked wife and tried to show the husband where it did not take away from her wifeliness nor her femininity to be able to drive. I brought out the fact that at the time the belief was popular that a woman's place was in the home and the home only, a woman had everything she needed for the care of her family and her home on her own grounds. Food was raised, canned, or stored on the place. There was adequate storage place so that such staples as were not native to the land were purchased in large quantities for the entire season. The measure of a good housekeeper was how well she tended the smaller live stock and raised prize vegetables and fruits, how well she prepared those things for storage—rendering lard, smoking hams, storing eggs, canning, corn-

ing, parching, etc. These things occupied all her time and if she DIDN'T stay home, her family went hungry, unclothed, and unclean.

But even under these early conditions, where would we be today without the spirited pioneer woman who could be counted on in an emergency to handle her only means of transportation at that time. Our pioneer mothers lost nothing by their ability to be able to go out into the barnyard, catch "Dobbin," harness him, and drive him. Women did these things under very difficult conditions at times. Who can say, how many men were killed on the Oregon Trail and what would have been left of the surviving families if the women had not been able to handle the teams? Our backward young husband certainly didn't think that that took away from their womanliness.

He also failed to take into consideration that a woman's home life is completely different today. Under present conditions, to have a well run home, a home economically run, a woman CAN'T stay home all the time. She must bring in all her supplies from the outside and, to do this wisely, she must be able to shop and compare, and to buy where it is most advantageous for her to buy.

To educate her children to take their places in this vastly changed world, she must take them to dancing schools, music schools, Sunday schools, their little social functions, etc. In fact, the mothers in some of the happiest families I know spend a large portion of their time as "jitney"

drivers and because they do they keep themselves interested and active in their family's affairs creating a healthful, and wholesome family atmosphere.

All these arguments the young wife and I tried on this particularly stubborn husband but he was adamant and to this day I often wonder if he has relented. His only comeback to us was that his grandmother had stayed at home, his mother had stayed at home, and, by golly, his wife would stay at home, too. Our feminine pioneer ancestresses notwithstanding. This is the traditional objection to women drivers and there are few of us who can be sympathetic with such a backward viewpoint. However, all the objections to women drivers are not quite so groundless. Many of them are valid and I think it would be very profitable to look at a few of them. The things that I am going to discuss might well be faults of both men and women drivers but I have tried to choose those that are more purely feminine and much as I hate to admit it, there are such.

First of all, is a woman's lack of interest and understanding of her vehicle. Give a woman a \$1500 or \$2000 mink coat and she treats it with the utmost care. She is very careful where she leaves it, in fact, many women with beautiful and expensive fur coats will not check them in regular check rooms. They will not permit them out of their sight. They are most careful to send them into cold storage in the summer and to have them thoroughly reconditioned at intervals—and only by the best and most reliable furriers. What does she do with a \$1500 automobile? She gets in and drives it, parks it wherever her fancy dictates, is completely unaware of a preventive maintenance program that would protect her investment in that car. Why bother with oil changes and lubrications as long as the car rolls? As long as there is oil in it, why bother to take it out just to put more in. Better spend the money on a manicure or a wave. She drives her car over salty winter roads without giving it any protection.

She has not the faintest idea of what is on the other end of the controls in a car. She pushes and pulls things because she has been told to do so. Naturally, in an emergency she has no idea of the physical limits or the physical possibilities of her auto-

mobile. A typical example is the feminine use of the choke. Most men get in a car on a cold winter day and pull out the choke, they get their car started and go on their way without any trouble. Most women try to do the same thing and usually flood their motor. They push and pull the same little gadget but get vastly different results. Why? The reason for this is that most men know that that little choke button operates a butterfly valve in the carburetor and when it is pulled out it does just what the name implies, it chokes off the air, allowing a richer gasoline mixture to get into the cylinders. If this air is choked off too long, pure gasoline, instead of vapor is going to get into the cylinders and flood them. Therefore, armed with this knowledge, he knows just how long he dares leave it out before pushing it back to let some air into the chamber to keep the fuel in a vaporized state. But Mamma just pulls it, if a little pull is good, a big one is better. If it is well to leave it out for a little while, a longer while should be better. Ah, me! It's flooded and mamma is in trouble. If a woman has the intelligence to drive a car she should have the intelligence to make it her business to learn something about the car and thus be able to both drive it and care for it properly. Naturally, a man loses respect for a woman driven when through her ignorance she abuses a \$1500 investment. If he treated her expensive coat as carelessly as she treats his automobile I am afraid there would be considerable trouble.

There was a time when it was thought unladylike to peek under the hood of a car, and that a woman was constitutionally incapable of understanding anything mechanical. This is a very foolish notion, because there isn't much in an automobile with which she isn't already familiar under some other name. A carburetor is very little different from the perfume atomizer on her dresser, the ring and pinion gears in the rear axle housing direct the power of the drive shaft in the same manner as her egg beater, the mechanical blue prints from which the car was built are not too different from the patterns or blue prints from which she makes her clothes! It is all in the point of view. Women would demand more respect as drivers if they make it their business to know and understand their vehicles.

I once heard of a woman who objected to reflector highway signs because she claimed they ran her battery down. I heard of another woman whose husband died, leaving her a car. She knew how to drive but had never assumed the slightest responsibility for its care or maintenance. One cool morning she lifted the hood for some reason or another after the car had been running a little while and noted what she said was smoke coming out of the oil breather or ventilator. This didn't look right to her so she stuffed a rag down the breather pipe cutting off all ventilation, the very reason for which the pipe was put in. Some time later, her car began to give her some really serious trouble. The mechanics were about ready to tear it completely apart when by accident they found the rag stuffed down the pipe and thus saved her a big and unnecessary labor bill.

There are lots of little things about women drivers that have been brought to my attention. Not the least of these is hats. Of course, women's hats are blamed for lots of things but it is true that large picture hats that are lovely at a garden party, or little pert jobs that come down over your eyes and look wonderful as long as you have an escort's arm to lead you, have no place on a driver. We scream at the top of our lungs for the manufacturers to give us better vision in our cars and then obstruct what vision they engineer into the cars by our very own hats. Vanitas, vanitas, nomen femina est!

Then there's window shopping, tempting. I agree, but when you stop and analyze how many feet an automobile, going thirty miles an hour, travels in the split second it takes you to note that they are displaying longer skirts or front fullness or what have you, you realize how many things can happen in that small interval of time. A child may run out from behind a parked car. The car ahead may suddenly have to come to a quick stop, a car may have started to pull out from the curb.

Then, there is the personality gal who doesn't take her laws or responsibilities too seriously but relies on her winning ways to talk the cop out of a ticket.

One of the biggest complaints against women is, "They can't make up their minds." "They are all over the road." Of course, I don't believe this is a purely

feminine fault. I have seen men guilty of this one on many occasions but it is true that many women are indecisive and in driving split second decisions must be made and carried out.

Drivers must adjust their movements to those of all drivers around them. Each time, you as a driver, start a move, those around you must adjust their actions to yours. If, in the middle of such a move there is a sudden change of mind, it is difficult and sometimes impossible for the other drivers around to adjust themselves rapidly enough to avoid trouble. It is said, although I doubt it, that these sudden changes of mind are peculiar to the woman driver. But regardless of who does it, it is indeed, thoughtless, inconsiderate and dangerous.

These are all some of the little things that have made men lose respect for women drivers, but let's look at the other side of the picture. And there definitely is another side. You know, as a driver, a woman has to be twice as good as any man before they will admit she does barely well enough to get by. In spite of all their faults the insurance companies have found women to be good risks. There are several reasons for this, one is that women are more careful. By nature they are protective. As they rear children they are constantly on the alert twenty four hours a day to protect their young. They are trained to watch for trouble for themselves and others and to avoid it. They are more cautious while driving, and, many times it is this very caution that may seem like indecision and annoy others who are more daring around them. This type of caution or indecision, as you will, can be annoying to other drivers and may result in crumpled fenders but it rarely results in a serious accident or an injury. Under the same circumstances a man probably will make his decision and dash through, right or wrong, his very speed and directness causing a serious accident whereas hers probably will be minor. To put it more aptly, as Bus Carlton did, in Boston a few weeks ago, "A woman in many cases substitutes brains for brawn." I'd like to add my own paraphrase to that and say, "Women often substitute the brake for brawn."

It is said that the devil can quote scripture to his own ends. Let's not do that.

Let's try to face the actual figures honestly. The Safety Division of the Wisconsin Motor Vehicle Department made a survey in an effort to reach a reasonable conclusion as to the relative ability of men and women drivers throughout the state. I am going to use these figures as I don't believe they will differ too greatly from those in other states or from the national average. Thanks to the interest of the Wisconsin Motor Vehicle Department these figures were readily available and will serve our purpose nicely. They found that the accident records showed that women were involved in fewer and less severe accidents than men. But before we women become too smug over these figures and do as the devil is said to be able to do, there are three factors we must take into consideration to give us a fair picture and these three factors do not show up in the bare statistics unless we dig deeper.

First, there are FEWER women drivers than men. In fact, only 27% of the drivers in Wisconsin are women.

Second, women drivers drive fewer miles than men. In a single year in the state of Wisconsin, women operated vehicles for a total of 760 million miles, while men drove a total of 4 billion, 710 millions of miles.

Third, men drive under more hazardous conditions than women ordinarily do.

Bearing these qualifying factors in mind, let's look at the respective safety records of men and women drivers in the state. Wisconsin's women drivers were involved in 10% of the accidents. On the records this looks pretty good—27% of the drivers and responsible for only 10% of the accidents.

But we still have the second factor to consider. On a mileage basis her odds are cut slightly, but it still shows she is involved in 1.79 accidents to his 2.85. Still looks pretty good for our woman driver in spite of her alleged faults.

Now as to considering the third factor we have no figures to prove our point. It is true women do drive under less dangerous conditions. For example, many women do most of their driving during the quiet afternoon hours. They drive uptown to shop, or to the home of a friend to play bridge. They are not inclined to use their cars under hazardous conditions or after dark.

Records show that the worst hours for accidents are from 4 to 6 in the afternoon. This is when the roads are jammed with tired workers on their way home. A man driving under these conditions faces many more traffic hazards than his wife does on a mid-afternoon drive to a social engagement.

Men usually do the lion's share of the long fast hard driving on trips or Sunday excursions and so we must give them the benefit of the doubt as to exposure but all in all the figures do not bear out their right or anyone's right to have scorn in their voice when they say, "A woman driver."

I have tried to give a fair picture, the faults and the virtues of the woman driver and I believe the conclusion can only be that in comparison to the men she isn't so bad, BUT—that isn't saying very much. In comparison to what both men and women drivers can be there is room for tremendous improvement on both sides.

I believe that one of the reasons women come in for more than their share of kidding, criticism, or what have you, is because as drivers they are comparatively new. When cars were first put on the road they were definitely masculine playthings and it wasn't until self starters made their appearance and tires were improved to the point that they didn't have to be changed so often that it became possible or practical for women to drive. Then as in everything new they take up, they were not taken too seriously. Remember the poor suffragettes who first stumped for the right of women to vote and now a woman voter is accepted without question. Women drivers are fast proving their right to the highway on a par with men.

Getting on a par with men drivers is only the first step in the battle and if that hasn't been won already it is fast on its winning lap; but the final step in the battle is the big one and that is to improve the quality of drivers as a whole. In this battle the women can well step out and take the lead and I sincerely hope they will take up the challenge and carry on. We can safely say women drivers are here to stay and their influence can be great. Not only in the excellent example they can set, but by their influence over their children and husbands. Miss Barnard sent me an excellent booklet published by the Women's Division of the National Safety Council titled,

"Forty Six Million Strong" and I would like to quote from the pamphlet; "... Do you know what American women ... 46,000,000 of them strong, can do if they will, to help put a stop to this needless loss to our citizens? They can exert their influence as homemakers, as business and professional women, as civic and community leaders, as citizens to see that this alarming accident problem is brought to the full attention of the people and that immediate steps are taken to reduce this serious home-front menace. And don't for a single moment underestimate what powerful influence women can have on American life! Their magnificent war effort, their rising tide of voting strength at the polls, the buying power at their disposal which runs into the hundreds of millions of dollars, stand witness to the influence they have on national and community life." And so I definitely urge the women of America to take up the second step of the battle now in front of them and be the leaders in making our highways safer.

There are three hurdles that stand in the way, the same three hurdles that men have in mind when they say "Women drivers." These are the hurdles of Ignorance, Inefficiency and Indifference. Please don't misunderstand me, these are not exclusively feminine hurdles but we can be the leaders in eliminating them. We can keep our best foot forward. Reminds me of the story of the borrowed umbrella. Queen Victoria was riding one day in an open carriage when it began to rain quite hard. She asked the coachman to stop at the first cottage which was a small unpretentious dwelling. The Queen herself went to the door and knocked. There was a momentary silence and then she heard slow, shuffling old footsteps coming to the door. The door was opened by a little old lady who looked her strange visitor up and

down. "May I borrow an umbrella?" the Queen asked. The little old lady studied the queen and decided she looked honest and shuffled away, coming back with a battered old black rain stick. The queen thanked her and said it would be returned the next day. The next day a servant was dispatched from the palace with the umbrella. He knocked on the door and again a pause before the slow, shuffling steps began to come toward the door. The servant handed the old lady the umbrella saying, "The Queen extends her thanks and returns your umbrella with gratitude." The little old lady looked startled. The Queen! If I had only known I would have given her my best umbrella instead of the worst I had.

In this traffic problem women must assume some of the responsibility and give their best efforts all of the time. They must overcome the indifference that comes from thinking, "It can't happen to me or mine." There is no "me" or "mine" in this national tragedy anybody's "mine" is everybody's "ours."

In conclusion I think we must admit that under closest scrutiny the figures show that the woman driver is not so bad. The record certainly shows that there is room for improvement in all drivers. But since we are supposed to be talking about the woman driver, I submit that she can improve herself by admitting and overcoming the faults she is accused of. She can learn to understand and take care of her vehicle. She can learn and obey her traffic laws, she can set an excellent example, she can maintain her native caution but do it in such a way that it will not play upon the impatience of other drivers, goading them into taking unnecessary risks. When she does these things, "Just a woman driver" will change to "She's a woman Driver, she's a safe driver."

Safety Exposition Exhibitors

EXHIBITION HALL—STEVENS HOTEL

Alphabetical List of Exhibitors of Industrial Safety Equipment

Acme Protection Equipment Co., Chicago, Ill.
Gas Masks.
All American Safety Equipment Co., Chicago, Ill.
Power and Kick Press Guards.
American Abrasive Metals Co., Irvington, N. J.
Safety Treads, Abrasive Paints.
American Allsafe Co., Inc., Buffalo, N. Y.
Industrial Safety and Fire Protection Equipment.
American-LaFrance-Fornite Corp., Elmira, N. Y.
Fire Protection Equipment.
American Mat Corp., Toledo, O.
Safety Matting.
American Optical Co., Southbridge, Mass.
Industrial Safety Goggles, Respiratory Devices and Protective Clothing.
Ampco Metal, Inc., Milwaukee, Wis.
Beryllium-Copper Non-Sparking Safety Tools.
Ansul Chemical Co., Marquette, Wis.
Fire Protection Equipment.
Automatic Canteen Co. of America, Chicago, Ill.
Supplementary Automatic Feeding Units.
Bausch & Lomb Optical Co., Rochester, N. Y.
Safety Lenses and Goggles.
Bear Manufacturing Co., Rock Island, Ill.
Motor Vehicle Inspection and Correction Equipment; Static and
Dynamic Balancing Machines.
Bradley Washfountain Co., Milwaukee, Wis.
Group Washfountains and Multi-Stall Showers.
John H. Breck, Inc., Springfield, Mass.
Protective Creams and Hand Cleaners.
Brusan Products Co., Milwaukee, Wis.
First Aid Cabinets and Industrial Medical Supplies.
R. H. Buhre Co., Chicago, Ill.
Safety Equipment and Products for Construction and Maintenance Work.
Cardox Corporation, Chicago, Ill.
Fire Extinguishing Systems, Fire Trucks and Mobile Extinguishing Equipment.
Chicago Eyeshield Co., Chicago, Ill.
Head and Eye Protection Equipment.
Columbus-McKinnon Chain Corp., Tonawanda, N. Y.
Chains and Chain Hoists.
C-O-Two Fire Equipment Co., Newark, N. J.
Carbon Dioxide Fire Extinguishers, Hose Units, Manual Automatic Systems,
Smoke Detecting Systems.
M. E. Cunningham Co., Pittsburgh, Pa.
Safety Marking Tools.

Davis Emergency Equipment Co., Inc., Newark, N. J.
Respiratory Protection, Combustible Gas Indicators, General Safety and First Aid Equipment.

Dilley Manufacturing Co., Cleveland, O.
Magnetic Grip-Shields and Transparent Machine Guarding.

Diversey Corporation, Chicago, Ill.
Oil and Grease Absorbents, Cleaning Compounds, Hand Cleaners.

Dockson Corporation, Detroit, Mich.
Industrial Head and Eye Protection.

C. B. Dolge Co., Westport, Conn.
Fungicides, Protective Creams, Skin Cleaner, Cutting Oil Germicides.

Dunn Products, Chicago, Ill.
Industrial Protective Clothing Made from Rubber, Asbestos Cloth and Leather.

Duo-Safety Ladder Corp., Oshkosh, Wis.
Safety and Fire Ladders, Ladder Shoes.

E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.
Protective Creams, Neoprene Products, Fire Retardants, Safety Color Code.

E. & J. Manufacturing Co., Philadelphia, Pa.
Resuscitator Inhalator and Aspirator.

Elliott Service Co., New York, N. Y.
Safety and Work Improvement Displays, Supervisory Training, Suggestion Systems.

J. H. Emerson Co., Cambridge, Mass.
Respiration and Resuscitation Equipment.

Employers Mutual Liability Insurance Co., Wausau, Wis.
Workmen's Compensation, Public Liability, Automobile, Group Accident, Health and Other Casualty Insurance.

Finnell System, Inc., Elkhart, Ind.
Floor Care Machines and Floor Treatments.

General Detroit Corp., Detroit, Mich.
Fire Protection Equipment.

Gro-Cord Rubber Co., Lima, O.
Non-Slip Soles and Heels.

Hild Floor Machine Co., Chicago, Ill.
Floor Cleaning and Maintenance Equipment.

H-M Folding Stretcher Co., Medford, Ore.
First Aid Stretchers.

Holcomb Safety Garment Co., Chicago, Ill.
Protective Clothing Made of Asbestos, Leather and Fire-Proofed Duck.

Huntington Laboratories, Inc., Huntington, Ind.
Floor Maintenance Materials and Industrial Germicides.

Hynson, Westcott & Dunning, Inc., Baltimore, Md.
Mercurochrome, Thantix, Pharmaceutical Specialties and Sterile Ampule Products.

Industrial Gloves Co., Danville, Ill.
Protective Clothing, Gloves, Mittens, Handguards, Leggings, Flame-Proofed Suits.

Insto-Gas Corp., Detroit, Mich.
Torches and Furnaces.

International Shoe Co., St. Louis, Mo.
Safety Shoes.

Iron Age Div., H. Childs & Co., Inc., Pittsburgh, Pa.
Safety Shoes.

Jackson Products, Detroit, Mich.
Insulated Electrode Holders, Cable Connectors, Face Shields and Goggles.

Junkin Safety Appliance Co., Inc., Louisville, Ky.
Interlocking Barrier Gate and Swinging Die Closure Guards.

Justrite Manufacturing Co., Chicago, Ill.
Safety Cans, Safety Flashlights, Electric Lanterns.

Karel First Aid Supply Co., Chicago, Ill.
Industrial First-Aid Supplies and Equipment.

Keystone View Co., Mendville, Pa.
Industrial Visual Testing Equipment.

Walter Kidde & Co., Inc., Belleville, N. J.
Fire Extinguishing Equipment.

Kimball Safety Products Co., Cleveland, O.
Protective Clothing, Gloves and Goggles.

Walter G. Legge Co., Inc., New York, N. Y.
Non-Slip Floor Polishes and Treatments, Non-Sparking Floor Treatment.

Lehigh Safety Shoe Co., Inc., Allentown, Pa.
Safety Shoes and Rubber Boots.

Lion Chemical Co., Chicago, Ill.
Health Protective, Sanitation and Maintenance Supplies.

Lightfoot Schults Co., New York, N. Y.
Powdered Hand Soaps, Skin Cleaners and Conditioners.

Loon Manufacturing Co., Inc., Indianapolis, Ind.
Blow Guns, Spraying and Cleaning Guns, Water Savers.

Macwhyte Company, Kenosha, Wis.
Wire Rope and Wire Rope Slings.

Marsh & McLennan, Inc., Chicago, Ill.
Insurance Brokers and Agents.

Martindale Electric Co., Cleveland, O.
Dust Respirators, Voltage Testers and Insulation Meters.

Thom McAn Safety Shoe Co., New York, N. Y.
Safety Shoes.

B. P. McDonald Co., Los Angeles, Calif.
Industrial Safety Equipment.

Medical Supply Co., Chicago, Ill.
First Aid Kits and Supplies.

Mallflex Products Co., Akron, O.
Flooring Materials, Treads and Standing Mats.

Metropolitan Life Insurance Co., New York, N. Y.
Life, Health, Accident, Annuities and Group Insurance.

Milburn Company, Detroit, Mich.
Protective Creams and Plastic Safety Clothing.

Mine Safety Appliances Co., Pittsburgh, Pa.
Safety Equipment for Personal and Plant Protection.

Minnesota Mining & Mfg. Co., St. Paul, Minn.
Reflective Sign Material and Non-Skid Floor Surfacing.

National Assoc. of Insecticide and Disinfectant Mfrs., Inc., New York, N. Y.
Household and Industrial Insecticides, Disinfectants and Allied Products.

National Industrial Launderers and Cleaners Assoc., Youngstown, O.
Coverall and Wiping Cloth Laundry Service for Industrial Plants.

National Safety Council, Inc., Chicago, Ill.
Accident Prevention Service.

fore luncheon clubs, dinner clubs, service clubs, church and fraternal societies and so on, delivering talks on police work and accident prevention. In such instances—build up your Records Bureau as the foundation for your accident prevention work. Explain how your enforcement program, assignment of patrols, etc. are based upon traffic flow and accident experience—explain how your accident spot map and your enforcement spot map are utilized in the enforcement program—how collision diagrams and the location file are utilized in traffic engineering—it will be impressive—you will demonstrate the selective and scientific manner in which the police department attacks the accident problem. You will make friends for the department—and when the people to whom you have been speaking read your press notices or hear your radio spots or programs, they will know that it is all based upon fact—that it is scientific and selective.

Another smart stunt is to invite the group to hold its next meeting as a tour of inspection of police headquarters. When they accept, you take charge of the tour, if you can, and bring them through the accident records bureau first. That is important because many of them may have to leave before the tour is completed—and your prime purpose for having them there is to give them a short course in accident prevention and traffic control—then bring them to the radio room, detective bureau, and the other glamour spots, as it were, in headquarters.

Incidentally, don't sell the school students short in this whole matter of Education through your accident records bureau—particularly your senior high school students. Bear in mind, this group will be voters in a few years, they'll be applicants for the police force in a few years—get 'em young, educate them thoroughly during their youth and they'll be in your corner when they reach maturity.

Many police administrators don't like tours of inspection—I can't understand why because, in my opinion, it is one of the best vehicles of public relations the police have—if you are presented with that problem—bring the mountain to Mohammed. Build a sample accident spot map—an enforcement spot map—an enlarged location file—a drivers' record file—including colli-

sion diagrams—and so on—bring all of these props when you make your speech and explain their workings as you go along bringing in how you build public educational programs as well as engineering, enforcement, etc.

You can get a local photostat outfit to blow them up for you if your own machine is not large enough—or a draftsman in the engineering department will do it in his odd moments.

In view of my present position and past experience I naturally feel that this subject is the most important insofar as police functions as related to accident prevention are concerned—of course the administrator—the engineers and others closely allied with us in this work have their ideas—but, every man to his own fancy said the old maid as she kissed the cow.

I don't have time to go into the many ingenious and promotional ideas which have developed from the use of accident records in guiding Public Education—there are many, many excellent ones. They are all publicized in detail in Public Safety and in the International Association of Chiefs of Police Bulletin—if you don't find what you want there—write to the National Safety Council or to the IACP Safety Division at Northwestern University—explain your problem—they will tell you how it has been attacked in various sections of the country—you can apply the one best suited to your locality.

Now, of course, you are not going to reach all of the people in your community this way—but you will reach an important cross section of them—you will reach the important influential citizens who will be in your corner whenever anything controversial develops because they will know you are basing your program upon fact and record—they have seen how your accident records bureau works and of course, remember as you cultivate and gain the confidence of the press and radio you will be reaching most of the people.

So, in summation, if you have a standard accident reporting system or its counterpart, use it in guiding Public Education—if you don't have one, get one started as soon as you get back.

Invite the newspapermen, the radio people, display managers, government offi-

cials, advertising agencies, clubs and influential citizens to inspect your accident records bureau—explain how it is utilized in

your general program, and a good public educational program will follow simply by "doing what comes naturally."

Driver Licensing Use of Records

By MAJOR A. F. TEMPLE

The burden of checking the upward trend in traffic accidents lies squarely upon the shoulders of those of us charged with the administration and enforcement of the traffic laws. It is imperative that we assume this responsibility, and without a moment's loss of time, concentrate our efforts on streamlining outmoded procedures and make full use of all available means that have proven effective in traffic control and accident prevention.

Our position in the traffic picture is much the same as that of a doctor faced with an epidemic of contagious disease, and we will do well to follow his procedure in the treatment.

First, we must determine the cause of traffic accidents from our records, and, at the same time that treatment is being applied to the individual patient, maximum efforts must be directed toward eliminating the germs that cause the disease, by inoculating those who will be exposed and isolating those who are afflicted.

Our most effective and direct approach to the inoculation and isolation of the driver lies in the rigid enforcement and administration of a good Driver License Law.

The lifeline of traffic safety lies in the control of the driver as an individual. Records are kept and used by any driver licensing program for only one fundamental purpose—to aid in this control.

The effectiveness of this aid is dependent first upon the validity and availability of the records themselves. I do not hesitate here to advocate the principle that the least governed are the best governed, provided, in so doing, I may insist upon its proper application. Taken literally, the principle is, of course, wholly false, with an immediate reversion to anarchy. Taken logically, in its true concept, it simply eliminates the "red tape" of governmental functions. Too often in the past we have become lost in a maze of correspondence,

files and cross-files, overlapping and irrelevant data in seeking to gain vital information. We must dispense with this dead weight and lost motion, if we are to keep pace with the automotive age.

The preservation of human life demands that we keep pace. It cannot, however, be attained in a day, in a week or in a year. We have gained momentum, but we must continue to apply with equal diligence that same interchange of ideas which brought about the modern motor car, if we are to achieve comparable results in its control.

This control, which we are seeking to place on the driver is, in its simplest analogy, nothing more than a case history. No doctor would attempt to treat a patient without making full use of such a record. If it is the patient's first contact with the physician and he has no record, pertinent facts are obtained and the case history is begun. The applicant for an original driver's license is in much the same position. He submits pertinent information and a case history is begun which may form the basis for prescribing the treatment of future safety ailments.

Added to this original record, the reporting of accidents and moving violations often supplies much useful information. And, let me add here, the reporting of seemingly minor accidents and violations is not to be considered as so much dead weight in our files. This accumulation may indeed enable us to spot the accident prone driver and apply preventive measures before he becomes involved in serious consequences.

If we wait for the serious violation or the serious accident before establishing a record upon which to apply our action, we are gambling with life and death.

It has been reliably estimated that common safety practices are violated an average of 300 times before the violator suffers any ill effects as a consequence

Surely these 300 violations offer us ample time and opportunity to take appropriate action to prevent this first ill-effect. Prevention is the very essence of safety.

If we are to succeed in our purpose of using the records for preventive safety, we must work to effect uniform and consistent accident and violation reporting.

In addition to those uses of the records, the cumulative knowledge of cause and effect thus gained provides an invaluable source of information upon which to formulate selective examining programs offering the utmost in educational value. The ideal goal remains the examining of every driver periodically.

A further vital use of the records springs from the inventory of accomplishment which they provide, not alone for our guidance, but for the guidance of the public in support of our program. The groundwork has already been laid. We have widespread public acceptance of safety as a movement. We must now proceed with facts and figures to guide this acceptance into specific phases of our program. We need concrete action to enlarge each phase which we

know to be necessary in order to bring about the marked results which will, of themselves, insure the continuation of public support.

Our aim in this must not be merely the presentation of sufficient evidence to gain a passive acceptance from the citizenry. The time is now right, the psychological moment is here for aggressive action toward transforming this passive acceptance on the part of the average citizen, and his duly elected representative in government, into a more active considered and intelligent support for the cause of driver licensing.

In this, as in all other branches of safety work, we cannot separate the use of the records into a driver licensing function primarily. Their use is rather a safety function. As such the records sections serve as the G-2 or Intelligence Corps of our operations. It is this section which provides the information for the movement of our safety troops in accord with coordinated plans. The better the intelligence the less loss of life, and the quicker our objective attained.

WEDNESDAY AFTERNOON SESSION

October 9, 1946

Group Session for Traffic Court Judges and Prosecutors

Presiding: LYMAN M. TONDEL, JR., Nat. Chm., Junior Bar Conf., American Bar Assn.

Improving Traffic Courts

(Summary of Panel Discussion)

Leader: JUDGE HAROLD H. NEFF, Municipal Court, Charleston, W. Va.

Emile O. Bloche, Prosecuting Attorney, Oak Park, Ill.

Persons on trial in traffic court are as a general rule law-abiding citizens and the impression they get will be their general impression of courts, judges, prosecutors, attaches and attorneys in general. It is important, therefore, that they not only get a fair trial; and realize they are getting one, but also that they take away with them a good impression of the court.

From the legal point of view the defendant has some important rights—even in traffic cases—and he should be made aware

of their existence. These include: (1) to know the charge that he is to be tried upon and in as much detail as is required by statute or ordinance; (2) to have an opportunity to make his plea without intimidation; (3) in most jurisdictions, to a jury trial; (4) to be represented by counsel; (5) to hear the testimony of the witnesses in person; (6) to cross examine the witnesses even though not represented by counsel; (7) to be heard in his own defense and to present such evidence and testimony as he or his counsel may deem necessary and proper to his side of the case.

To be treated equally is also one of the inalienable rights of the defendant in traffic cases. "Fixing," of course, abolishes this right. All defendants should be required to appear in person and it is only logical to expect that all those charged with the same offense and who are guilty of that offense should have to face approximately the same consequences.

Judge Harry E. Chambers, Oklahoma State Advisor, American Bar Association Committee on Improving Traffic Courts, Tulsa, Okla.

The Traffic Court differs from the criminal bench in such things as the purpose of the laws, the volume of cases, the type of evidence, the character of the defendants, and the fact that traffic cases do not lend themselves to legal precedent. Traffic cases should be tried separately from the criminal docket because the defendants in traffic courts are usually above the average criminal court defendants and because the aim of a traffic court is to impress and educate the defendants with the importance of and need for traffic law observance. Traffic courts should be beautified and modernized to be the equal of any court in the land, and the court should be conducted in a manner to inspire respect and deference for the law.

Judge Eldon R. Sloan, Police Court, Topeka, Kansas.

The tendency of the public to measure the effectiveness of its prosecuting officials by the records of convictions has resulted all too frequently in making "deals" wherein a person charged with one offense is permitted to plead guilty to a lesser offense and thus the prosecutor avoids the risk of an acquittal to mar his record. This is harmful in two ways: first, it often allows a guilty person to escape the full consequences; second, innocent persons are often frightened into a plea of guilty to a minor offense in order to avoid a possible conviction for a more serious offense.

Without doubt the offense most often subject to abuse in the matter of reduction is that of driving while under the influence of intoxicating liquor. Where the law provides for an automatic driver's license forfeiture, it often results in an unequal

penalty to different offenders. If the accused is dependent on the use of an automobile for his livelihood, taking his license results in a far greater penalty than to a person who uses his car merely for pleasure. Therefore, there is a strong tendency to reduce the charge for this first type of accused person.

The remedy to this situation is to give the power to revoke or suspend drivers licenses to the courts. Severe penalties are not deterrents to traffic violators; it is the certainty of punishment for every violation that creates respect and cooperation. Therefore, if judges were given authority to use their own discretion in revoking or suspending drivers licenses, it would be possible to make penalties fall more equally and to abolish much of the pressure to reduce charges.

Jack Devos, City Prosecutor, Lincoln, Nebr.

The use of the word "prosecutor" should be discouraged. It is quickly and commonly twisted to "persecutor." Every good prosecutor appreciates that his job calls for protecting the rights of the accused as well as presenting the state's case.

It should be the prosecutor's job to make out the complaints and to otherwise relieve the court of other details permitting him to concentrate on the big job of judging cases.

Discussion

Embarrassment is caused by requests by attorneys for six month postponements in order to prevent trial of the criminal action prior to the civil suit. This is obviated in most cities by local rules barring postponements for more than ten days or periods up to thirty days.

The offender and the public still don't consider the traffic violation, no matter how serious, in the same light as other criminal offenses. Thus everyone is ashamed of shoplifting and tries to hush-up the affair. In drunk driving, everyone raises sand with the court for convicting the violator. The answer is to educate the public that the traffic offender is just as much a criminal as a thief. There should be intensive efforts to arouse public opinion in favor of better traffic law enforcement.