

PLAINTIFF'S EXHIBIT

MBL-37

PROCEEDINGS
SEVENTH ANNUAL MEDICAL MEETING
SOCCNY-VACUUM OIL COMPANY, INC., AND AFFILIATED COMPANIES
NEW YORK CITY
January 22nd and 23rd, 1953

06996

448763

CONTENTS

	<u>Page</u>
Program	1 - 2
List of Delegates and Guests	3
The Meaning of Medicine to Management C. F. Beatty	4 - 7
Introduction of Guests and New Colleagues and Brief Summary of Activities G. M. Saunders, M.D.	8 - 10
The Use and Abuse of Antibiotics D. K. Miller, M.D.	11 - 14
Syphilis: Present-Day Concepts of Therapy and Significance of Serologic Tests Virgil Scott, M.D.	15 - 23
Informal Discussion Period (Abstract)	24
Discussion Period: How Much Treatment Should We Give? H. M. Roberts, M.D., Moderator	25 - 27
Panel Discussion: Overweight in Relation to Illness E. P. Luongo, M.D., W. M. Lonergan, M.D., J. E. McWhorter, M.D.	28 - 35
Some Findings on Physical Examinations at 26 Broadway R. J. Potts, M.D.	36 - 37
The Truck Driver and Heart Disease: A Problem M. N. Howard, M.D.	38 - 39
Provisions and Discussion of the New Hospital-Surgical Benefit Plans R. E. Kirkpatrick	40 - 44
The Preplacement Examination: Purpose, Procedure, Laboratory Work, and Explaining Results to Subjects (Abstract) C. H. Schulte, M.D.	45 - 46
The Periodic Re-Examination: Purpose and Procedure; Value of Medical Records and Reports C. L. Samuelson, M.D.	47 - 53
Some Legal Aspects of Industrial Medical Practice H. D. Sayer	54 - 56

	<u>Page</u>
The Functions of an Industrial Hygienist A. C. Pabst	57 - 61
Abstract of Discussion	62
Report on Medical Activities of Socony-Vacuum in Italy Mario Russo, M.D.	63 - 64
Report on Medical Activities of Socony-Vacuum in Greece E. Papantoniou, M.D.	65 - 66
Progress Report on Cancer Studies at The Kettering Laboratory and at New York University (Abstract) Marshall Clinton, M.D.	67
Early Cancer Detection (Abstract) Emerson Day, M.D.	68 - 69
Abstract of Discussion	70
Proceedings of Nurses' Afternoon Sessions	71 - 73

Program

SEVENTH ANNUAL MEDICAL MEETING
SOCONY-VACUUM OIL COMPANY, INC., AND AFFILIATED COMPANIES
JANUARY 22ND AND 23RD, 1953

Training Center, 63 Park Row
New York City

Thursday, January 22nd

MORNING

- 9:00 Registration
- 9:30 The Meaning of Medicine to Management — C. F. Beatty, Director,
Socony-Vacuum Oil Company, Inc.
- 9:50 Introduction of Guests and New Colleagues and Brief Summary of
Activities — G. M. Saunders, M.D., Medical Director,
Socony-Vacuum Oil Company, Inc.
- 10:10 The Use and Abuse of Antibiotics — David K. Miller, M.D., Head
of Department of Medicine, University of Buffalo, Buffalo,
New York
- 10:50 Recess
- 11:00 Syphilis: Present-Day Concepts of Therapy & Significance of
Serologic Tests — Virgil Scott, M.D., Associate Professor
of Medicine, Washington University, St. Louis, Missouri
- 11:45 Discussion Period: How Much Treatment Should We Give? —
Moderator: H. M. Roberts, M.D., Medical Advisor, Socony-
Vacuum Oil Company, Inc., Kansas City, Missouri

12:30 — 2:00 LUNCHEON

AFTERNOON

- 2:00 Panel Discussion: Overweight in Relation to Illness —
Moderator: E. P. Luongo, M.D., Medical Director, General
Petroleum Corporation, Los Angeles, California
- 3:00 Some Findings on Physical Examinations at 26 Broadway —
R. J. Potts, M.D., Clinician, Socony-Vacuum Oil Company, Inc.
- 3:30 The Truck Driver and Heart Disease: A Problem — M. N. Howard, M.D.,
Medical Advisor, Socony-Vacuum Oil Company, Inc., Brooklyn
and New York City
- 4:00 Provisions and Discussion of the New Hospital-Surgical Benefit
to Plans — R. E. Kirkpatrick, Assistant Industrial Relations
4:30 Manager, Socony-Vacuum Oil Company, Inc.

Friday, January 23rd

MORNING

- 9:00 The Preplacement Examination: Purpose, Procedure, Laboratory Work, and Explaining Results to Subjects — C. H. Schulte, M.D., Medical Advisor, Socony-Vacuum Oil Company, Inc., Detroit
- 9:30 The Periodic Re-Examination: Purpose and Procedure; Value of Medical Records and Reports — C. L. Samuelson, M.D., Medical Director, Socony-Vacuum Oil Company, Inc., Paulsboro, N.J.
- 10:00 Some Legal Aspects of Industrial Medical Practice — H. D. Sayer, General Manager, Compensation Insurance Rating Board, N.Y.C.
- 11:30 The Functions of an Industrial Hygienist — A. C. Pabst, Industrial Hygienist, Socony-Vacuum Oil Company, Inc.
- 12:00 Discussion Period: General

12:30 — 2:00 LUNCHEON

AFTERNOON

- 2:00 Report on Medical Activities of Socony-Vacuum in Italy — Mario Russo, M.D., Medical Director, Socony-Vacuum Italiana
- 2:15 Report on Medical Activities of Socony-Vacuum in Greece — E. Papantoniou, Medical Director, Socony-Vacuum Oil Company, Inc., Athens, Greece
- 2:30 Progress Report on Cancer Studies at The Kettering Laboratory and at New York University — Marshall Clinton, M.D., Medical Advisor, Socony-Vacuum Oil Company, Inc., Buffalo, N. Y.
- 2:45 Early Cancer Detection — Emerson Day, M.D., Director, Strang Cancer Prevention Clinic, Memorial Center, New York City
- 3:15 Discussion Period: General
- 3:30 En route to Rehabilitation Center, 400 East 34th Street
- 4:00 Clinic on Rehabilitation — Howard Rusk, M.D., and Staff,
to Institute of Physical Medicine & Rehabilitation, New York
5:30 University — Bellevue Medical Center

The nurses will have separate activities both afternoons, but will be present at the Rehabilitation Clinic

LIST OF DELEGATES AND GUESTS

DELEGATES

Augusta, Kans.

Dr. F. O. Epp
Mrs. E. Tinker, R.N.

Brooklyn, N.Y.

Dr. M. N. Howard
Mrs. D. Krieger, R.N.
Miss H. Dalgleish, R.N.

Buffalo, N.Y.

Dr. H. Clinton
Mrs. A. Lanier, R.N.

Casper, Wyoming

Dr. A. Mc Lellan
Mrs. J. Coppedahl, R.N.

E. Chicago, Ind.

Dr. D. R. Johns

E. St. Louis, Ill.

Dr. T. C. St. John
Mrs. P. R. Keirle, R.N.

Olean, N.Y.

Dr. N. P. Johnson
Miss M. B. Averill, R.N.

Paulsboro, N.J.

Dr. C. L. Samuelson
Mrs. R. Pantis, R.N.
Mrs. I. Williamson, R.N.
Miss Lillian Enich, R.N.

Trenton, Mich.

Dr. M. R. Schmidt
Mrs. H. Hertel, R.N.

Boston, Mass.

Dr. E. E. Hinton
Miss M. Dickeson, R.N.

Detroit, Mich.

Dr. C. H. Schulte
Miss E. Brooks, R.N.

Kansas City, Mo.

Dr. H. M. Roberts
Miss E. Ploger, R.N.

Milwaukee, Wisc.

Dr. J. J. Gaunt
Mrs. E. Zar, R.N.

St. Louis, Mo.

Dr. W. M. Lonergan
Mrs. M. Cavanness, R.N.

Los Angeles, Calif.

Dr. E. P. Luongo
Mrs. H. Milligan, R.N.

Beaumont, Texas

Dr. F. G. Williams

Fort Lee, N.J.

Dr. J. E. McWhorter

Naples, Italy

Dr. Mario Russo

Athens, Greece

Dr. E. Papantoniou

Caracas, Venezuela

Dr. D. Arcila
Dr. M. Urbano

New York City - 26 Broadway

Dr. G. M. Saunders
Dr. G. S. Currier
Dr. R. J. Potts
Dr. H. L. Rutzler
Dr. H. M. Selby
Mr. A. C. Pabst
Miss A. Harris, R.N.
Miss O. Ericson, R.N.
Miss M. Mc Hugh, R.N.
Mr. E. R. Alden
Mr. C. F. Beatty
Mr. P. E. Birmingham
Mr. J. H. Herbert
Mr. R. E. Kirkpatrick
Mr. J. W. Knox
Mr. R. S. Lane
Mr. W. J. Maxwell
Mr. W. H. Montgomery
Mr. J. L. Risinger
Mr. W. E. Thomas

GUESTS

Buffalo, N.Y.

Dr. D. K. Miller

New York City

Dr. Emerson Day
Dr. A. E. Hoag
Mr. H. D. Sayer

St. Louis, Mo.

Dr. Virgil Scott

THE MEANING OF MEDICINE TO MANAGEMENT
C. F. Beatty, Director
Socony-Vacuum Oil Company, Inc.

It is my pleasure to welcome you this morning on behalf of the Board of Directors. As most of you know, these meetings were instituted six years ago under the direction of Dr. Arthur Hoag, Doctor Saunders' predecessor. Doctor Hoag believed there should be a regular forum, attended by as many as possible of our medical people, to exchange experiences and ideas. He further believed that the rapid progress being made in industrial medicine warranted holding these meetings on an annual basis. The initiation of these sessions was one of many splendid services rendered by Doctor Hoag to Socony-Vacuum and to industrial medicine.

When Doctor Hoag retired, Doctor Saunders told us that the continuance of the annual Medical Meeting would be an important part of his program. I believe all of us will agree that Doctor Saunders has built well upon the foundation laid by Doctor Hoag.

As I looked over the agenda for this meeting, I was impressed by the amount and variety of activity you are packing into two days — guest speakers, papers by delegates, outside trips and discussion periods. If the sessions turn out to be even half as good as they look, you should find these two days most interesting and useful.

I am particularly interested in the discussion scheduled for this morning on: "How Much Treatment Should We Give?" I regret that I shall not be able to attend it because of another meeting.

There are two basic reasons why this is an important question. The first is that Socony-Vacuum ought to have a company-wide policy on the extent of treatment. It probably is not practical to try to describe what we will and will not do in great detail, but it does seem that we should be able to go further than we have toward uniformity on the extent of treatment at our various plants and offices. There should be a happy medium between a policy so general that it is not even a guide, and one so rigid that it might say we would treat an infected little toe, but not an infected big toe.

The second reason why this is an important question is that neither the Company nor its medical people, I am sure, want America to enter socialized medicine through the backdoor of industrial medicine.

As doctors of high character, and believe me we want doctors who combine high character with professional skill, your inclination is to help people all you can, but it is well to remember that there isn't much difference between the practice of medicine by a company and by a government, insofar as the principles involved are concerned. When extensive treatment is given one individual in a plant, others in that

plant come to expect the same. When one plant offers a service, other plants and other companies are under pressure to follow suit. And if we ever reached the point where every company with a medical department provided extensive medical care to all employees, a substantial portion of our nation's population would be receiving medical care under a system which strongly discourages the free choice of doctors and the traditional doctor-patient relationship.

We are not, of course, anywhere near that point, but let's keep in mind that it is much more difficult to rescind a service than not to offer it in the first place.

I hope that out of your discussion this morning on the extent of treatment will come constructive suggestions as to what Socony-Vacuum should do in formulating and defining policy on this important subject. We want your recommendations.

Doctor Saunders asked me to include in my welcoming remarks some comment on the meaning of medicine to management.

There could be, I suppose, two extreme views of medicine in its relation to industry. At one end would be the silk-hatted, fat industrialist of the left wing press cartoons. To him human beings would be nothing more than expendable cogs in a productive machine. He would do nothing about the health of his employees or his community, except what might be forced on him by government.

At the other end would be the "do-gooder". He would spend all his substance trying to raise the health standards of his employees and his community. After his resources were spent, he would wring his hands in despair. He would have no business and his employees would have no jobs.

Fortunately, there are few, if any, businessmen of either extreme in our country today. In fact, neither could survive long in a modern industrial society.

Most American businessmen today have at least a normal amount of compassion. They want to help their fellowmen in every feasible way, and I think they do a great deal, both in their businesses and as individual citizens. But in relation to their businesses, their primary responsibility is to the owners, the stockholders.

In our industrial society where private, competitive enterprise still has a chance to succeed, it is necessary to have an efficient operation which can produce a profit, a dollars-and-cents profit. If a business is not run efficiently, if at least some profit is not made, then that business will soon fail and all the advantages which might have grown out of an expanding enterprise will have been lost. A successful business enterprise benefits not only the owners who make a profit and the employees who earn good wages, but also an ever-expanding number in the general public.

To cite an example which may have special meaning for you doctors

and nurses, let's think of this in relation to companies which manufacture pharmaceuticals. A pharmaceutical house, which consistently doesn't make a profit, fails as a business enterprise, closes its doors and makes no further contribution to the well-being of its employees, community or the public in general.

A successful pharmaceutical house, at the same time that it returns a profit to its owners, provides employment for its workers and is able to improve old products, develop new ones and achieve more efficient production. This means more and better medicine, usually at lower cost, for the public.

Even the most altruistic among us would not want a pharmaceutical house in the hands of the extreme "do-gooder" that I mentioned earlier, because it is quite obvious that there would be a great loss to everyone if he so dissipated his resources that his company failed and his plant closed.

While it is true that management must be primarily concerned with the profit motive, it is equally true that management today takes a broad and long-range view of profits. It does not say it would refuse to spend \$5.00 in medical services on John Jones, unless it were certain to get back \$6.00 worth of increased production from Mr. Jones during that current week. It does say that any activity of the company must so contribute to the company's success that the expenditure can be justified to the owners.

Management today is aware of the importance of employee health in any productive effort. There is a growing realization of the importance of the human element which directs the machines we use in our various enterprises. A healthy working force can be an efficient and productive working force. A sickly group of workers cannot be efficient. Many studies made in this country have shown the value to industries of the medical services in terms of decreased absenteeism from non-occupational sickness and in terms of improved morale and efficiency. A study by the Office of Defense Mobilization revealed that the annual loss from sickness absenteeism equals 2,000,000 workers away from jobs for one year.

Management realizes, therefore, that it is in a company's self-interest to spend money where necessary to help improve the health of its employees. To use a cliché, carefully-planned medical services are just good business. The fact that management is primarily motivated by the profit aspects of medical services does not mean that people in management lack humanitarian understanding or that they have no sense of social responsibility. It is only because they have these qualities in some degree that they are able to grasp the whole broad picture of what contributes to the success of a business. To put the same thought another way, humanitarian understanding and a sense of social responsibility help managers see beyond the ends of their noses and to envision the effect on future financial results of efforts to improve the health of employees.

A subject related to industrial medicine which is becoming increasingly important is the employment of handicapped people. It seems

to me that we have not considered this as much as we should, especially in these days of man power shortages. Industrial management generally seems to be changing its attitude toward hiring handicapped workers, and this attitude should become even more favorable as proof of performance becomes better known. A two-year study by the United States Department of Labor and the Veterans Administration found that the absentee rate for the handicapped is about the same as for others, while the accident rate is smaller. Production records are slightly better than average.

Fortunately medical science has made rapid strides in occupational rehabilitation. You will have an opportunity of observing on Friday afternoon Doctor Rusk's Rehabilitation Clinic at the New York University-Bellevue Medical Center, probably one of the finest activities in the country looking to the restoration of seriously handicapped people to the ranks of active, useful citizens. We talk about the high standards set for our pre-placement examinations, but did you ever think that practically every one is handicapped to some extent? Perhaps we should give more thought to capabilities rather than disabilities. Certainly the closest cooperation between pre-placement medical examiners and local personnel people who know job contents and requirements is called for. I suggest that all of us give a little more time to consideration of this whole subject during the coming year.

Over-all, I believe it should be the objective of medicine in industry to select individuals who are physically and mentally equipped for the proposed jobs and to use all practicable means to promote the highest possible level of physical and mental well-being in employees. I believe that the emphasis should be on preventive medicine and not curative medicine and that health education should be an integral part of our basic objectives. A medical department which achieves these objectives will make a substantial contribution to the success of a company. It will help that company make profits.

In working toward its objectives, a medical department functions like any other good staff department. It helps line departments to help themselves. It doesn't tell the line departments what they must do, but what they should do. If the line department ignores that advice and fails, the line department has only itself to blame. If the line department takes the advice and it doesn't work, then management wonders about the competence of the staff department. If the line department takes the advice and it works, then both staff and line have done their jobs well.

We are glad you came. We hope you find the sessions interesting and instructive and that your trip from beginning to end will have been enjoyable.

448772

INTRODUCTION OF GUESTS AND NEW COLLEAGUES AND
BRIEF SUMMARY OF ACTIVITIES
George M. Saunders, M. D., Medical Director
Socony-Vacuum Oil Company, Inc.

Introduction of guests:

Dr. David K. Miller

From 1931 to 1937, he was engaged in medical research at the Rockefeller Institute. In 1937 he joined the faculty of the University of Buffalo School of Medicine. He presently is Professor of Medicine at the University of Buffalo and Chief of Medicine at the Meyer Memorial Hospital. His research studies have been concerned with antibiotics, including a strain of penicillin.

Dr. Virgil Scott

Dr. Scott is an Associate Professor of Medicine and Preventive Medicine & Public Health at Washington University in St. Louis. He worked at Rochester University in Rochester, New York, and at John Hopkins Hospital in Baltimore. Dr. Scott has also visited our field operations in Colombia and Venezuela.

Dr. Delphin Arcila

Dr. Arcila is the Medical Director of Socony-Vacuum Oil Company of Venezuela.

Dr. A. E. Hoag

Dr. Hoag was the former Medical Director of Socony-Vacuum Oil Company, Inc.

New members of Medical Department staffs:

Dr. Mario Russo

Dr. Russo is the Medical Director of Socony-Vacuum Italiana

Dr. E. Papantoniou

Dr. Papantoniou is the Medical Director of Socony-Vacuum in Greece and is from the central office in Athens.

Dr. Robert J. Potts

Dr. Potts is well trained in the field of internal medicine. He was the chief Medical Resident at Meyer Memorial Hospital in Buffalo, was in the Army Medical Corps, and has done work in leprosy. Dr. Potts is an addition to our 26 Broadway staff.

New members of Medical Department staffs (cont'd):

<u>Dr. C. L. Samuelson:</u>	Dr. Samuelson is now the Medical Director of the Paulsboro Refinery and Research & Development Laboratories Medical Departments.
<u>Dr. E. E. Hinton</u>	Dr. Hinton replaced Dr. Quinby as the Medical Director of the New England Div. in Boston.
<u>Dr. J. E. McWhorter</u>	Dr. McWhorter is the Medical Director for the new medical department of Socony-Vacuum Overseas Supply Company at Fort Lee, New Jersey.
<u>Dr. Henry Selby</u>	Dr. Selby has replaced Dr. Tillinghast as the Radiologist on the 26 Broadway medical staff.

New nurses on the medical staffs are:

Mrs. Joan Kersak	East Chicago Refinery
Mrs. Ruby Pantis	Paulsboro Research and Development Labs.
Mrs. Eleanor Zar	Wadhams Division, Milwaukee, Wisconsin
Mrs. Mariarne Cavanness	Lubrite Division, St. Louis.
Mrs. Margaret Rutledge	Sovosco, Fort Lee, New Jersey
Mrs. Helen Milligan	General Petroleum Corporation, Los Angeles, California, is attending for the first time.

New position on Socony-Vacuum Oil Company, Inc. medical staff:

The position of Industrial Hygienist has been established and is filled by Mr. Arthur C. Pabst at 26 Broadway. Mr. Pabst has done graduate study in the field of industrial hygiene at the Harvard School of Public Health. He commenced his activities with our Medical Department in August, 1952.

New medical departments:

An infirmary at the Naples Refinery as well as a small dispensary at the head office of Socony-Vacuum Italiana in Genoa have been opened this past year. We now have a medical department in Athens, Greece, which Dr. Papantoniou will tell you about later on. A medical department at Fort Lee, New Jersey, has been open for a few months. It has a small dispensary, serves 150 people, and is staffed by a part-time nurse and medical advisor who visits the clinic for a few hours each week.

Post-Graduate Training:

Dr. Angulo Rivas of Socony-Vacuum of Venezuela has completed

one year of training at New York University Post-Graduate Medical School in internal medicine. Dr. Miguel Urbano of Socory-Vacuum of Venezuela is presently training in traumatic surgery at the New York University Post-Graduate Medical School and is in the service of Dr. Robert Kennedy at the Beekman Downtown Hospital.

Summary of Activities:

In March 1952, I made a trip to Venezuela and during a period of two or three weeks visited various field installations in and around Anaco and the head office in Caracas. I also made a trip through the Eastern part of Venezuela and the Lake Maracaibo area with Dr. Tong, Mr. Moon and Mr. Latimer. I also visited other operations and hospitals and clinics. A great deal is being done in the Maracaibo area by the petroleum companies to raise the general standards in the rural areas.

At the end of July I visited Venezuela again and then made a trip to Canada where I visited operations in Calgary, Edmonton, Peace River, and Fort Vermillion. In Fort Vermillion, there is a hospital with thirty beds, staffed by two refugee physicians, man and wife, Drs. Julius and Hanna Kratz. They are well trained people doing a good job; and, there in this lonely outpost, they have an electrocardiograph machine.

At the end of September I attended the inauguration ceremonies of the infirmary at the Naples Refinery in Italy, and from there went on to visit our operations in Greece, Turkey, France and England.

Figures on medical activities of the past year:

- In our domestic operations, we now have 20 medical departments covering 13,000 employees, of whom 11,000 used our medical departments at least once during the year. The number of patient visits totalled about 90,000. On medically covered personnel only, there were 23,000 lost time cases with 60,000 days lost. We should be able to cut down on the 60,000 days lost figure and help to pay our freight. The number of employees referred for medical care elsewhere was 4,200.

Objectives for the coming year:

We have four main objectives for this coming year.

1. Improve facilities and services everywhere.
2. Revise our medical records.
3. Simplify our monthly reports.
4. Adopt a basic medical policy.

I would like to thank our Committee on Arrangements and also Mr. Treichler who have devoted so much time and effort to make this annual medical meeting a success.

staph aureous organisms, which are resistant to penicillin. We know that penicillin is still the best against gram negative cocci.

Aureomycin, terramycin and chloromycetin are the best wide range antibiotics that we have against gram positive and most gram negative cocci. The effectiveness of streptomycin is similar to that of the three previously mentioned.

We have to know, in addition to the sensitivity, something about the basic resistance of these organisms. We know that organisms have a natural resistance to certain antibiotics. Gram negative and gram positive cocci do not develop resistance to penicillin but 50 to 60% of hemolytic staph aureous organisms are resistant to penicillin. We know that these organisms produce penicillinase.

It has not been shown that any anti-bacterial substance produced by the organism that is effective against penicillin is effective against aureomycin, terramycin and chloromycetin.

Streptomycin is the best example of the development of resistance by mutation. Streptomycin should not be used in any patient unless he has tuberculosis or unless it is definitely known that the organism is sensitive to streptomycin. Organisms that are sensitive to streptomycin are very apt to mutate suddenly and no longer be sensitive to it. Twenty-four to forty-eight hours after patients with severe infection have received streptomycin, a resistance of the organism to streptomycin begins to be evident.

The third type of resistance is an acquired resistance, one that we cannot explain. It varies in the sensitivity to an antibiotic. It very rarely happens, but it occasionally occurs when we are treating a patient with chloromycetin, aureomycin or terramycin. The range of activity of organisms to these three antibiotics is all about the same.

We know very little about the action of penicillin, aureomycin, terramycin and streptomycin groups of antibiotics. We know that these antibiotics act in some way on enzymes and enzyme systems of bacteria. The clinical bacteriology of disease has changed since the use of antibiotics and in many cases it has become very difficult to isolate the organism that causes the disease. Bacteriologists have had to use many other ways to arrive at a diagnosis.

In the selection of an antibiotic a physician must guess what antibiotic will be most effective, then select the dose and type of treatment. Wide range antibiotics, aureomycin, terramycin and chloromycetin, are given by mouth, the dosage depending upon whether it is being used prophylactically, for minor infections or for over-whelming infections.

Presently, we have no antibiotic for the common cold. This accounts for most of the days lost in industry. The use of any of these drugs will do nothing for the common cold, but because we have antibiotics, we have been able to eliminate some middle ear otitis media, sinus disease, and mastoid operations have fallen off. Antibiotics can prevent bacterial complications of the common cold.

448776

Though we have drugs that are non-toxic, these are still drugs that should not be used unless we are dealing with a susceptible infection. Penicillin may cause a toxic reaction in the form of a rash. It may also cause drug fever, which is the most important complication. Occasionally we see the development of a secondary infection, but penicillin is still our best and least toxic of our antibiotics.

The complications caused by streptomycin may be skin rash, drug fever, but more often, nausea, vomiting and deafness.

The complications from our wide range antibiotics when given by mouth arise in the mucous membranes and gastro-intestinal tract, such as vomiting, nausea and diarrhea. Mucous membrane lesions are extremely common and in some instances very severe. These conditions are very resistant. We should not use these drugs unless we are dealing with an infection caused by an organism against which these antibiotics are known to be effective.

Chloromycetin has been known to cause aplastic anemia in some cases. It is an excellent antibiotic against certain typhoid bacilli.

We can prevent respiratory complications of the common cold. For example, in lobar pneumonia cases, before antibiotics, the overall fatality rate was 40 to 50 per cent, even with therapy. Now, about the only place you see lobar pneumonia is in the large municipal hospital. In that group the mortality rate is down to 4 or 5 per cent. The treatment of these cases with penicillin in large amounts is the drug of choice. Friedlander's Pneumonia has a high fatality rate because there is no antibiotic which is effective.

In regard to sub-acute bacterial endocarditis, the fatality rate has been dropped from 99% to 25% (unofficial) depending upon the speed of diagnosis. Again, we must know the sensitivity of the organism before we can select an antibiotic.

Genito-urinary diseases are best treated with wide range antibiotics, including the sulpha drugs and occasionally polymyxin and bacitracin, although the last two are sometimes toxic to the kidneys.

Some virus diseases are affected by some of the antibiotics. The larger the virus, the greater the likelihood that the antibiotic will be effective. The drugs of choice in treating viruses are the three wide range ones, aureomycin and terramycin being the most important two.

In mumps and encephalitis, aureomycin and chlorophenocel have been used without any certain results. In rickettsial diseases, aureomycin and chloromycetin have shown tremendous results. These diseases now cannot only be cured, but prevented.

Probably the least dramatic, but one of the greatest uses of antibiotics has been the prevention of secondary pneumonia and prevention of complications of chronic diseases.

448777

We have in our hands a large group of antibiotics which are reasonably non-toxic, but which from their use, have made more problems for us to solve.

448778

07011

SYPHILIS: PRESENT-DAY CONCEPTS OF THERAPY
AND SIGNIFICANCE OF SEROLOGIC TESTS
Virgil Scott, M.D., Associate Professor of Medicine
Washington University, St. Louis

The sweeping change that has occurred in the treatment of syphilis since the discovery of the effectiveness of penicillin by Mahoney in 1943 is well known. All previously used antitreponemal agents, including fever, have been replaced by this antibiotic. Treatment, which was formerly complex and frequently difficult and time-consuming, is now easy to administer, rapid in effect, and, from the standpoint of untoward reactions, almost completely safe. In fact, in a discussion such as this, treatment can be discussed in a summary fashion. Penicillin kills treponema pallidum. More than this cannot be asked of any antimicrobial agent. Penicillin cannot, of course, replace tissue already destroyed or irretrievably damaged by years of insidious action of the spirochete. Consequently, diagnosis prior to the inception of crippling late manifestations, and treatment to forestall their occurrence are primary objectives.

The subject of therapy will be considered again later, but diagnosis deserves more attention, particularly because recent developments cast some doubt on the reliability of standard serodiagnostic tests for syphilis as indicators of syphilitic infection. Parenthetically, this is perhaps not too surprising because in the true biologic sense there is actually no convincing evidence that serologic tests for syphilis are specific reactions comparable, for example, to the Widal test. These doubts regarding specificity have developed in part as a consequence of the widespread application of serologic tests for syphilis which began in the years preceding World War II. Some of this was the result of legislative act, such as, premarital and prenatal testing; and the annual blood tests required in some states of food handlers, barbers, and beauticians. In industry, pre-employment tests began to be commonly performed. Then, with the war, millions of selective service registrants, and other millions, particularly donors for the Red Cross blood program, were subjected to serologic testing. It was during this time particularly that an occasional queer serologic result began to be noted. Donors with repeatedly negative previous tests began cropping up with positive ones, low in titer but persistent. This did not happen often, but often enough to cause concern. The possibility that the repeated donation of blood might be a cause of false seropositivity was considered but the subject was hushed up for fear of jeopardizing the blood collection program.

Then, with the end of the war and demobilization, serologic tests were routinely performed on personnel of the Armed Forces at the time of discharge. According to one estimate, positive blood tests were discovered on 75,000 Army personnel who had been known to have had negative tests on entry and no history of venereal disease while in the service. Some of these men were studied carefully, and no apparent cause for a false positive reaction could be discovered. Nevertheless, it was

It must be clear, therefore, that from the standpoint of the antigen the possibility that the spirochete of syphilis is directly concerned in the serologic test seems far-fetched.

The material which appears in human serum during the course of syphilis and which reacts with antigens used for serodiagnosis, is called reagin (reacting substance). Reagin has many of the characteristics of an antibody - its molecular weight and its association chiefly with the gamma globulin fraction. However, the same or an almost identical substance is present in the sera of animals, which cannot even be infected with syphilis, and also in all human nonsyphilitic sera but in minute amounts and not detected by the usual tests.

One theory concerning the origin and nature of reagin is that it is the result of tissue destruction such as is going on in the body all the time, due to normal wear and tear, perhaps even of some particular type of tissue, that false positive reactions are due to increased production of this material associated with increased tissue destruction during malaria, infectious mononucleosis, etc., and that treponemal infections cause only the most marked elaboration of it. In this hypothesis the spirochete of syphilis would be indirectly concerned with reagin production, indirectly through its effect on the hosts' tissues.

The second figure elaborates on this theory. (Figure 2) In this diagram, statistically incorrect but I hope of value for illustration purposes, the dots which make up the frequency curve represent the presumed reagin content of individual sera from normal nonsyphilitic persons. Since serologic tests can be made so sensitive that all of us have a positive test, the data for such a diagram could actually be obtained. As indicated in Figure 2, sensitivities of serologic tests are arbitrarily set at a level at which it is hoped that nonsyphilitic sera will not give a positive result. Actually, according to a study by Eagle, about 1 in 3,000 apparently normal persons does have a positive blood test. Rein has described a group which he calls "reactors". These are persons who frequently and repeatedly develop false positive blood tests to a variety of stimuli. In Figure 2, these persons would be those near the top of the peak. The persons who only occasionally develop false positive reactions to proper stimuli would be further down the scale and those who never do, at the bottom. However, with the stimulus produced by infection with the spirochete, all persons develop sufficient quantities of reagin to have a positive blood test.

This, then, is one theory. Although attractive, it has neither been proved or disproved, and attempts to determine whether false positive reagin and syphilitic reagin are the same or are different, have not been successful.

Figure 3 shows the response of reagin in the course of untreated syphilis. Several points deserve mention.

1. In primary syphilis - STS positive 7 - 10 days
2. In secondary syphilis - STS "always" positive.
Later serologic behaviour variable.

The effect of treatment in modifying serologic behaviour is shown in Figure 4, as follows:

- Seronegative primary syphilis - flat or with slight jump.
- Seropositive early syphilis - seronegative within twelve months (95%).
- Seropositive late syphilis - in general, the longer the duration of syphilis, the longer the time period to achieve seronegativity.
- Some patients never become seronegative. Treat patient, not STS.

The types of false positive reaction are indicated in Figure 5.

The common causes of biologically false positive STS are listed in Figure 6, together with the approximate incidence. Also polyarteritis nodosa.

Although most false positive reactions are low in titer, there are frequent exceptions. Figure 7 lists five such.

The duration of acute biologic false positive reactions is usually short as in Figure 8. In this patient with infectious mononucleosis it was three weeks, but reactions of the acute type may last three to six months or rarely even longer.

In following patients suspected of having this type of false positive reaction, the serologic trend determined by repeated quantitative blood tests provides the answer.

There have been a number of attempts to differentiate between the reagin of syphilis and of false positive reaction, by serologic methods. Some of these are listed in Figure 9. All were failures, none is of value.

A highly significant discovery was made in 1949 by Nelson and Mayer, who demonstrated the presence in syphilitic serum of an antibody - distinct from reagin - an antibody which caused the immobilization in vitro of living, virulent treponema pallidum. This phenomenon is now the basis of a new experimental test, the treponema pallidum immobilization test, or TPI test, which is outlined in Figure 10.

This discovery had its inception when, while working on the cultivation of spirochetes, Nelson and Mayer were able to develop a medium in which T. pallidum would remain actively motile for as long as eight days. It was then found that the addition of syphilitic serum, in the presence of complement, would cause the spirochetes to stop moving, whereas nonsyphilitic serum had no such effect. This test is complex and expensive, requiring a large rabbit colony in which T. pallidum can be maintained continuously by direct animal to animal passage since cultivation of the organism has never been achieved. It is technically difficult, requiring highly trained personnel, elaborate

controls, and careful interpretation. The serum to be tested must be sterile and the patients cannot be receiving penicillin or the broad spectrum antibiotics, since the presence of these in the test serum will render spirochetes nonmotile. Because of these facts there are only a half-dozen laboratories in this country where the test is being performed and for experimental rather than for clinical purposes.

Figure 11 indicates results of the TPI test obtained by the group in Baltimore which has been interested particularly in false positive reactions.

Results not included in Figure 11 show that all patients with early syphilis have positive TPI tests by the time secondary lesions appear. If treatment is given to these patients, the test becomes negative but more slowly than do standard serologic tests. As indicated here, the test usually remains positive permanently if treatment was not received during the early years of the disease.

On the basis of present information, technical error excluded, the TPI test is probably one of the most specific tests in the entire field of medicine.

Figure 12 summarizes some of the pertinent information concerning four students at the medical campus of Washington University, believed not to have syphilis. One of these, the first, may be an acute false positive reaction due possibly to subclinical infectious hepatitis. The others must be classified as chronic in view of the duration (2 to 7 years). The suggestion has recently been made that such persistent false reactions may be the first evidence of one of the collagen diseases (rheumatoid arthritis, lupus, polyarteritis). If this proves to be true, syphilis would be a much preferable disease to have (more benign and easier to treat) than a chronic false positive reaction.

In respect to the TPI test, it is hoped that means will be found for simplification, so that a practical test for routine laboratory use can be devised. Until such time, the differentiation between syphilis and false positive reactions will have to be attempted with the less satisfactory clinical, epidemiologic and serologic methods now available. The procedures indicated in the attempt at this differentiation may be enumerated as follows:

1. Complete medical history with emphasis on two aspects.
 - a. The venereal disease history and opportunity for infection with syphilis.
 - b. Possible causes of false positive reactions.
2. Careful physical examination for evidences of early or of late syphilis, or of diseases known to cause false seropositivity.
3. Examination of the CSF to rule out neurosyphilis.
4. Repeated quantitative serologic titers with the best test available - cardiolipin.

5. Examination of family contacts for syphilis, or of available sexual contacts, or both.
6. Laboratory tests for evidence of diseases and conditions known or suspected of causing acute or chronic false positive reactions.
7. Serologic follow-up, usually for at least six months, to determine the serologic trend. Early syphilis is indicated by a rising titer and an acute false positive reaction by a falling titer and the attainment of seronegativity.

A stationary titer is compatible with either syphilis of long duration or with chronic false seropositivity.

In the latter circumstance it may seem desirable to advise Penicillin as a preventive measure despite real doubt in the physician's mind that syphilis is present. I believe it is important that the patient understand the problem as completely as possible from the outset.

The last two figures concern treatment. Figure 13 shows presently acceptable regimens for the various stages. Two factors seem to be important - total dosage and duration. In early syphilis, 2.5 million units is minimal dosage, and one week the minimal time-period. Doubling either, or both, does not seem to improve the outcome. The schedule for latent is arbitrary and the end results unknown. The theoretical reasons for the increased dosage and the longer time of administration will be considered presently. In late syphilis, we know that penicillin heals gummas, is highly effective in reversing the spinal fluid changes in neurosyphilis, and does no harm in cardiovascular syphilis. Ten million units over a minimum three week time period is suggested.

The type of penicillin used (crystalline G, aqueous procaine, procaine in oil, etc.) is important only in that the preparation should be suitable for maintaining penicillin continuously in body tissues during the entire course of treatment. With longer acting penicillin preparations, the interval between injections may thus be farther apart.

Figure 14 lists four possible reasons for prolongation rather than intensification in the treatment of syphilis.

In conclusion, extensive serologic testing of the population of this country, with virtually millions of persons having blood tests annually, combined with a diminishing syphilis prevalence, has resulted in an increase in the number of false positive reactions. The identification of these positive blood tests as false and their differentiation from syphilis may be difficult for the physician and important to the patient. The treponemal immobilization test offers hope for a future solution of this problem. Then, diagnosis, as well as treatment, will be easy.

SEROLOGIC TESTS FOR SYPHILIS

Sources of Antigen

Mammals, Fish, Plants

Beef heart
Crude, e.g., Kahn, Kolmer
Purified (Cardiolipin), e.g., VDRL

Sitotipin

Reagin Present in Serum of

Cattle
Horse
Chicken
Human (minute amounts)

FIGURE 1

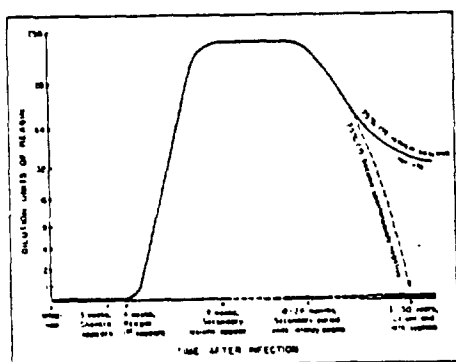


FIGURE 3*

TYPES OF FALSE POSITIVE REACTIONS

- I. Technical error
- II. Biologic
 - A. Normal (?) persons ($\pm 1 - 3000$)
 - B. "Acute"
 - Cause known, e.g., vaccinia
 - Cause unknown
 - C. "Chronic"
 - Cause known, e.g., lupus
 - Cause unknown

FIGURE 5

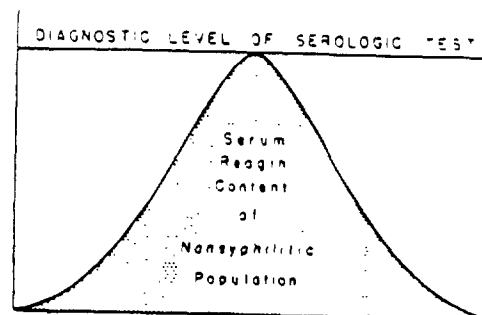


FIGURE 2

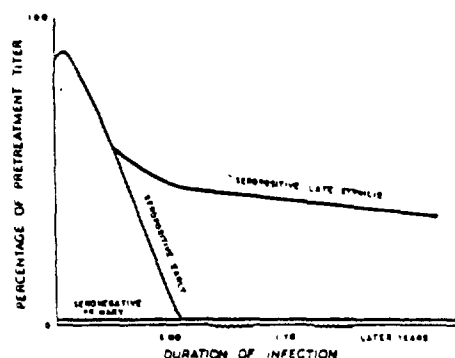


FIGURE 4*

*Approximate Incidence of Biological False Positive Reactions in Various Non-syphilitic Conditions

Condition	Incidence (%)	Condition	Incidence (%)
Leptospirosis	10-20	Typhoid	1-2
Brucellosis	10-20	Typhus	1-2
Paratyphoid	10-20	Scarlet fever	1-2
Paratyphoid	10-20	Measles	1-2
Paratyphoid	10-20	Smallpox	1-2
Paratyphoid	10-20	Cholera	1-2
Paratyphoid	10-20	Typhoid	1-2
Paratyphoid	10-20	Scarlet fever	1-2
Paratyphoid	10-20	Measles	1-2
Paratyphoid	10-20	Smallpox	1-2
Paratyphoid	10-20	Cholera	1-2
Paratyphoid	10-20	Typhoid	1-2
Paratyphoid	10-20	Scarlet fever	1-2
Paratyphoid	10-20	Measles	1-2
Paratyphoid	10-20	Smallpox	1-2
Paratyphoid	10-20	Cholera	1-2

* 100% is biologically false positive

FIGURE 6*

HIGH TITERS IN BIOLOGICALLY FALSE POSITIVE REACTIONS

Disease	Dilution
Polyarteritis nodosa	1 - 32
Infectious mononucleosis	1 - 100
Fever of unknown cause (? Lupus Erythematosus)	1 - 110
Subacute Bacterial Endocarditis	1 - 130
Vaccinia	1 - 180

FIGURE 7

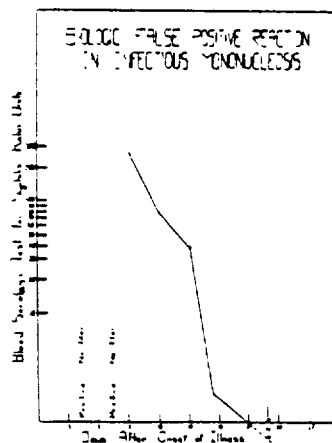


FIGURE 8

ATTEMPTS AT SEROLOGIC DIFFERENTIATION OF SYPHILITIC AND FALSE POSITIVE SERA

Kahn "Verification" test

Rein special technique

Spirochetal complement-fixation tests
(Eagle, Kolmer)

Euglobulin - Inhibition test

SYPHILIS PALLIDUM IMMOBILIZATION TEST

T. pallidum + Suspending Medium + C + Syphilitic Serum 30° for 16 hours under 49% CO₂ is + Immobilization
Non-syphilitic serum + C + Syphilitic Serum 30° for 16 hours under 49% CO₂ is - Immobilization

448785

FIGURE 9

FIGURE 10

RESULTS OF TREPONEMAL IMMOBILIZING TEST
COMPARED WITH CLINICAL JUDGMENT

Clinical Diagnosis	Number of Cases	TPI* Test %	
		Positive	Negative
Syphilis, late, treated	262	256 (97.8)	6 (2.2)
Syphilis, latent, probable	167	142 (85.1)	25 (14.9)
Biologically false positive, probable	133	22 (16.1)	111 (83.9)

* TPI = treponemal immobilizing test

FIGURE 11*

Pt.	Age	R & S	Known Duration of Pos. STS	Qual. STS	Range of Titer	T. P. I.
RV	24	MM	4 mos.	Cardio P	1-4 to 1-8	Neg.
WD	20	MF	2 years	Kolmer (P-N-P) Kahn (D-P) Cardio (N-P)	2 to 40 KU 0 to 1-8	Neg.
HT	23	MM	5 years	Kolmer (N-D-P) Kahn (N-D) Cardio (P)	undil. to 1-2	Neg.
LS	27	MM	7 years	Kolmer (N-P) Kahn (N-P) Cardio (N-P)	0 to 13 KU 0 to 1-2	Neg.

FIGURE 12

PENICILLIN REGIMENS IN SYPHILIS

		Amount of Penicillin (Million Units)	Duration of Treatment	Result (Failure %) Approx.
Early	Primary	2.5 (Min.)	1 wk. (Min.)	5
	Secondary			15
Latent		5.0	2 wk. (Min.)	?
Late	Gummatous	10.0	3 wk. (Min.)	?
	Neuro. Cardiovas.			2-5 ?

FIGURE 13

THEORETICAL CONSIDERATIONS IN
PENICILLIN TREATMENT OF SYPHILIS

1. Reproduction time of *T. pallidum* is slow ($\pm$ 30 hours)
2. In strep. infections, penicillin is effective only against actively multiplying organism (Eagle) - Significance in latent syphilis?
3. To penicillin, *T. pallidum* is:
 - a) The most sensitive micro-organism known (0.008 u/cc treponemicidal)
 - b) The most resistant - (prolonged exposure necessary for treponemicidal action)
4. Repository penicillin unit for unit, is 2 to 4 times more effective than aqueous.

FIGURE 14

* Moore, J.E., and Mohr, C.F.: Biologically False Positive Serologic Tests for Syphilis, J.A.M.A. 150:467 (Oct. 4) 1952

Discussion Period:
HOW MUCH TREATMENT SHOULD WE GIVE?
Moderator: H. M. Roberts, M.D., Medical Advisor
Socony-Vacuum Oil Company, Inc.
Kansas City

As industrial physicians, we have been increasingly involved in taking care of the labor force. In this way, we have contact with a high percentage of the citizenry of the United States. The question is: How much treatment should we perform in our capacity as industrial physicians?

- Dr. Hoag: I think to prevent socialized medicine, industry has to take an active part in the care of the worker. We must try to educate the general practitioner, the public, and industry to the advantages of industrial medicine. We are interested in cutting down lost time. We can do it by having a good relationship between employee and the medical department. If we don't, unions are going to demand it. Industry should see that the employee is kept well. A certain amount of treatment has to be carried out, for example, in cold prevention. We should do everything we can in the treatment up to a certain point. Then, the case should be followed to see that he goes to his own physician. Carrying on a certain amount of treatment in clinics is absolutely necessary.
- Dr. Saunders: We should not lose sight of our major objectives in industrial health programs. Our objectives should be constructive and preventive, rather than curative, medicine. I don't think it is our job to take on management of long-term chronic illness. In cases of the chronically ill, we can keep after them to go to their own doctor. We may be doing too much and we must be careful.
- Dr. Roberts: We can insist on an employee seeing someone else in the neighborhood whom we might recommend. I think employees will think more of us if we don't try to do everything. We should point out to them how important it is to see someone else.
- Dr. Luongo: The industrial physician is not a substitute for the private physician. He supplements. In most instances, he cements a bond of confidence between patient and private physician. Our responsibility should be limited to minor illnesses which occur on the job. We should try to keep the employee on the job or send him on out to private physicians. Sometimes it is not enough to tell an employee to go see his own physician because the employee thinks of the cost. A little laboratory work and diagnostic work will probably have to be done to convince him that going to his own doctor is necessary. In some cases,

you may have to give treatment on the job, but, these should be very rare and only with written direction of the private physician; exception: where medical department is the only medical care the employee will get.

Mr. Montgomery: Medical departments have contributed towards effectiveness of the Company. If we are to have employees thinking well of the medical department, we are going to have to do some things in the way of minor treatments which will go beyond just the treatment stage in an emergency situation. We should not get too much involved in the treatment of these cases. The subject is one which you can't possibly confine and set down in each case. If you have a headache or a cold, you don't go to your own doctor. However, there might be something one could be doing quite easily which would alleviate the condition a little bit. We should not make a rigid definition. In certain minor infections which might happen to employees, we should stick to our objectives as medical departments and consider as the basis for diagnostic work, preventive rather than curative medicine. I haven't found many cases where we are doing more treatment than is necessary. However, we should watch it.

Dr. Howard: I would like to make a dogmatic statement. Undoubtedly, we could cut down lost time by taking care of all illness in our medical departments. However, the evils would probably outweigh the good. I am convinced that our purpose is preventive medicine. However, we must make allowances. There are some people I won't even let have cold tablets. To some others, I will give more treatment. Doctor Hoag is afraid that some will wind up in the hands of a "quack" if we stop treatment. Private doctors will work more with us when they understand us more. We are talking here of trying to prevent socialized medicine. New York City, while an excellent medical center, has some poor medical information, too. I sat in on a meeting concerned with the adoption of a new health plan. It came up that medicine is too expensive for the ordinary man. We must keep the pocketbook in mind. I don't want to leave the impression that we should treat a serious chronic illness. Still, we must not set up a fixed law. We have a lot to offer everybody.

Dr. Roberts: I know every doctor in Kansas City. I know the doctors and their qualifications. I can give names of several men in Kansas City who have special training in various fields. We follow up to see that a person has been under the care of someone. We can check up pretty well in smaller communities whereas you here in New York can't. I can explain that such and such a man is a good general practitioner but that such and such another man is a

specialist and can change the opinion of the patient. I think this is good because it shows the patient we are concerned about him and about his pocketbook.

Dr. Samuelson: I believe that we should refer patients to their family doctors. I think it is here we can cement our relations with the physicians in the community. It is advantageous for us to write a note stating what we have done in the line of therapy and that we will be glad to continue to help treat these people and do other laboratory work, if requested.

Dr. Roberts: I think that is a very good point and it also helps Company loyalty.

Dr. Potts: I think treatment can be broken down into two categories — (1) diagnostic and (2) management. We render a service to the company and to the patient by being interested in the sound foundation of therapy. Personally, I take an interest in patients with chronic illnesses to see that they are managed. Maybe treatment is discussed with the private physician but management can be handled by the medical department. In this way, we are performing a dual purpose and are not stepping on any private practitioner's toes.

Dr. Roberts: A very good point.

Dr. Saunders: I would like to summarize. Our job is preventive rather than curative medicine. Also, our job is to give health counselling. This certainly enters into the field of management. We should follow the course of the illness and the treatment, consult with the employee's personal physician, and we can play a very important part in the overall management of that patient. Many times we give valuable information to the outside doctor who would not otherwise have it. It is impossible to lay down any specific rules and regulations. I think we should give emergency treatment and possibly even take care of acute short-term illnesses, particularly when we know the patient is not going somewhere other than to a drugstore. In other illnesses, we may be forced to start the treatment and the management of the treatment if the man is reluctant to contact his own physician. I think we are all pretty well agreed on what we should and should not do in the way of treatment.

448789

Panel Discussion:
OVERWEIGHT IN RELATION TO ILLNESS
Moderator: E. P. Lucngo, M.D., Medical Director
General Petroleum Corporation
Los Angeles

Members of Panel:

W. M. Lonergan, M.D., Medical Advisor,
Socony-Vacuum Oil Company, Inc., St. Louis

J. E. Mc Whorter, M.D., Medical Advisor,
Socony-Vacuum Overseas Supply Company, Fort Lee, N.J.

Dr. Lucngo:

I believe that overweight is a serious problem in public health. Statistics indicate that overweight has a very direct bearing on morbidity and mortality rates. It shortens life after 40 years of age. In our own company we have a reflection of these mortality and morbidity statistics. In reviewing 6,000 annual physical examinations we found overweight in 23% of the non-executives and in 25% of the executives. The incidence of disease was greater in both of these overweight groups than in those groups that were of normal weight or who were underweight. The average workman can dig his grave with his teeth just as fast as the executive.

There are differences of opinion as to the causes of obesity and there are some problems in approaching the subject of effective treatment. Dr. Lonergan will now present some aspects of causation.

Dr. Lonergan:

Possibly more is said about obesity and less is done about it than for any other illness a patient brings to the attention of the physician. Excessive weight brings people into conflict for several reasons. Obesity makes people look older and less attractive according to our current idea of good looks. Many people are aware that obesity may have something to do with the development of degenerative diseases. Conflict occurs when they attempt to reduce for they would like to maintain an attractive figure without foregoing the pleasure of eating.

Obesity describes a condition of overweight due to the accumulation of excess fat in the body tissues. Normal weight likewise needs definition. The ideal weight at any age should not be greater than for a normally built person of the same height and sex at ages 30 to 35 years.

Most authorities agree that obesity is due to excessive food intake, however great or small that might be. There is the obese person who says he eats very little. Perhaps these people have some underlying metabolic derangement.

Mo Lester classifies obesity as follows:

- A. Simple obesity
 - 1) Exogenous or alimentary
 - 2) Endogenous or constitutional
- B. The obesity which accompanies endocrine disorders
 - 1) Pituitary
 - 2) Gonadal
 - 3) Adrenal cortex
 - 4) Thyroid

The obesity designated as exogenous or alimentary occurs without other recognizable disorder. It is due to the sheer overeating of food. The endogenous or constitutional form is predicated on the view that an inherent abnormality is responsible for many cases of obesity. A predisposition to obesity may be inherited. An excessive appetite and abnormal craving for high caloric foods are frequently found in the obese. Some observers believe that appetite and feeling of satiety are controlled by a central nervous influence emanating from the organs of digestion. Others postulate an appetite controlling center in the brain influenced by the concentration of food stuffs in the bloodstream. A disorder of this central mechanism has been postulated as a cause of endogenous obesity.

Endocrine glands are also certainly important participants in the production of obesity. The glands already mentioned are the most important ones which, when disordered in function, are associated with obesity.

A decreased energy output causing obesity has been said to be induced by one or all of the following:

- 1. The basal metabolism rate when decreased is at times associated with obesity. Generally speaking, however, overweight individuals have been found to have a normal BMR.
- 2. The specific dynamic action of food has also been found to be normal in obese persons, but the rise in the BMR does occur later than in normal persons and this has been said to delay the attainment of a sense of food satiation in the obese.
- 3. Obese people have often been considered to be physically and emotionally less active. This is said to be another reason for their failure to properly oxidize foods.
- 4. Water retention is also known to be excessive in approximately half of obese people. The handling of the water balance is an important factor.

The psychosomatic aspects of obesity are also felt to be of much importance. There is a great deal of pleasure associated with the function of the mouth. During the first year of life nursing, eating and drinking are all important. As a child grows older, other pleasurable

stimuli should enter his range of feeling. Whether this is so may depend on the family's attitude. A mother may place undue emotional value on the act of eating. Some of this overemphasis on feeding a child may be in the nature of a substitution of food for love and emotional strength which she lacks. If children are not taught to derive pleasure through learning, play, competition and social contacts, they may overeat as a substitution, with obesity resulting. This mechanism may be operative in adults as well. Insecurity and need for affection and attention may cause the patient to seek gratification through eating.

I am aware that this material is controversial in nature and have endeavored to present in almost outline form the principle ideas concerning the causation of obesity.

Dr. Lyongo:

I am particularly interested in your comments on metabolic problems. Because there is a wide variation in normal metabolism, no norm or criteria in metabolism can be established. You gave us an excellent picture from the standpoint of causation. Dr. Mc Whorter will speak now on the treatment of obesity in private and industrial practice.

Dr. Mc Whorter:

In discussing the problem of obesity in private and industrial practice, I feel doubly qualified. First, because I am a physician and treat such patients a great deal; and secondly, unfortunately, and possibly even more important, is the fact that obesity has presented a constant personal problem in my life. From time to time I have sampled most of the diets I have given my patients and well know the psychological and physical problems that confront an individual trying to reduce.

In discussing the treatment of obesity, I will first consider private practice as I personally feel that the treatment principles are the same in both. In one it is treating the individual, and in the other, more mass methods, of course, are used. Before commencing treatment, one must make a preliminary study of the patient and a history and physical examination are of tremendous importance. A special emphasis should be laid on cardiovascular diseases and congestive failure, on the blood pressure, and whether he has any digestive disorders. In addition, is there evidence of varicose veins, insomnia, skin eruptions, or hernia? In the female one must consider menstrual disorders and sterility which frequently occur in the obese individual. A hemoglobin should be routinely taken as this is low in a surprising number of obese patients. In the urine, glycosuria and albuminuria are frequently found in the obese. A BMR is important for two reasons: 1) if it is low, the patient may be helped by a little additional thyroid extract, and 2) these individuals frequently use the excuse that their obesity is glandular, and if an attempt to disprove this is made, it gives them more courage to face their problem as it really is. Lastly, the electrocardiogram in anyone over 45 years of

age is essential. Otherwise, it need only be done if indicated.

Now as to the treatment itself. I am not going into more detail on the preliminary survey because of the fact that Dr. Lonergan has so well covered this subject. As he has mentioned, the psyche is of tremendous importance. Certainly one has to go into the dietetic habits and the psychic problems of the individual in order to find the cause of his over indulgence in food.

Unfortunately, a great many of our obese are what may be characterized as "food drunks" with a tremendous compulsive desire to eat. Of course, this occurs to some degree in almost every overweight individual. The individual who has a desire for food which is close to that of an alcoholic for liquor is especially difficult to treat and, unfortunately, the greatest percentage of failures occurs in this group.

Although fear is probably a poor weapon for the physician to use, I feel it is justified in treating the obese. I think one should attempt to engender fear in the patient as to the results of any present diseases which he may have and to point out the liability of his developing diseases due to his obesity. Here is where the history and physical examination frequently help, for if the individual does have high blood pressure or one of the other disorders mentioned previously, he can be encouraged by pointing out that these specific disorders will be helped by weight reduction. In addition to fear, one must encourage the patient by telling him that weight reduction in itself will help him to lead a normal happy life and will tend to prevent the further extension of existing degenerative processes. Life insurance statistics, which I find are very helpful in this line, help to convince the patient because they are presented by an impartial organization interested in prolonging life. Lastly, not only the psyche of the patient but, also, of the physician is important as the physician must have interest and enthusiasm in his subject. That is why I think that fat fellows such as myself very frequently handle this problem better than physicians who have not been confronted with this problem personally.

In the actual treatment of the patient, probably diet is the most important factor of all. There is no question that the individual is eating more than his caloric requirements. Therefore, it is essential that he cut down on the requirements. I put my patients on a diet ranging from 900 to 1,400 calories, depending upon the amount of physical work that the individual is doing. In addition, they must have ample vitamins and protein. This diet may seem a little harsh, but I find that if patients don't lose weight rapidly at first they soon get discouraged or bored. Therefore, it is wise to start with a low calory diet and work up. A multiple choice diet is usually best as it can most readily be fitted into the routine of the family, for it is frequently too difficult to prepare special meals for one member of the family. Actually, of course, as long as the calories are closely watched, almost any well-rounded diet can be fitted into a reducing regime. People frequently live on a budget as far as their finances are concerned, and the same type of system can be used in dieting. One must have the essentials

taken care of in the budget, and if anything is left over, it can be used on luxuries.

Finally, when the individual has lost the required amount of weight, a maintenance diet must be maintained for fear they slip back into their old habits. This, of course, is of higher caloric value, anywhere from 1,500 to 2,000 calories, depending on individual needs, and is easier for the patient to follow. Lastly, the use of alcohol must be considered, and it is wise to point out that alcohol is high in calories and that if they take a few drinks, they have used up the equivalent of a meal.

As to specific medications, this is, of course, a very controversial subject. Thyroid extract has probably been more widely used than any other drug and has probably been more widely misused than anything else. If the individual is an adult and the basal metabolism rate is abnormally low, at least minus 20 to 30, then additional thyroid is beneficial. However, even if it is very low in obese children or adolescents, it probably is a great deal wiser not to give thyroid and to use diet alone. Dexedrine is another controversial drug that has been used considerably. The patient does want medication to curb the appetite and if the blood pressure is normal and if there is no contraindication to the use of dexedrine, I sometimes give it. If the individual is unable to sleep because of the drug or becomes unduly nervous, then it should be stopped. Also, it should not be continued indefinitely, but used only to get them over the initial "hump". Salt restriction is another thing which has been used in weight reduction. This does not actually reduce weight, but purely lowers the amount of fluid retained by the body. Methylcellulose derivatives are inert and are helpful in the fact that they do increase bulk and give the individual a sense of fullness and do help overcome constipation which may occur due to the decrease of bulk in the diet. Vitamins and minerals should be given, as the individual, due to dietary restrictions, may not be getting enough of either of these.

At this time I would like to emphasize the necessity of frequent visits. These individuals need to be watched closely. They must be encouraged, scolded, and constantly supervised or they will tend to revert to their old ways. Another advantage to frequent visits is that they have a deadline to meet. One should outline the expected weight loss per unit of time. Therefore, the individual cannot stray too far from the diet if he hopes to achieve the proper weight loss during the interval allowed.

The commonest complaint is hunger pains which can be allayed by taking a glass of water. If this doesn't seem to be enough, then it is best to cut down on the meals, and give them a between meal feeding. Lastly, increasing the protein in the diet helps as the absorption rate is slower than in the case of carbohydrates.

The second most common complaint one encounters is faintness. Here, again, this may or may not be due to lowering of the blood sugar, or it may be due to psychic factors. Frequent feedings and increased

448794

protein in the diet will usually overcome this rather minor difficulty.

As far as the objective findings are concerned ketonuria and an elevated sedimentation rate almost invariably occur. Neither one of these is an indication that the diet should be stopped.

In industrial practice, the principles are exactly the same as those in private practice except for the factor of mass education. Posters, pamphlets, charts of optimum weight should be posted in conspicuous places and should constantly be brought to the attention of the employees. Educational films also are available. I believe that the Metropolitan Life Insurance Company has two or three of these and they emphasize to the individual the evils of overweight.

It is very important not only to convince the obese themselves, but also the public that obesity is bad. So frequently people will tell an individual losing weight that they look badly, that they look sick. Losing weight, if done purposely, is not a sign of disease. Friends and relations of the individual should encourage and not discourage the individual. One of the commonest excuses of the obese for stopping a diet is public pressure. In some plants "Fat Man's Clubs" have been set up. Here, again, we are using the principle of mass therapy, very similar to that used by the Alcoholics Anonymous.

Lastly, we as physicians should emphasize the dangers of obesity at the time of pre-employment and periodic checkups.

Finally, let me state that weight reduction can and must be given serious consideration both in private and industrial practice. The death rate in the United States between 45 and 55 is higher than in Europe, due to the higher incidence of cardiovascular disease, which we believe is in great part due to the tendency of the American public to be overweight. To quote Dr. Evans, "The obese person now is not to be considered per se a successful member of the community. Rather he is looked at askance as one who has lived in a slovenly manner and who has not controlled his sensuality — he must give up his gustatory sensualism."

Dr. Luongo:

I was impressed with Dr. Mc Whorter's ideas on approaching the patient. I would like to emphasize that you must sell the overweight individual on the idea that he is shortening his life, and therefore he must go on a diet. I suggest that if you give a diet as a general guide, give the patient a chart on which to record his weight, and tell him to check in at the Medical Department each month. In industry, health education in the form of literature does not penetrate. The first reaction to a well written article on overweight is, "This does not apply to me." They have tried the group therapy — Fat Man's Club. I believe that overweight people are not too far removed from alcoholics. There might be a relationship there. Another concept is, does the thing that makes the man overweight also cause the disease, or, are we dealing with some chemical

imbalance which is causing a degenerative disease and overweight. I think there is a lot more work to be done on this last concept. There is also much work to be done in nutrition. I would like some questions from the group here.

- Dr. Schulte: Ten years ago we took a group of 1500 men from the fire department and attempted to reduce them. To begin with, we had approximately 30 to 40% of obese, sloppy, fat individuals, who were more than 20% over-average. We told them to stop drinking, especially beer, and we reduced their between meal eating. We did not put them on any drugs unless they could first lose by dieting and we distributed literature. The results: on the above basis, overweight and obesity, which was then the number one impairment, is now the number three impairment. I think the problem of weight is the problem of eating. There are exceptions to the rule, of course.
- Dr. Luongo: I believe that by making scales readily available to the employee, he becomes more weight conscious.
- Dr. Mc Whorter: How much relationship is there between obesity and cardiovascular disease?
- Dr. Schulte: We could make no correlation. We started basically with men who had no cardiovascular pathology.
- Dr. St. John: We tried to solve our problem by establishing charts. I would like to ask, does the cholesterol in the blood have any effect in determining metabolism rate?
- Dr. Lonergan: Presumably it does. In practice people have tended to distort the value of the cholesterol level. There is such a large overlap within the group or between the two that while there is a mean average, the range is so great that you cannot tell anything from an individual determination. Most of the obesity cases are due to nothing else but over-eating.
- Dr. Luongo: Why does a person keep his figure up to 35 and then get fat?
- Dr. Clinton: It could be that his physical energy output is less and his caloric intake is the same.
- Dr. Schulte: In regard to the psychology of prescribing a diet, I don't think you should just hand the patient a piece of paper.
- Dr. Luongo: Does tobacco dull the taste buds?

Dr. Mc Whorter: I don't think it does. I think the reason why a smoker who has stopped smoking increases his weight is because of nervousness. If you stop smoking, you look around for something else to do.

Dr. Luongo: Do you advise cathartics?

Dr. Mc Whorter: No, I am against them. I think it gives a false weight loss. I have used bulk laxatives. Anything else tends to cut down on absorption and upsets the G.I. tract.

Dr. Luongo: What about salt restriction?

Dr. Mc Whorter: It may be helpful at first, but in the long run it will not help you to lose weight. Incidentally, when dealing with a woman, it is wise to mention that she will gain weight at her menstrual period.

448797

SOME FINDINGS ON PHYSICAL EXAMINATIONS AT 26 BROADWAY
R. J. Potts, M. D., Clinician
Socony-Vacuum Oil Co., Inc., 26 Broadway

ABSTRACT

Dr. Potts' paper covered essentially the functions that a Medical Department is called upon to perform. He began his talk with a short historical summary of the growth of employee's health facilities beginning at the end of World War I and carried up to the present day. He outlined the variability of medical facilities with respect to the type of installation and company in which the medical department was to function. He stressed the necessity for tailoring medical departments to fit the particular facility in which the department is going to function.

It was advocated that full time doctors should be in charge where their time is considered necessary for the efficient functioning of the department. Where the number of employees does not make it feasible to have a full-time doctor, it was recommended that a doctor should spend three hours for every 100 employees per week and a nurse should spend nine hours for every three hours that the doctor spends.

The six services that a company medical department should perform were outlined and they were:

1. Pre-placement physical examinations.
2. Periodic examinations
3. Treatment
4. Health counseling and education
5. Industrial hygiene.
6. Outside association and cooperation with the community health programs.

Each one of these services was enlarged upon and the stress of preventive medicine and the early diagnosis of diseases and conditions that may lead to serious impairment of the individual employee with a subsequent loss in working time and a mounting burden in compensation and sickness health benefits, were stressed as goals in doing good pre-placement and periodic examinations. It was stressed that much treatment should be avoided and that competition with the private practitioner should likewise be shunned, however, the treatment of emergency conditions and occupationally incurred conditions should be handled by the doctor at the installation and all accidents incurred by patients should be carefully treated and the patient referred to competent physicians to handle complications which may arise from his injury.

It was brought out that the industrial physician is not only available for the injured employee, but is also available to the employee to help him with some of his family difficulties in respect to medicine and medical problems.

The last service was that of outside participation in community health programs and here it was urged that we cooperate in the mass chest x-ray participation, V.D. detection, RH blood examination, cancer detection drives and diabetes drives.

The second part of the paper was given over to a discussion of the 717 physical examinations done on a periodic basis over the past year and of this group, the subsequent break-down of defects found in them showed the two most outstanding defects on physical examinations were hypertension and obesity. Again the inter-relationship of these two conditions was stressed and it was urged that physicians, in the hope of saving these people from further disability, should stress dietary therapy and the importance of losing weight. The various drugs that may be used in controlling such conditions were outlined, as were the methods of diet therapy.

Dr. Potts concluded his talk by reviewing the findings that were brought to light by the periodic examinations done at 26 Broadway over the past year.

448799

THE TRUCK DRIVER AND HEART DISEASE: A PROBLEM

Max N. Howard, M. D., Medical Advisor

Secony-Vacuum Oil Company, Inc.

Brooklyn and New York City

Abstract

With the increasing toll of human life on our streets and highways causing more intensive study of the vehicular hazard by civic, governmental and medical groups, a review of the problem our truck drivers present is indicated. Only one phase of the problem, namely, the possibility of sudden collapse at the wheel is under consideration here. Although various causes such as epilepsy, diabetic coma and insulin shock may bring about sudden and unexpected syncope, studies have shown that the most common cause of unexpected unconsciousness is coronary artery disease. The second most likely cause in our group would be a cerebral hemorrhage secondary to hypertension.

The cardiac who is decompensated or suffers angina on moderate or slight effort, automatically removes himself from the man under discussion, although many such cases are still employed in our various plants, suitable assignments having been available. Our consideration here is limited to the asymptomatic individual who has recovered from a myocardial infarction with but the history and the electrocardiograph to indicate an underlying coronary atherosclerosis. Also included is the patient with a mild anginal syndrome not aggravated by his employment. Various medical groups have recommended that these individuals be considered as disabled for anything but sedentary work. The problem is acute in our unit because we have several employees who have recovered from such attacks at present at work driving for whom no other positions are available. It is a choice between continuing at driving or being retired as a total permanent disability.

The number of deaths from coronary arteriosclerosis and angina pectoris is rising as might be expected from the increasing average age of our population as these are diseases of advancing years. In our industry with a stable employee group, we can expect a high percentage of our employees in the 40 to 65 age group. Since cardiac disease from coronary thrombosis or angina pectoris is most frequent in the 50 to 60 decade, this problem will be with us until the causative factors are understood and preventive measures are possible.

As clinical histories have lengthened, it has been shown that the prognosis following cardiac thrombosis is more favorable than originally supposed. The Metropolitan Life Insurance Company records indicate that 43% of such individuals were still alive at the end of twelve years from the time of their first coronary attack. It must be emphasized that there is no correlation between the severity of the clinical history and findings and the occurrence of another attack or the prediction of length of survival. Our methods for evaluation of cardiac function including the various forms of electrocardiography, ballistocardiography and coronary insufficiency tests are still wanting in reliability as an estimate of work potential and future course.

448800

The literature in the main supports the assertion that except in cases of unusual and severe exertion, there is no relationship between coronary occlusion and effort. Driving is classified as moderate work in relation to other assignments at our plants.

In this question of the possibility of an accident resulting from loss of control of a vehicle by its operator, we must distinguish between instantaneous and sudden death. The latter may occur from minutes to hours, whereas the former implies seconds. It is only instantaneous death that is our concern as in minutes the driver would have ample time to bring his vehicle to an orderly halt. The literature agrees that the likelihood of an instantaneous collapse in coronary disease is rare. Our own Claims Department reports only one individual who died from a heart attack while driving a truck and he had time to pull his truck to the side of the road and stop. One of the large bus companies in New York City likewise reports only one such incident in all its years of driving on the crowded New York City streets, again with the bus brought to the side of the street and halted. In St. Louis a physician for the Surface Transportation System has likewise reported that there has never been an accident resulting from a coronary attack in any of their operators. A study of 580 severe coronary attacks in a California hospital reported only one case of instantaneous death and one other possible. Examination of the autopsy records of the Medical Examiner's office of New York City revealed only two cases in three years where a coronary attack might have caused the loss of control that resulted in the accident. When this figure is compared to the total mileage covered on New York City streets by approximately 1½ million vehicles daily and against the total number of daily accidents, the figure becomes insignificant. In any case of angina pectoris or in a healed coronary, the risk of sudden death is always present, but statistically the possibility of instantaneous death is so small as to challenge the practice of considering such employees total and permanent disabilities when no sedentary jobs are available. There is agreement among physicians that it is better for such patients to be returned to work rather than to sit at home. Our experience with these employees where they are returned to driving or to other positions, has shown excellent sick records with very little lost time. There just are not enough jobs of a sedentary nature available to assign to the employees in the category under study. Our drivers in this group are always assigned to gasoline trucks to avoid the hose pulling necessitated by fuel oil deliveries, are given the lightest routes, without any overtime. It is felt that such a policy will keep many useful employees gainfully occupied and thus helpful to themselves, their families, industry and to the national economy. An over-cautious policy on the part of physicians trying to rule out every possible risk of living will make invalids out of many healthy people who can still perform a good day's work with minimal risk to themselves and to others.

PROVISIONS AND DISCUSSION OF THE NEW
HOSPITAL-SURGICAL BENEFIT PLANS
R. E. Kirkpatrick, Assistant Industrial Relations Manager
Socony-Vacuum Oil Company, Inc.

Doctor Saunders has asked me to give you a brief review of two recently introduced plans which have been made available to employees of the Socony-Vacuum Oil Company. They are the Hospital-Surgical Insurance Plan and the Extended Medical Expense Insurance Plan. Before I describe the provisions of these two plans, a little background information might be helpful.

Our Company's benefit plan structure provides for a great many contingencies but the plans have all been designed to help the employee help himself. They are not meant to relieve the employee of every responsibility in providing protection for the various emergencies that might arise nor do they relate themselves to every possible emergency. We wanted this to apply in the hospitalization field as well. This basic policy introduced the question as to whether the Company should provide a plan in this field but consideration of the problem finally indicated that a plan of this type should be offered and further indicated the desirability of offering the "catastrophe" type insurance I will describe later.

When we introduced our plan we wanted it to be flexible enough to satisfy local needs. That is why we made available different levels of benefits providing \$8, \$10, or \$12 per day room and board benefits. In actual application, all of our local units decided on the \$12 benefit. The Plan provides that this amount will be paid for the first 70 days of hospitalization, plus one half that amount for the next 180 days. It provides for payment of the first \$200 of special services, plus three quarters of the next \$1800 of such expense. It will pay for charges for physicians' hospital attendance up to $\frac{1}{4}$ times the number of days of hospital confinement with a maximum of \$225. The Plan includes a surgical operation schedule with benefits up to \$225 for an operation. The Company contributes to the cost of this plan so that the cost to the employee has been reduced below that previously paid for similar coverage elsewhere.

There are some notable special provisions in connection with this basic plan. One is that coverage is provided to retiring employees without cost. This coverage differs from that given active employees in that it provides a maximum equal to the benefits provided in the published schedule. When this has been used, the coverage is exhausted. We use the term "once around the clock" in connection with it. We also provide that terminated employees may, if they so elect, continue coverage for a period up to two years if they pay the entire premium without Company contributions. Similar protection is available to dependents of deceased employees. Under the plan, only those dependent children under 19 years of age may be covered by a family contract, but they may continue coverage until age 25 by the payment of a special premium during that period.

In making the Extended Medical Expense Insurance available the Company entered into a rather new field. It was only after very careful study that this type of insurance was provided. Originally it was felt that only our higher paid employees might be interested in such insurance but all levels of employees showed such an interest that it has been extended to all. Our experience has since shown that our principle beneficiaries to date have come from the lower income groups. One primary concern in introducing this plan was to design it in such a way that the individual employee would feel some concern about the benefits he received under it. For this reason, an initial deductible amount was set up and benefits payable after that amount were based on 75% of actual expenditures.

Perhaps the quickest way to cover this particular plan is to read some of the provisions from the booklet that has been given to employees.

"If, as a result of a non-occupational sickness or injury, you incur medical expenses as described below, while under the care of a physician or surgeon, you will be paid 75% of the amount by which such expenses, during a medical expense period (described below) exceed the sum of (a) benefits under any Provincial law, (b) any other benefits payable for such medical expenses under the provisions of our basic Hospital-Surgical Insurance Plan and any other plan, and (c) \$100 if your basic annual earnings are less than \$10,000 or \$150 if your basic annual earnings are \$10,000 or more.

"The maximum benefits payable to any individual on account of all injuries or sicknesses are \$5,000.

"It is not necessary that you be confined to a hospital to be eligible for these benefits.

MEDICAL EXPENSE

"The term 'medical expenses' means any reasonable charges incurred by you for the following types of medical services performed or prescribed by a physician or surgeon licensed to practice medicine.

- Hospital room and board, except for any charges over \$16 per day.
- Services of physicians and surgeons, including specialists, in or out of the hospital.
- Services of registered nurses in or out of the hospital.

Also, the following services when not rendered in connection with hospital confinement:

X-rays and other diagnostic laboratory procedures.
Drugs and Medicines.
Rental of iron lung or other durable equipment required
for temporary therapeutic use.
Oxygen and its administration.
Anesthetics and the administration thereof.
Blood transfusions, including cost of blood.
X-ray or radium treatments.

"The Plan does not cover expenses incurred for pregnancy or resulting childbirth, miscarriage or Caesarean section or for prenatal or post-natal care. However, if there are severe complications, any additional 'medical expenses' due to such complications will be covered.

"The Plan does not cover expenses for any kind of dental service, eye glasses and hearing aids or examinations for prescription or fitting thereof, periodic health checkups, surgery or treatment for cosmetic purposes, expenses arising out of injury or sickness due to an act of war; nor does it provide benefits for any services for which the person receiving them is not required to make payment, nor for expenses for which the individual receives payments as the result of legal action or settlement.

MEDICAL EXPENSE PERIOD

"Benefits payable under this Plan are determined separately with respect to each medical expense period. A medical expense period begins with the first day on which you are under the care of a physician for the treatment of a sickness or injury. It continues to the earliest of the following dates:

- (a) The date of full recovery from the sickness or injury.
- (b) The date when no medical care has been received and no medical expenses have been incurred for a period of two months.
- (c) The date 12 months following the date of commencement of the medical expense period. If a medical expense period extends for 12 months and you have not recovered from the sickness or injury, then a new medical expense period shall commence immediately after the end of such 12 months period.

"If during a medical expense period the benefits are less than the \$5,000 maximum, the maximum benefits payable during one or more subsequent medical expense periods will be the balance of the \$5,000 which was not previously paid.

DEPENDENT BENEFITS:

"Benefits will be available for expenses incurred on account of a covered dependent on the same basis described above."

It should be noted that the Company makes no payment toward the cost of this plan and that any dividends which may be distributed under it will go entirely to the benefit of the employee involved.

We believe that these plans will prove to be a valuable addition to our benefit plan structure. As with all other Company Plans, they will be constantly watched to determine whether any improvements can be made and we will welcome any suggestions or criticisms you may wish to make.

DISCUSSION

- Dr. Saunders: If a man has the Extended as well as the Basic Plan and goes into the hospital for an operation which costs \$250.00, would the Basic Plan cover part of this?
- Mr. Kirkpatrick: Yes, he would be paid by the Basic Plan until the benefits of that were exhausted.
- Mr. Montgomery: The two Plans could be running concurrently.
- Dr. Saunders: Has any decision been reached by Metropolitan as to whether our company medical advisors are suitable to examine a person for re-employment?
- Mr. Lane: I haven't heard that there would be any objection.
- Mr. Kirkpatrick: We have passed information on to the field that a person could be examined by a company physician.
- Dr. Johnson: Is an X-ray examination allowed under the medical plan?
- Mr. Lane: The surgical schedule calls for treatment of a fracture so if there is an x-ray, you can pick up the charge for the x-ray under the surgical schedule in the treatment of that fracture.
- Mr. Montgomery: However, if you find that the bone isn't broken, you cannot get paid for it.
- Dr. Johnson: Then, you can get paid if you are hospitalized, but you cannot get paid if not?
- Mr. Kirkpatrick: It is difficult to cover every kind of contingency.
- Dr. Potts: There is the problem of the biopsy. We can save the employee money if we put him in the hospital for it. However, as a Company, we lose because the employee loses time.

Mr. Montgomery: We certainly welcome ideas. Some cases are simple. Some are more complex. We have to keep away from advantage being taken of the Plans. The difficulty comes in the employee not being able to understand what things are covered and what things are not covered.

THE PREPLACEMENT EXAMINATION: PURPOSE, PROCEDURE,
LABORATORY WORK, AND EXPLAINING RESULTS TO SUBJECTS
Dr. C. H. Schulte, Medical Advisor
Secor-Vacuum Oil Co., Inc., Detroit

ABSTRACT

The preplacement examination is one form of the industrial physical examination. The industrial physical examination now occupies an important place in the operation of an industrial medical service. It has progressed to the point where it occupies an important place in the operation of industry. It has grown up over a period of fifty years and has especially developed in the period of the last ten or fifteen years.

The importance of the industrial physical examination has been influenced by the fact that virtually all industry is now underwriting the physical welfare of all employees for a period of from twenty-five to forty-five years. This underwriting has been made necessary by the various pension and retirement plans which are now a policy of industry.

There are a few thoughts on the subject of the industrial physical examination which I will discuss by presenting you with a few ideas for your own consideration. One of them is the matter of "standards". A number of years ago there were very few, if any, standards, and they were not consistent even in the various operating areas of the one industry. We might consider whether the present set of standards which we employ in our various divisions today is adequate or inadequate. Personally, I do not think they are adequate, but I am also fully aware that this is not for me to say; but I will leave you with the thought as to whether or not you consider them adequate.

Second is the matter of a "form". Many years ago there was no particular type of form used for these examinations. During the past years the forms have been revised to a point where they now serve a very definite purpose and have become virtually a part of the technique of the examination. In our own industry in Detroit we have revised our form four different times and expect to revise it again this year because we have found that the form itself simplifies the technique of the examination and is of great importance in future years in the adjustment of claims, etc., brought by the employee against the industry.

Another thought relative to the industrial physical examination is the classification of risks. Over the past thirty years we have finally arrived at two classifications only, the "standard" and the "substandard". The "standard" risk is one who can be employed in any capacity. The "substandard" risk is an employee who can be employed only in a limited capacity, if at all. The "substandard" risk should only be recommended subject to the approval of the employing officer and/or the Personnel Department. The "standard" risk can be recommended by the examiner without further consultation.

Another thought is the matter of bookkeeping. Once again, over a period of thirty years, we have simplified our bookkeeping system so that we may determine at a moment's notice the number of "standard" employees and "substandard" employees, etc.

I do not attempt to make any recommendation relative to the operation or the policy of any industry but I have only tried to discuss the subject of the industrial examination in terms of experience in which we have perfected the system on a trial-and-error process, learning most of what we do the hard way.

- - - - -

Dr. Saunders: I agree with Doctor Schulte. We do not have the best possible technique or the best possible physical examination. We have devoted a great deal of thought in the last year or two to the examination form. I have studied the forms from many industries. As you have brought out, it is very difficult to get a form which will fit all possible industries. You are operating in Detroit in a certain situation. Many of our employees are examined on the spot. Our form must be adaptable to 26 Broadway, your office, and out in the bush. I am very glad you brought up these ideas.

THE PERIODIC RE-EXAMINATION: PURPOSE
AND PROCEDURE: VALUE OF MEDICAL RECORDS & REPORTS
C. L. Samuelson, M.D., Medical Director
Socony-Vacuum Oil Company, Inc.
Paulsboro, New Jersey

I feel that the program of periodic examinations is one phase of our work which makes industrial medicine a specialty. It certainly removes us from the often referred to category of first aid men and first aid nurses. It also sets us apart from the majority of the medical profession, who, as a rule, see only those people who have developed symptoms and disease processes to the point where medical attention is imperative.

The subject of periodic examinations is a broad one. Maybe we should, as Dr. Schulte suggested last year, discuss some aspect each year. Maybe it could best be covered by a panel presentation.

Yet we must be careful so we do not find ourselves just talking about the subject and forgetting some of the fundamental objectives.

I. WHAT CONSTITUTES A PERIODIC EXAMINATION?

This question in itself might be an assigned subject for discussion, but for the purpose of this presentation I shall let the following definition suffice. A periodic examination is an examination carried out for the purpose of:

- (1) Detecting disease processes before the onset of symptoms.
- (2) Checking and controlling a known physical impairment.
- (3) Detecting physical or other changes which might take place as the result of certain occupational exposures.

These examinations should be as complete as personnel, equipment and existing policy will permit.

In some industrial medical establishments many diagnostic facilities are available. In addition to routine chest x-rays, they are equipped to do gastro-intestinal work. Many have the facilities for doing complete blood chemistry. They may have the necessary equipment for doing metabolic studies. The staff may include many doctors, a large number of nurses and technicians. In others, the nurse may be the only medical person in attendance. Obviously, the scope of the examination which could be performed in the two establishments would vary greatly. But, should the nurse who is alone in the medical department fail to make use of certain simple equipment, such as the scale, sphygmomanometer, or wall charts for visual determination during her available time, she would not be doing justice to her employer, to the employees and to herself. She would, in my opinion, automatically remove herself from the category of an industrial nurse and reduce her status to that of a first-aid attendant.

II. WHY DO WE DO PERIODIC EXAMINATIONS?

For the benefit of those present who may not be acquainted with our operations at Paulsboro, the following may be of some interest. Our operations consist of the Paulsboro Refinery and the Research & Development Laboratories. Currently, the Refinery is being modernized and therefore, a great deal of building is being done. We have recently completed a raw tube still, known as #7, which was put on stream December 17th. We are also in the process of erecting a second T.C.C. unit which is scheduled for completion in April of this year. Many of the office buildings are new and completely modern.

The Research & Development Laboratories are on the whole a newer installation and consist of numerous modern buildings. In these buildings are some of the finest and most modern laboratories that I have had the privilege of seeing. They are fully equipped with recent and up-to-date facilities including such advanced equipment as the electron microscope and x-ray units used in the development of new techniques and processes.

Because of the tremendous cost of these facilities and the physical aspects of our Plant, Management has seen fit to set up a Maintenance Department within our engineering section, whose sole function is to see that the physical operating equipment of the Plant is kept in the best condition for maximum efficiency.

But, regardless of how modern or how efficient the physical aspects of our Operations may be, there would not be one drop of crude oil processed unless we had people to operate the equipment. It is possible to determine rather accurately the cost of the physical properties of the Plant, but it is more difficult to do so regarding the human element. Henry Ford stated in 1939 that it costs the company \$42 just to put a shovel in the ditchdigger's hand. In 1945, in one of the petroleum journals, it was estimated that it cost the company \$15,000 to train a Stillman. Currently, at the Paulsboro Refinery we have 100 people classified as Stillmen. These alone represent an investment of one and a half million dollars if one wishes to reduce the human element to a dollars and cents figure.

While maintenance and care of the physical aspects of the Plant is a responsibility of the Maintenance Section of our Engineering Department, the care and maintenance of the human factor of our Operations is a direct responsibility of the Medical Group.

Since this is our direct responsibility, it is necessary that we establish a definite program of preventive maintenance applying the human element. This obviously necessitates a program of periodic examinations.

III. HOW DO WE DO PERIODICS?

Because of the large number of people, there being in excess

448810

of 3,500 engaged in the two operations, time and medical personnel become an important factor. Therefore, it is necessary that we do our examinations on a scheduled basis and make use of our nursing staff for a great portion of the examination procedures. We believe that scheduling is important for two reasons: (1) The employee should be scheduled for his examination at a time convenient with operating personnel and, secondly, by scheduling, we can do our periodics at a time of day when our daily work load is at a minimum. We believe that we are justified in using the nursing staff for part of our examination procedures because, first, we feel that they are competent, second, we feel that their having an active part and responsibility in the health maintenance program makes their work more interesting.

IV. PROCEDURE

This is how we proceed:

The nurse sees the employee at the scheduled time. She begins the examination by taking a history or health inventory. This history is a review of the complaints which the employee might have, based on a review of the various body systems. We also take a family history as we know that the incidence of certain diseases and the severity of others are closely allied to family history. With the nurse taking the history, the doctor is saved a great deal of time when he sees the employee in that he can limit his questioning to those items where there are positive answers. Following this, the nurse checks and records height and weight. Certainly, the recording of the weight is important as the loss of weight from previous examinations might indicate the presence of some disease or poor health habits which would require further investigation. She next checks the vision. It has been estimated that over 60% of the people will at some time or the other need visual correction. We feel that it is important to note the decrease in visual acuity early and recommend that the employee see a competent man for correction of the same rather than wait until the employee comes in complaining of eye fatigue, headache or even the possibility of having made serious error in his work as a result of poor eyesight.

The nurse continues her portion of the examination by taking the blood pressure and pulse. She checks the condition of the mouth and notes any other major findings which may be apparent. The employee is then referred for routine laboratory work which consists of chest x-ray, blood count and urinalysis. Currently, we are doing electrocardiographs on all employees over the age of 40 and on others where the history indicates. The nurses have the responsibility of ordering adequate laboratory work and x-rays if the history, as given by the employee, indicates that these procedures are advisable.

Upon the completion of these preliminary procedures the employee is given another appointment convenient with operating procedures to report back to the medical department for the doctor's part of the examination. Before he returns, the laboratory work is completed

and recorded, the x-rays and the electrocardiographs are interpreted. Then, when the employee comes back for the rest of the examination, we can discuss with him the findings of all the laboratory and x-ray procedures. We believe that the employee is impressed by the fact that we can summarize his findings upon the completion of the doctor's part of the examination.

In addition to the procedures for the so-called routine periodic examination, we are currently doing two other types of examinations. The first of these is hematologic study on people exposed to certain substances and activities which may, under certain conditions, have an adverse affect on the blood forming organs. This program is in the charge of our laboratory technician and it is her responsibility to see that the designated employees are called in at pre-determined intervals. She performs the necessary studies and records the findings on a graph form. We believe this graph form serves our purpose more adequately than recording the results in a haphazard manner in the employee's folder or on a card file. By keeping a progressive graph, any deviations are quickly apparent. When deviations do occur or when the findings are over or below normal, the employee is immediately referred to the doctor for his evaluation. Otherwise, all employees' graphs are reviewed periodically by the physician.

We have been somewhat concerned with what appears to be a relatively high incidence of cardiovascular disease among our employees. We have therefore instituted what is known as our Cardiovascular Check Program. In this program, we check at monthly intervals the blood pressure, pulse and weight of all employees known to have cardiovascular disease. This program again is under the direction of one of our nurses. It is her responsibility to call these people in, determine and record the results.

Here again we have devised a graph form which we believe call to our attention any deviations immediately. As in the previous program it is the responsibility of the nurse to refer these people to the doctor immediately when any appreciable change is noted. Otherwise, the records are again reviewed periodically by the physician.

V. WHAT DO WE DO ABOUT OUR FINDINGS?

Where the findings are normal, we assure the patient that we have found him in good health, that it was a pleasure to have had the opportunity of examining him. We also stress the importance of establishing certain normal base lines, as it is then possible to detect deviations if they should be noted at some future examination.

If we are unfortunate enough to uncover some pathological process, we feel that merely recording such in the employee's folder is not sufficient but rather positive steps for the correction of the same must be carried out. If the condition is minor or such that it can be adequately handled by giving the employee good health counselling, we undertake to do that as part of our responsibility. If, on the other

to notify Management immediately of our recommendations so that they can make the necessary changes in operating procedures and such replacement of personnel as they see necessary.

These illustrations are simple but frequently problems arise which cannot be handled in a routine manner, such as, the reclassification of an employee with short service, repeated absenteeism, and the retirement of employees. In order that the best interests of Management be served, it is frequently necessary that we divulge the exact nature of the diagnosis, outside medical reports and other facts upon which we have based our decision. Many times the question of service, what the employee has to offer the company, social and economic problems and other factors enter into the ultimate decision which are beyond the scope of the medical department. In these instances, I feel it is necessary that we discuss the case with responsible members of Management and present to them all the facts available that they might be able to arrive at the best possible decision which would serve both the interests of the employees and Management.

VII. MANAGEMENT EXAMINATIONS

Of late it is almost impossible to read any industrial-medical publication without finding some reference to management examinations. It is surprising and rather alarming to note the high incidence of disorders which are being found. Fortunately a goodly percentage of these conditions are amenable to medical or surgical treatment. It is somewhat difficult for a medical man to place more value on one human life than on another, but I believe that we as industrial doctors and nurses are justified in putting more emphasis on the examination of our Management group. This is for two reasons: first, it is apparent from statistics that the stress and strain of management responsibility is not always compatible with good health. Secondly, I believe that emphasis should be put on the examination of management personnel because of the relative importance that those individuals have in the continuing success of the organization.

Of equal interest to me as the findings which are being reported in this group of individuals are the following questions: Are those people who are responsible for the selection of our executive personnel making use of the information which we have in our medical files as a result of periodic examinations regarding the health status of those people whom they have earmarked and are bringing up the ladder to assume responsible positions in the organization? Have we as industrial physicians established a liaison between our department and upper management where they feel free to discuss with us a certain individual's ability to endure the stress and strain of a more responsible position? It may be that closer cooperation between upper management and medical personnel might result in better and more careful selection of people who might occupy more responsible positions. Such a cooperative undertaking may serve to reduce the high incidence of disorders which are now being found in the management group.

SUMMARY

What is our ultimate goal? What are we trying to accomplish by a program of periodic examinations? I believe that there are several reasons for a program of periodic examinations.

- (1) To maintain a high level of health standards.
- (2) To reduce absenteeism with the resulting loss of production and increase in insurance and benefit payments.
- (3) Along with other medical services, to improve employee-medical relations.
- (4) To preserve for Socony-Vacuum, through increasing the longevity of employees, the know-how and experience that the employees have developed during their years of service.

By accomplishing these and other factors, we then have a part in getting into the hands of our customers, a better product at a more competitive price.

- - - - -

Dr. Saunders: Management certainly should be interested in the physical capabilities of the individual as well as his technical abilities before he is promoted or before he is transferred to a new job. Management should evaluate the man's ability which might go with that job. Where they get the necessary information is immaterial -- whether from our own medical departments or from outside.

SOME LEGAL ASPECTS OF INDUSTRIAL MEDICAL PRACTICE
H. D. Sayer, General Manager
Compensation Insurance Rating Board,
New York City

Industrial medicine has many aspects, among which are:

1. The aspect of workmen's compensation
2. The aspect of sickness disability and disability benefits
3. Health and welfare generally.

Workmen's compensation itself has three aspects: (1) protection and accident prevention, (2) medical care and attention when prevention has failed to prevent the accident, and (3) the indemnity or the compensating for the loss of time or the loss of wages.

Our compensation law provides that the employer shall furnish prompt and adequate medical care and treatment and provide such necessary hospitalization, crutches, etc., as required by the nature of the injury. Another principle and touchstone of the whole system is the liability of the employer for the injury of his employee which attaches to any injury resulting to the employee which arises from and arises out of the course of employment. There is more litigation of interpretation of the foregoing expression than of any other aspect of the law. The injury must occur during working hours; the employer is not responsible for the injury of the worker coming to work. "Arising out of employment" is anything that is normally incidental to the employment. It must be causally related. Does the condition arise from the accident that has been reported and described, is it due to it, has it been aggravated by it, did the accident produce the final step in the process of disabling the employee. If it did, it comes within the workmen's compensation law and the employer is responsible. You can see what responsibility rests on the doctor to give his opinion whether that condition and result was one which reasonably may be said to have followed as a natural sequence from the condition that the injured man had prior to the accident. For example, if a diabetic has been examined and certified he is able to do certain things, but something happens to him from a sore on his foot, he bangs his big toe, he has a contusion, develops gangrene, etc., that injury might not have constituted a disabling injury at all to men who did not have diabetes, but this man has and as a consequence, whatever condition which resulted would be the employers' responsibility.

The filing of reports is a very serious and essential business. There is no compensation case in which there is not a doctor. There is no such thing as paying compensation for disability without a doctor's report that the person is disabled and entitled to his compensation. When the doctor gives his opinion and gives a report of the facts, he is not to regard himself as the employer's doctor, nor the employee's doctor, nor the insurance company's doctor. He is to give the truth and his opinion as he understands it. If he does not have an opinion

on which he can make a categorical statement, yes or no, he should then give his impression but say that it is an impression.

The law provides that the workman is entitled to choose the doctor who will treat him. The employer may not even suggest the name of the doctor that he should go to unless he makes a request of his employer in writing, in which case, his employer may suggest a qualified physician to treat him. New York law also states that an employer may maintain a medical clinic upon application to the Chairman of the Board, Board certification by the County Medical Society, and treat in that medical department almost any kind of condition which might arise. But, you can't compel an employee to come to the clinic. You are entitled to send a doctor from time to time to examine him, to determine what his condition really is, whether he is totally disabled, and also to determine for yourself whether, in your judgement, he is receiving adequate treatment for the condition that he presents. Medical inspection is an important factor because you cannot relieve yourself entirely for the responsibility of compensation if the man is receiving what is called inadequate treatment. The employer has the right in such a case to direct the employee to go to another doctor and he must do so, and the other doctor must desist from treating the case. The only thing is, the doctor from whom you took the case may file a claim with the Chairman of the Workmen's Compensation Board to be paid the amount of money that you subsequently paid to the other doctor who took the case over.

In New York, the law provides that while we have a free choice of physician, a physician may not treat a case outside of the field for which he has been authorized by the Chairman of the Workmen's Compensation Board. A general practitioner should not undertake surgical work beyond his capacity. He should refer the person to a doctor who is so "coded" or authorized by the Chairman. A doctor who signs the report should sign his code letter; it is then assumed that he did not go beyond his authority. The Chairman of the Workmen's Compensation Board has frequently stated that the insurance carrier must not pay the bill of a doctor for treatment outside of his authorized field. Some insurance carriers will allow a specialist to do work that is not in his special field but which might be done by a general practitioner. You will be upheld in disapproving the bill for any doctor which is outside the field of his coded authorization. This applies only in New York.

In regard to compensation for occupational diseases, there is no exact definition of occupational disease. A proposed definition is any disease that is characteristic of and peculiar to the occupation. The essential thing is that it must be a disease characteristic of and peculiar to an employment, in that you find it more in that employment than you do elsewhere.

You may be interested in the following questions and answers:

1. Are pre-employment examination records privileged? I would say, and not as law, that they are not privileged. The privilege provided in our law between doctor and patient has been held by the courts to be a privilege to which no other person is a party. When an employer directs and

pays for the examination and it is made for his use and the person examined submits himself for examination, under those conditions there certainly is a third party present and no question of privileged communication arises, but, there may be a liability for the indiscriminate use of the information developed on a pre-employment examination. So far as informing the public authorities of a condition found in a compensation accident, I think you have a duty to divulge fully the information you have. The mere nature of accepting compensation or filing a claim for compensation which must in its very nature be based upon a physical condition would waive the right of confidential relationship. The compensation law would be unreasonable in many cases if the doctor were prevented from divulging fully the nature of the condition of the patient which he examines.

When treatment is given in a clinic by doctor or nurse in an employer's medical department, what are the legal responsibilities of the company and of the persons giving treatment? The responsibility of accuracy and truthfulness. If the company permitted a report to be filed with a public authority in which an incorrect and erroneous statement was made, the Company itself, might be liable because the doctor or nurse is acting in the course of his employment and the old rule of responsibility of the principle for the acts of his agent would prevail.

Does possibility of liability differ between occupational and non-occupational from the standpoint of treatment? To some extent, I should say, yes. If it is non-occupational, (includes all pre-employment examinations which are made by direction of the employer and which are really conditions of employment) I would think you might be held to a somewhat higher responsibility.

In compensation cases, what are the responsibilities and liabilities of the nurse and doctor giving treatment? There is the responsibility of care. Don't invade another person's field. Don't go beyond the field of your competence, or your authority, if the condition presented calls for the services of a specialist. You may assume some liability if you undertake treatment or care beyond the scope of your authorization or competence.

How long should records of examination be preserved after separation from service? It is a matter of judgement. In New York, we have a six-year Statute of Limitations. However, if it has been a compensation case, the New York law gives to the Board continuing jurisdiction and the Board may reopen a case five years later. There is no statute of limitations running as against workmen's compensation cases.

We have in our law, a two-year Statute of Limitations on the filing of workmen's compensation claims, but the law says that the Board may excuse the non-filing of a claim if the claim could not have been filed for some good reason. If you have given the man medical treatment or if the company has paid for medical treatment, you may not thereafter claim that his claim for compensation is barred by the Statute of Limitations.

FUNCTIONS OF AN INDUSTRIAL HYGIENIST
IN A PETROLEUM INDUSTRY

A. C. Pabst, Industrial Hygienist
Socony-Vacuum Oil Co., Inc.

Industrial Hygiene may be defined as the application of engineering, chemical and medical knowledge to industry for the prevention of occupational exposure to harmful substances and environments, thus preventing adverse effects on the health of the workers. Prevention is regarded as the keystone of industrial hygiene and such a prevention program involves four basic steps:

- 1) The recognition of potentially harmful materials.
- 2) Knowledge of concentrations at which exposures become hazardous.
- 3) Measurement of exposure.
- 4) Recommendations, design and installation of remedial measures.

What is a harmful substance or chemical? Before control measures can be undertaken, it is necessary to recognize the hazard and evaluate its magnitude, and, as a rule, the degree of hazard involved is related to or associated with the particular way the material is used or handled. In other words, almost any substance can be hazardous or non-hazardous depending upon conditions of use or environment. As a simple example, ice in a highball is not particularly hazardous, but ice on an airplane wing or a sidewalk can be quite hazardous. In the same manner, the use of carbon tetrachloride in a process having properly designed exhaust equipment or other safeguards would not present a hazard, while the use of carbon tetrachloride for mopping floors would be quite hazardous.

It is the job of the Industrial Hygienist to become familiar with all the chemicals or materials used by his company, their method of application, the extent of hazard, if any exists, in such application and to recommend control measures where required.

The widespread and involved operations of Socony-Vacuum Oil Company make this a large order and a job to challenge the combined co-operative efforts of the industrial hygienist, the plant physician, the plant safety engineer and plant management.

It is difficult to try to determine the number of chemicals used by the petroleum industry. It is probably safe to say that practically every known chemical may touch the petroleum industry or be involved in the utilization of petroleum products. In Socony-Vacuum, over 2,000 basic chemicals or raw materials are used and over 3,500 finished or branded products are manufactured. Therefore, it is necessary to review all chemicals entering our refineries and to tabulate known toxic or hazardous substances as shown in Table I. This list contains chemicals associated with one phase or another of petro-

leum refining. As would be expected, certain of these chemicals may be found in one of our refineries and not in another depending upon the type of processing. Further, such a list changes continuously, as refining processes and products change, so that there will be constant additions and deletions to the list.

With Table I, it is possible for each refinery to check off or list materials used in its particular operations and through the cooperation of the plant physician, the safety man, laboratory personnel and industrial hygienist, determine if employees handling such chemicals are properly protected and free from excessive exposure. Incidentally, the chief chemist or plant laboratory is probably in the best position to know what chemicals are used, where and how they are used, and also to act as headquarters for chemical evaluation of exposure levels. In most cases, chemical or physical testing is required to determine the exact concentration of toxic materials to which employees are exposed to determine whether the harmful substances are above or below Threshold Limit Values.

As you know, Threshold Limit Values or maximum allowable concentrations (MAC) represent the average maximum safe exposure limit for an eight-hour period. Such values have been arrived at through considerable study of all available knowledge of the particular material, including animal tests and human exposure at various concentrations and under various conditions. Maximum allowable concentrations are the result of the best available knowledge on the toxicology of chemicals or hazardous substances. Naturally, there is some limitation in establishing fixed standards since due to individual differences, the same MAC value may not be applicable to all individuals equally. In many instances, therefore, it is advisable to couple such data with periodic employee health examinations. As a rule, however, if the concentration of a particular contaminate is below the MAC value, no adverse effects on employees should be experienced. The MAC values do furnish us with a very important base or yardstick to determine whether an exposure can be considered safe or whether it is excessive. MAC values can be used for calculation purposes.

So far I have talked about the hazardous or toxic materials likely to be found in the petroleum industry, and the concentration above which exposure can be harmful. The next step is the evaluation or measurement of the employees' environment or working area for harmful substances being handled and to determine if it is at a safe level or if it is excessive. For this purpose, the industrial hygienist has many specialized instruments at his disposal as well as adaptations of standard chemical techniques. Some test methods are quite simple and easily made by an individual with limited training while other tests are exceedingly complex, requiring a skilled analytical chemist with elaborate equipment. Testing of the working area usually involves air sampling and testing of the sample. There are two basic methods of air sampling:

1. Grab Samples.
2. Continuous Sampling.

Grab samples, as the name indicates, are instantaneous samples while continuous samples are taken over a period of time. Each method has its particular application and in many cases, both are used on the same exposure.

A continuous sample gives an average concentration for the whole period of time, while a grab sample gives concentration at a particular instant. Obviously, grab samples are required to measure the maximum concentration reached and continuous samples are needed to measure an average daily exposure. An example of grab sample test equipment is the silica gel carbon monoxide tester. Examples of continuous samplers are the electrostatic precipitator and the midget impinger. By the use of these instruments, we are able to obtain an accurate determination of employee exposure and if excessive, recommend corrective measures.

Naturally, the best corrective measure, if at all possible, is elimination of the hazardous material and substitution of a safer material, such as substitution of petroleum solvents for benzene, methyl chloroform for carbon tetrachloride, etc. If this is not possible, the next best step is confinement of the substance and removal by local ventilation. An example would be covers on a compounding kettle and an exhaust system from the top of the kettle. If this is not possible, positive ventilation of the entire working area may be required. Generally speaking, for continuous or prolonged exposures, individual protective safety devices such as respirators should be used as a last resort, or as a temporary corrective measure. Their usage places too much dependence upon the human factor and past experience in this respect has not always been rewarding. Of course, for short or infrequent exposures, personal safety devices have their place and should be used.

Table I lists many toxic or hazardous substances used in our plants that are potential sources of trouble. I would particularly like to mention the following:

1. Asbestos - used in all plants as insulation - particularly bad if plant is shredding or reworking old asbestos for re-use.
2. Sulfurizing Oils - in certain plants manufacturing cutting oils and lubricants, oils are heated to a high temperature and sulfur is added. A reaction takes place and large quantities of hydrogen sulfide and other sulfur gases are released. This is quite dangerous unless properly designed ventilation is present.
3. Litharge or Lead Oxide - used in the following plants for gasoline treating:

Beaumont	E. St. Louis
Brooklyn	Fort Worth
Buffalo	Torrance
*Paulsboro	

*Equipment not used at present.

4. Girbotol Process for Hydrogen Sulfide Removal - In this process H_2S is absorbed in an amine solution and processed to form sulfur and regenerated amine. There is always, therefore, the possibility of exposure to H_2S leaks if the plant is not operating as it should. Such an incident occurred in Mexico and was described in the September issue of Archives of Industrial Hygiene & Occupational Medicine. In this case, there were 320 people hospitalized and 22 fatalities. We have Girbotol units in operation or proposed for the following refineries:

Brooklyn	E. St. Louis
Buffalo	Torrance
Casper	Trenton
E. Chicago	Paulsboro

5. Oil Exposures - And last but not least, we have the problem of oil exposure which is becoming more and more acute with the rapid growth of catalytic refining and the processing of aromatic petroleum fractions.

TABLE I
MATERIALS ENCOUNTERED IN PETROLEUM REFINERY OPERATIONS

<u>RESPIRATORY IRRITANTS</u>	<u>TOXIC MATERIALS</u>	<u>SKIN IRRITANTS</u>
Asbestos	Aniline, liquid	Acids, general
Acrolein	Aniline, dyes	Acids, acetic
Acetaldehyde	Benzol (Benzene)	Acids, hydrochloric
Formaldehyde	Cadmium	Acids, nitric
Other aldehydes	Chlorinated hydro- carbons	Acids, sulfuric
Dusts, physiologically inert, general	Hydrogen sulfide	Acids, phosphoric
Dusts, attapulugus clay	Cobalt, metal	Benzol (Benzene)
Dusts, bauxite	Lead, metal & fumes	Caustics
Dusts, catalyst	Lead, oxide, litharge	Chromium Salts
Fluorides	Lead, tetraethyl	Coal-tar compounds
Furfural	Lead, soaps	Pitch
Lime	Manganese	Cobalt, metal and compounds
Nitrogen oxides	Mercury	Diethanolamine
Ozone	Methanol	Glass wool
Ditertiary butyl para cresol	Radioactive materials, general	Gunk
Smoke	Gamma Radiation	Inhibitors
Sulfur dioxide	Beta Radiation	MEK
Welding fumes	Alpha Radiation	Nickel salts
Ammonia	PEM (Phenyl beta naphthalamine)	Oils, general
Aluminum Chloride	Silica, free	Oils, high boiling from Cat. & Steam Cracking
Pine Oil	Toluol (Toluene)	Oils, insoluble cutting
	Xylol (Xylene)	Phenol
	Zinc	Thinners, paint
	Alpha Napthol	Turpentine
	Carbon Monoxide	Ultra violet radiation
		Wax, untreated
		Xylol mercaptain
		Tripotassium Phosphate
		Alpha napthol
		Tertiary butyl catechol
		Pine oil
		Aluminum Chloride

ABSTRACT
OF
DISCUSSION

Dr. Potts: Is lead a big hazard in plants?

Mr. Pabst: No.

Dr. Saunders: Is litharge dusty?

Mr. Pabst: Yes.

Dr. Samuelson: What is the procedure for getting Mr. Pabst?

Dr. Saunders: The request might go either through the Medical Department or the Claim & Safety Department, depending upon who recognized the hazard.

Dr. Johns: Is there a hazard of dichromates?

Mr. Pabst: Yes, wherever we have catalyst dust we have chromates.

Dr. Luongo: You list cadmium in the materials. Is there any particular way of controlling that type of problem?

Mr. Pabst: There is no practical way except protective gloves and ventilation.

Dr. Luongo: Is there a substitute for it?

Mr. Pabst: You can use stainless steel.

Dr. Hinton: Regarding tetrachloride, isn't phosgene a by-product?

Mr. Pabst: That is correct. If carbon tetrachloride is burned, it generates phosgene and the threshold limit value is very low. We are trying to avoid the use of carbon tetrachloride in our company.

Report on
MEDICAL ACTIVITIES OF SOCONY-VACUUM IN ITALY
M. Russo, M.D., Medical Director
Socony-Vacuum Italiana
Naples, Italy

The Medical Department of our Company began its operation during the latter part of 1952. Our infirmary quarters in the Naples refinery area were completed on September 26, 1952, and shortly thereafter an infirmary was instituted at our Genoa office.

Prior to the effective operation of these medical facilities and since July, 1951, much time and planning were devoted to the establishment of a modern and up-to-date medical building, in the selection of the necessary equipment, in the preparation and compilation of employees' medical forms and records and in the appointment of a well-trained and competent medical staff.

In the Naples refinery, which has approximately 1265 employees, the physical plant of the infirmary consists of 18 rooms provided with modern medical equipment and facilities for conducting physical examinations, clinical laboratory tests and x-rays. An electrocardiograph, basal metabolism apparatus and ultraviolet and infra-red lamps constitute part of the equipment of this infirmary which has also a lecture room and nursery.

The personnel consists of a physician who operates the laboratory and assists the Medical Director in clinical work, a nurse, a secretary and a clerk who maintains records and assists in the preparation of reports.

In Genoa, where 400 persons are employed, the infirmary is provided with the necessary facilities and equipment for conducting physical examinations and electrocardiograph and basal metabolism determinations. A small laboratory for urinalyses and blood counts has recently been installed. The staff consists of a part-time physician and a full-time nurse.

Medical facilities in the other branch offices in Italy (Rome, Milan, Florence, etc.) are also to be installed in accordance with local requirements.

It may be worthwhile to mention that among our activities, we have recently trained a first-aid squad formed by employees from the various plant units, who were also provided with a first-aid manual published by our Department. Stretchers and first-aid cabinets have been distributed in every unit. In the last few months, we have proceeded with health inventories. At present we cannot draw any conclusions from our findings because the number of examinations performed represent only a small part of our working population.

Basically, the medical program of our company is similar, if not identical, to the one established for Socony-Vacuum Oil Company in the United States and may vary only in minor details determined by local legislation and conditions. Emphasis is placed on preventive rather than curative medicine with periodic and pre-employment examinations, health counselling and education, plant hygiene and sanitation, prevention and study of industrial health hazards, accident prevention and first-aid constituting the major activities.

We have observed a significant reduction in absenteeism from occupational accidents. The following figures denote this quite clearly:

<u>Year</u>	<u>No. of employees</u>	<u>No. of hours worked</u>	<u>No. of injuries</u>	<u>No. of days lost</u>	<u>Frequency rate</u>	<u>Severity rate</u>
1949	824	1,888,919	51	925	26.99	0.49
1950	1,018	2,323,087	76	1,435	32.71	0.62
1951	1,185	2,812,527	59	1,914	35.20	0.68
1952	1,251	3,246,854	71	1,245	21.87	0.38

In fact, our Naples Refinery, from the last place it occupied in 1951 among the European refineries, is now in second place in the general rating.

Note: Medical Director assumed his duties late in 1951.

Report on
MEDICAL ACTIVITIES OF SOCONY-VACUUM IN GREECE
E. Papantoniou, M.D., Medical Director
Socony-Vacuum Oil Company, Inc.
Athens, Greece

One should go through the main periods during which Company medical assistance to employees has been developed in order to understand the special conditions existing in Greece. These periods are: (1) the pre-war period, (2) from the liberation to 1950, and (3) from 1950 to date.

During the pre-war period, Company medical assistance to its personnel consisted of a brief preplacement examination and contribution to the Social Insurance Fund (S.I.F.). The Company was legally obligated to insure all of its personnel, and, in return, was given medical assistance by the S.I.F. to the people employed.

After the liberation, the health of employees was very poor for a number of reasons. There had been a lack of food during the four years of occupation — according to studies made at that time by the Red Cross, the calories of a day's meal for one person amounted to only 500. The Social Insurance Fund was in a very poor financial position. There was a lack of medical personnel, sanitary facilities, and medicines, particularly antibiotics. These reasons indicate why additional care was needed for the health of the employees. The Company, therefore, decided to grant supplementary medical assistance, exclusively curative in nature, in order to cover any expense for doctors, medicines, and medical care not supplied by the S.I.F., with employees contributing a small percentage (20%) of the cost of this assistance. Mention should be made that the results of the mass x-ray examination of all employees working with petroleum companies carried out two years after the establishment of supplementary medical assistance showed that 7.19% of them had active tuberculosis. The Greek government, also recognizing this need, approved that petroleum companies spend up to 3.75% on their payroll for additional medical care. Later on, when conditions improved, this expenditure was reduced to 2%.

The medical conditions from the liberation until 1950 can be summarized as follows: 1) lack of coordination, 2) widespread malingering, 3) improper hospital and home treatment, and 4) the supplementary medical assistance granted was exclusively curative with no policy of preventive medicine.

The period of 1950 to date starts mainly from the visit of Dr. Saunders in that year. His recommendations, adopted by management and put into effect, resulted in a great improvement in working conditions between his first and second visits. Upon my engagement on January 1, 1951, I received the following instructions: first, establish a preventive medical policy; second, carry out the collective agreement obligations regarding the curative medical policy; and third, organize a medical

448826

Report on
MEDICAL ACTIVITIES OF SOCONY-VACUUM IN GREECE
E. Papantoniou, M.D., Medical Director
Socony-Vacuum Oil Company, Inc.
Athens, Greece

One should go through the main periods during which Company medical assistance to employees has been developed in order to understand the special conditions existing in Greece. These periods are: (1) the pre-war period, (2) from the liberation to 1950, and (3) from 1950 to date.

During the pre-war period, Company medical assistance to its personnel consisted of a brief preplacement examination and contribution to the Social Insurance Fund (S.I.F.). The Company was legally obligated to insure all of its personnel, and, in return, was given medical assistance by the S.I.F. to the people employed.

After the liberation, the health of employees was very poor for a number of reasons. There had been a lack of food during the four years of occupation -- according to studies made at that time by the Red Cross, the calories of a day's meal for one person amounted to only 500. The Social Insurance Fund was in a very poor financial position. There was a lack of medical personnel, sanitary facilities, and medicines, particularly antibiotics. These reasons indicate why additional care was needed for the health of the employees. The Company, therefore, decided to grant supplementary medical assistance, exclusively curative in nature, in order to cover any expense for doctors, medicines, and medical care not supplied by the S.I.F., with employees contributing a small percentage (20%) of the cost of this assistance. Mention should be made that the results of the mass x-ray examination of all employees working with petroleum companies carried out two years after the establishment of supplementary medical assistance showed that 7.19% of them had active tuberculosis. The Greek government, also recognizing this need, approved that petroleum companies spend up to 3.75% on their payroll for additional medical care. Later on, when conditions improved, this expenditure was reduced to 2%.

The medical conditions from the liberation until 1950 can be summarized as follows: 1) lack of coordination, 2) widespread malingering, 3) improper hospital and home treatment, and 4) the supplementary medical assistance granted was exclusively curative with no policy of preventive medicine.

The period of 1950 to date starts mainly from the visit of Dr. Saunders in that year. His recommendations, adopted by management and put into effect, resulted in a great improvement in working conditions between his first and second visits. Upon my engagement on January 1, 1951, I received the following instructions: first, establish a preventive medical policy; second, carry out the collective agreement obligations regarding the curative medical policy; and third, organize a medical

section. Our general manager shows full understanding of our requirements and has always offered us the utmost help.

During this period, the following improvements have been made: 1) a medical section was organized, 2) we made individual medical cards for each employee, 3) we compiled a list of illnesses for statistical reporting purposes, 4) complete preplacement examinations are carried out and check-ups are made of workers who are absent because of illnesses, 5) we made special examinations of employees with chronic diseases periodically, 6) yearly mass x-ray examinations and inoculations are given, 7) dispensaries have been established in the Athens and Drapetsona areas, and 8) a new messroom, showers, and drinking water fountains have been established at the Drapetsona installations.

Unfortunately, despite the above improvements, medical conditions are far from ideal. The following steps could be taken to improve medical and health conditions. These would include the establishment of a dispensary in the Salonica area, the provision of more adequate diagnostic apparatus, a more abundant and nutritious mid-day meal, a more intensive safety and hygiene program to prevent accidents and undue contact with oils and greases, and an extension of the program of summer camps for children.

In our medical program, emphasis is placed on curative rather than preventive medicine. Because I have to carry out collective agreement obligations regarding the curative medicine policy, progress is made slowly to establish a preventive policy. In my opinion, one of the important factors in our preventive medical program should be nourishing food.

I should like to avail myself of the opportunity to state that Greece owes a lot to the United States. One cannot understand it at first sight, perhaps, because the progress made in Greece in building hospitals, factories, etc., is not a substantial one, but the fact that our people were saved from death and illnesses due to assistance from the United States should be clearly understood by everyone.

PROGRESS REPORT ON CANCER STUDIES
AT THE KETTERING LABORATORY AND AT NEW YORK UNIVERSITY
Marshall Clinton, M.D., Medical Advisor
Socony-Vacuum Oil Company, Inc.
Buffalo, New York

Abstract

Two approaches to the study of cancer have been developed:
1) animal experimentation and 2) epidemiology.

One year ago the problem looked very simple but it is becoming more complicated. Perhaps the biggest advance of the animal work is the development of the theory that the potency of a particular material is dependent less on the amount of carcinogens than on its concentration of accelerating constituents. There has also arisen the concept that certain materials contain accelerators to the carcinogens. Dodecylbenzene, when mixed with a carcinogenic oil, is believed to be an accelerator. Animal experiments have shown that certain classes of petroleum materials are potentially carcinogenic and will produce cancer in mice, such as paraffin distillates, gas oils coming from cokers, streams from catalytic cracking, steam-cracked tars, etc.

The American Petroleum Institute wanted to augment their epidemiologic studies, and studies are being carried on at New York University, Bellevue Medical Center, by Dr. Wm. E. Smith, on mice. One of the conclusions reached is that severity of exposure is one of the most important factors in determining whether malignancy will develop. At the Kettering Laboratory, "washing" experiments on mice have indicated that hygiene (thorough washing) should be emphasized among employees.

Chromate dust has been implicated as the cause of carcinomas. At present our bead catalyst contains less than one per cent of chromate and thus the degree of hazard is very slight. However, in the future, it might go to very high levels. It is something which can be handled by good industrial hygiene.

- - - - -

Dr. Saunders: If you come across any cases of malignancy, regardless of type or stage, we would like you to send the reports in on those forms which were provided from Kettering Laboratory, even though there is no relationship of the exposure to petroleum.

EARLY CANCER DETECTION
Emerson Day, M.D., Director
Strang Cancer Prevention Clinic, Memorial Center
New York City

Abstract

Earlier cancer diagnosis or detection, followed by prompt and adequate treatment, is at present the most effective means of preventing cancer deaths. Experience in cancer detection clinics indicates that unsuspected cancer can be found in from one-half to one per cent of the population over thirty-five years of age by a program of well-adult examinations which incorporates a few relatively simple detection procedures.

At the Strang Clinic, Memorial Center, the routine examination consists of family and personal medical history, thorough physical examination, and the following laboratory procedures: hemoglobin, total and differential white blood cell counts, serology (first examination), urinalysis, guaiac test for occult blood in the stool, and photo-roentgen of the chest. All women have vaginal-cervical cytologic smears by the Papanicolaou method. Proctosigmoidoscopy is routine for all persons forty-five years of age and older.

The major cancer findings of the "well-adult" examination at Strang Clinic during the past twelve years have been as follows:

<u>14,602 Men</u>			<u>30,527 Women</u>		
112 Cancers - 7.6/1000			453 Cancers - 14.7/1000		
1st	Skin	37%	1st	Breast	30%
2nd	Rectal-Colon	22%	2nd	Genital Organs	30%
3rd	Lung	11%	3rd	Rectal-Colon	15%
4th	Genito-Urinary	9%	4th	Skin	14%
5th	Leukemia & Lymphomas	8%	5th	Thyroid	4%
<u>87%</u>			<u>93%</u>		
of total			of total		

It must be pointed out that not all the examinees were truly asymptomatic. With more careful screening for symptoms before giving an appointment during the past few years, the prevalence of cancer in women has been nearer ten per thousand or one per cent.

A careful history and physical examination is basic for successful cancer detection. The addition of routine vaginal-cervical smears and proctosigmoidoscopy is practical for office or clinic and will significantly increase the yield of early and curable cancer. Biopsy facilities should be available to establish the nature of all suspicious lesions.

An important preventive aspect of the well-adult examination is

the discovery of so-called precancerous lesions in approximately ten per cent of examinees. The most common of these is the rectal and colon polyp, present in six per cent of men and four per cent of women over the age of forty-five. Thyroid adenomas, and certain lesions of the breast, cervix, and mucous membranes and skin make up the remainder of this group.

The initiation of early treatment for cancer when it does exist, and the removal of all conditions predisposed to malignant change, are the key weapons in today's attack on the rising cancer death-rate. Industrial medicine has a unique opportunity to practice cancer prevention through the facilities which they have already established for the examination of large numbers of the adult population.

ABSTRACT
OF
DISCUSSION

- Dr. Saunders: This emphasizes the point that unless you look for cancer you will not find it. Proctosigmoidoscopy is a very important part of the examination in all males over a certain age. Emphasis should be placed upon family history on preplacement and periodic examinations.
- Dr. Potts: I understand that the suspicion is growing that family groups or hereditary factors may be of some factor in the origin of cancer and malignancy — is there any evidence that this has a definite site?
- Dr. Day: The clinic example is the polyposis of the lower bowel. In the extreme, I would say the answer is yes. Mothers and daughters have cancer of the breast. If there is anything to it, it remains subject to those sites. There was a positive family history in over 40 per cent of the people examined. If we have that kind of a history, we give them more than the usual examination. We need to pursue this a little.

448832

WHAT PART DOES THE NURSE PLAY IN THE SAFETY PROGRAM?

Moderator: J. L. Risinger, Assistant Manager
Claim and Safety Department
Socozy-Vacuum Oil Company, Inc.

Mr. Risinger stated that the safety program is like a crossword puzzle and only by working hand in hand in putting the parts together can the complete picture be obtained. The plant nurse is an important piece in the picture. If any employee repeatedly has accidents while doing his job, the nurse should report this to the safety man so he in turn may check the machinery and try to eliminate the hazard involved. In turn, the safety man can help the nurse to become better acquainted with the equipment, operations, etc., in a plant by inviting her to make periodic rounds with him throughout the installation. The nurse has a very definite place in the safety program and can be a valuable asset on the safety committee.

The opinion was expressed that the Suggestion System has aided one refinery in making the employees more safety conscious and more aware of the value of maintaining efficient equipment.