

Home Safety Sessions

WEDNESDAY MORNING SESSION

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Joint Session—Home and Farm Safety

Presiding: H. L. MINER, Dir., Safety & Fire Prevention, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., and Vice-President, National Safety Council.

Demonstrations of Safe Practices Within the Home

A Morning in the Kitchen

By **MARYE DAHNKE**

Director, Home Economics Department, Kraft Cheese Co., Chicago

As every Safety Council member knows—but too few home-makers—the kitchen is actually the most dangerous area in the whole house—one of the most hazardous spots on earth. Convincing women generally of this fact—and showing them what to do about it—is not only an important program for your educational facilities, but for every teacher and school of home economics in the country—and for every individual concerned with making the American home a better, a happier and a safer place in which to live.

The routine of a kitchen becomes such a familiar everyday thing that very few women who preside over this most important part of a house realize what a source of real danger the kitchen may be—or how menacing its equipment and its practices can become. I've known kitchens so cluttered and confused and menacing that they might as well have been equipped with machine guns and barbed wire entanglements.

Seldom a day goes by that we don't read of some fatal or crippling accident which has taken place in a kitchen. We shudder at the stories of the gasoline stove that explodes—the boiling water that has been left within reach of children—the fall from a rickety ladder—but rare indeed is the kitchen in which none of these things is possible, because of the

thorough and intelligent precautions which are taken against their happening.

Statistics on the home safety record tell a truly frightening story. It's a record which is inexcusable considering the fact that the American home-maker is probably the most intelligent on earth. For the most part, she's a perfect paragon, who not only knows how to cook and feed her family with scientific care and excellence, but how to manage that family with the efficiency of a field general. But in the kitchen, this model of efficiency has developed so many blind spots that she never even sees the dangers that menace her and her family at almost every step.

By six o'clock of an evening—or whenever Papa gets home—most kitchens do, or should, exude an atmosphere of shining and fragrant efficiency. But if in the process of achieving that peace and calm, Mama can say that throughout the day not a single casualty has been incurred—no burns, cuts, or falls, she ought to receive some kind of medal—a good conduct medal at the very least. Generally, if peace and order are restored to a kitchen by dinner-time, it has taken some eight or nine hours of frantic effort to get it that way.

Consider the kitchen in most any typical American family of an early morning. Whether the alarm clock went off on

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time or not, by 7:30—or whatever the gathering time is—a state of the wildest confusion exists and the troops are ready to break lines and retreat in confusion. It all looks like a Rube Goldberg cartoon. Everything is wrong with this picture. Mother is flying off in all directions at once, distracted, bustling, busier than a feather merchant on a windy day. Willie, the 2½ year old, stands in the middle of the floor vigorously tying knots in his shoe laces and clamoring to be fed. He isn't dressed yet, because Mama had to come down first to put the coffee on. Father is late and he calls down from the bathroom where's his last clean shirt and his blue tie. (Willie has the tie and is attempting, rather successfully, to attach it to one shoe lace.) Junior is still in bed—and the only reply Mother gets from him is a grunt. He's going to be late for school—and he won't have time for his orange juice. He'll probably walk off without his lunch box too.

This picture of disorder—and potential dynamite—may be slightly exaggerated. But with varying degrees of confusion, distraction and general nervous tension, it is repeated in homes all over America every morning. It is small wonder that accidents of all types both large and small, go straight into the kitchen to happen. Accident, in that kind of atmosphere, is almost unavoidable. If an industrialist—or shopkeeper—started his day with such a clamor of peril and inefficiency, he might just as well dismiss his force for the day—or go out of business. It would be the only safe thing to do.

It's a curious thing that even women who have been in business long enough to realize the importance of industrial safety precautions and practices—once they become home-makers—are often the worst offenders against order and safe practice in the kitchen. They assume, quite wrongly, that homes, and especially kitchens, are run by intuition and an in-born knack. Nothing could be farther from the truth. Whatever her native talent for homemaking, any successful home-maker has to work very hard at the job. She can only make that home and kitchen seem to run themselves if she gives the business the same kind of intelligent planning and attention to detail which she

once devoted to her boss' industry or office. Safety in the kitchen—like safety in the factory—is sound business, the cornerstone upon which all efficiency rests. What is even more important than mere efficiency, the very serenity and happiness of home are actively promoted by a safety program that really works.

There is almost everything wrong with the kitchen plan of the family I described for you a few moments ago. The first thing wrong is that there isn't a plan at all. The harassed mother has substituted frantic effort for intelligent planning. All of the confusion and disorder of that breakfast scene could have been avoided—or most of it anyway—if the mother of the family had planned her kitchen around a sound and safety promoting three point program. First, she should have planned her kitchen with a view to good arrangement of materials; second, to the soundness and safety of her kitchen equipment; and third, she should have developed a list of safe kitchen practices to be followed as scrupulously as the law of the Medes and the Persians.

To achieve good—and safe—arrangement in a kitchen, she need not be an interior decorator but she must be able to use her head and her imagination—picturing in advance what the special needs of her family are and what will work best for them.

To avoid the most serious breakfast traffic jams, kitchen tables where the family will be eating some meals should be placed near the door. If that matter is arranged, then Junior and Papa and Willie won't have to gum up the breakfast getting procedure by stepping in front of Mother every time one of them comes into the room. Good kitchen planning requires that kitchen tables be placed well apart from the stove. It is too easy for hot foods to be overturned onto the table—and the diners—for grease to spatter into someone's eye—if the table and the stove are too close together. Mother should have enough working space at the stove so that she can turn the flapjacks without poking the handle of the pancake turner into someone's eye.

Even in relatively small kitchens, things can generally be planned so that the table is near the door and away from the

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stove. If space is too limited to make this possible, then the breakfast table — one that can be folded up—should be kept in the adjacent room—or on an adjoining porch.

Electric outlets in a well and safely planned kitchen should be numerous, near to the appliances with which they are to be used. The electric toaster, iron, beater, percolator, waffle iron or what-not — should have regular places of their own —out of sight and harm's way. A special cabinet or drawer should be used to hold the various electric cords, all tagged for their proper use. No electrical cord should ever be left attached to the wall outlet. Electrical equipment is so familiar these days that you would suppose safe methods of handling it would be routine. That is very far from being true however, as countless serious accidents every day attest. The exploring fingers of children and electrical gadgets are a bad combination. To see that all of the electrical equipment in a home is conveniently and safely arranged—and that the children are early taught to stay away from it is a very essential program for any home-maker.

Good arrangement of everything you use in a kitchen—the foods, the cooking utensils, the pots and pans, the soaps and washing powders, the brooms and dust pans, the garbage disposal—even the kitchen curtain arrangement is of utmost importance in building and keeping a safe kitchen. Where curtains must be near a stove, the primary rules of safety demand that they be fastened up securely to prevent flowing over the flames.

A formidable number of terrible kitchen accidents could be avoided if women only treated such ferocious weapons as lye, kerosene, naphtha, abrasive powders, bleaches, and the like with the respect they deserve. Not only is it paramount to see that these items are always kept well up and out of reach of the young, but they should be locked safely away when not in use.

Matches, the cause of so many terrible accidents involving not only children but their elders who ought to know better, need to be kept in a safe spot—in a metal container—high up away from flames and reach of children. Learning to strike

matches away from you, to close safety match flaps before igniting the match, learning to treat fire in all its forms with proper respect, is a part of the education of both the young and their elders which is too frequently neglected in most households.

Foods which are to be used every day ought to be stored in places where they are most easily reached by the chief cook—with a minimum of climbing and poking about. Reaching above someone's head for a glass of jelly seems harmless. But not if you accidentally bring down a gallon of Vermont maple syrup on Willie's unoffending head.

The most efficient kind of cabinet for the storage of staple foods is the cabinet or series of shelves with graduated layers, so that every item stored is visible and reachable. Almost any amateur can effect this time-saving and accident saving device if he takes the time to do it. But in any case, any home-maker can arrange her commodity shelves so that the tall items are at the back, the short ones at the front, and the ones used most often closest to hand.

The service closet where brooms and dust cloths and the like are kept should be arranged with the same scrupulous care. Being hit on the head with a dust pan when you're groping for the carpet sweeper is no inspiration for a busy day.

The good arrangement of everything you use in a kitchen, aside from promoting safety directly, also helps to cut down fatigue for the home-maker. And fatigue in the home, as in the factory, is an important cause of accidents.

Change Unsafe Practices

We get so used to inconveniences—to awkward equipment, to sinks and stoves that are backbreakingly low—to holes in linoleum—that we don't stop to realize we have it in our power to change the whole picture. If any woman would spend twenty minutes examining her own kitchen objectively and critically, she could and would alter a hundred unsafe practices and contribute to her own efficiency and peace of mind as well.

The second cardinal rule for safety in the kitchen, no less vital than intelligent arrangement of all equipment is the

proper care of that equipment. For some reason, this sounds easier than it is. It's astonishing how much tolerance, and even downright affection, a home-maker can develop for an old skillet with a wobbly, half-burned off handle, or for a burned-out pan that should have gone to the scrap heap months ago. While the cook is actually in the process of getting a meal, she has no time to fix broken or dangerous kitchen equipment. The skillet whose wooden handle turns in your hand and which may therefore spill grease all over your arm some morning, is a menace. The cook will say, if you speak to her sharply about it, that she knows the skillet has its own idiosyncrasies but she knows all about them and can handle them. Maybe so! But some fine morning, somebody else will be getting breakfast and get a bad burn.

Not only do most home-makers keep a few skillets and pans around that ought to have been condemned by a kitchen jury years ago, but they have a strange sentimental attachment for broken, cracked, or nicked dishes and glassware. They hang around the kitchen until someone gets a bad cut, or has a plateful of hot food unceremoniously spilled into his lap. There is an additional danger in cracked or broken china or glass too, for cracks are ideal havens for germs of many kinds. On every count, broken dishes should be outlawed in every home.

Perhaps the best way to accomplish this end would be to take an inventory every month, discarding all equipment that is beyond use, and seeing that everything that needs repairing actually is repaired. Right now, when it's difficult to get professional repairs of many kinds, equipment which cannot be safely and perfectly repaired at home should probably be stored away until the happy day when an expert can do the job. Meantime, first class care of everything you own has become doubly important these days.

Ironing equipment in a really safe kitchen must always be kept in first class condition. Not only the iron and its connecting cord but the board, the stand on which the iron is to be set, the ironing cloth itself. A metal or asbestos stand for an iron is a positive essential for

every home kitchen—but it's surprising to find out how many women will use a half-burnt up pot-holder under a hot iron, while they go blissfully off to answer the phone and chat for half an hour about the doings of the neighborhood. Chances are that any woman who does such a stunt will be sponsoring a little neighborhood news herself—in the form of a roaring fire in the kitchen when she returns to the ironing.

In addition to setting up a safety-wise arrangement of kitchen equipment and a safety-wise plan of keeping it all in good working condition, there is a third ingredient which must go into all kitchen planning for safety. That ingredient is a list of safe kitchen practices. These begin with the orderly and unvarying technique of the cook herself, a formidable but learnable list of correct safety practices—and they must be extended to every member of the family — including Grandpa who is apt to leave the puppy's bowl out in the middle of the floor where Papa is sure to stumble into it on his way home from the night-shift.

Safe practice in the kitchen actually begins with the very clothes which the home-maker wears in that department. Trim, uncluttered, spotless dresses with short sleeves, and no dangles or jewelry to catch on things should be the regular uniform of the kitchen. If you've ever seen a glamour girl in the kitchen, trailing flowing sleeves over the gas flames—or otherwise endangering her life—you'll know what I mean. And by trim uncluttered clothes, I don't mean something on the Mother Hubbard style. Clothes for kitchen and other house work these days are as attractively and carefully designed as the most fashionable evening clothes. They should be purchased with special attention to the ease with which they can be clean, crisp and neat.

Memorize Rules

Every home-maker ought to list, memorize, and habitually practice a whole set of rules for safety around the stove. She should make sure that the kitchen is properly ventilated when the oven and cookstove are in use. When she's lighting the oven or broiler, she must see that the oven and broiler doors are open and that

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she stands to one side when lighting the oven or broiler gas burners. I don't know anything more unattractive than singed eyebrows, and that's the very least that can happen to you if you ignore this primary rule.

A lot of bad burns could be avoided if the cook saw to it that a number of adequate, thick pot holders were on hand, in their regular spot, before ever she puts a kettle of water on to boil. Grabbing a hot handle with the bare hands or a thin pot holder not only results in teaching the children a lot of words they never ought to hear but frequently results in something even more serious.

One of the best rules for cooking safely is to see that, as far as possible, young children are kept out of the kitchen when any cooking operation is going on—especially an extended and potentially dangerous one—like canning. If the children must be in the same room with Mama while dinner is in the process of cooking, they must be taught to stay away from stove and sink—or any area where cuts or burns are likely to be incurred. Since boiling pots and sharp knives have an irresistible appeal for the young, don't ask me how to teach them to stay away from them. That's a problem I'll turn over to the pediatricians—and every individual mother. I know it helps if you can turn Willie over to someone in the living room for a spell—but if that's impossible—and he can't be chained to a play-pen—or doesn't like to read—then at least you can see to it that the handles of all pans are turned away from the outside edge of the stove. This is good practice even if there are no children in the family. For it's easy to brush against a stove—and brush a kettle of boiling food off with you.

By constant vigilance, too, you can see that knives are kept regularly up and away from children's hands. Even when you're using a sharp knife—if you're called to the door—you can put it safely back at the rear of the sink. For your own sake, too, wash knives separately from other cutlery. A meat grinder is an infernal machine if there ever was one—when young children are around. If a practice is made of washing it, taking it apart and putting it away as soon as it

has been used, you'll avoid a lot of trouble.

Not every good cook realizes that there is a simple and right way even for raising the lids of kettles to avoid burns. Lids should be lifted always in such a way that the steam escapes away from you, not directly in your face. In handling pressure cookers, it's a simple and very necessary matter to open the pet-cock before loosening the clamps.

Every home-maker ought to know what to do when a grease-fire starts on a stove. It's easy to start one—and relatively easy to stop one—for a handful of salt will cover and stifle it. In addition, every kitchen should have a pail of sand near the stove to put out fires. Most kitchen fires could be prevented if good safety practices were invariable. But the incidence of failure to follow the rules is high—and since no one of us always remembers to do the right thing, every kitchen should be equipped with some kind of fire fighting equipment.

Since women are rugged individualists at heart—and entitled to run their kitchens in their own way, the procedure of every kitchen will have to be suited to the special pattern of that household. This is as true of the safety program as of any other. Yet there are certain basic rules that ought to be observed by all of them. I know one household in which there is a steep and highly dangerous flight of cellar stairs. Down cellar the jam and jelly is stored—a constant temptation to the youngsters of the family. Mother—unable to make the stairs any safer—or store the jam someplace else—has placed a large sign at the head of the stairs. It says, "Is your trip necessary?"

Kitchen Procedure

There is one kitchen procedure which, I believe, would save innumerable kitchen accidents and preserve peace and equanimity in the kitchen. That procedure is simple. It means simply taking the time to sit down at some time of the day—to plan the activities for the next 24 hours. Right after breakfast is a good time in most households—and then, the day's program is freshest in mind. It's good kitchen management to make out a schedule of activities for the day, the tasks that must be done, and when

they'd best be done. Referring frequently to that list is an unbelievable aid toward getting the chores done and an active promoter of peace and happiness. The distraction and wild flurry of trying to do too many things at one time, and keep too many things in mind must be a principal cause of accident in the kitchen. No woman in her right mind would teeter perilously on a rickety chair, leaning over a hot stove, to get a package down from the top shelf. But when she's rushed—and dinner shows signs of being late, and the children are clamoring for soup, it's easy to forget. Often the lapse of good sense and safe kitchen practice has very sad results.

One of the most successful homes I know is run by a young woman who used to work in one of our Kraft plants. While she worked for us, she was tremendously impressed by the dramatic and effective safety campaigns which are a part of regular procedure in the factory. She was proud of the safety record of her department—and she decided that when she had a home of her own, she'd profit by following the system of dramatizing safety and building up safety records. She had an excellent opportunity to do so—for she married a widower with three half-grown children. Getting the children's cooperation in a program of home solidarity and home safety was one of her problems. She solved it neatly, efficiently and dramatically by typing up a list of

kitchen practices and appointing the children wardens over various phases of kitchen care.

The children created ideas for home safety posters and painted them with crayon and water colors and varying degrees of talent. They submitted kitchen safety ideas, which were judged by the family and suitably rewarded with extra helpings of dessert.

In addition, this kitchen boasted a poster showing total man-hours each week without an accident. If the week's record was perfect—without a single fall, scratch, cut, or burn—the whole family celebrated by taking dinner out on Friday night and forgetting the kitchen and all its works. Various awards were made—ice cream sodas—and candy bars—for various kitchen safety duties performed over and above the call of duty. The method was unusual and maybe it wouldn't work in every family. But it paid dividends, important dividends, not only in safety but also in the development of character and initiative and a sense of oneness among the family members.

If every family could develop a similar plan for home safety—and home efficiency—and home happiness—it could go a long way towards disproving George Bernard Shaw's definition of people: "There are only three kinds of people—men, women, and children—and they don't get along!"

Making a Safe Sport Safer

By C. S. BEDELL

Director, Sportsmen's Service Bureau of the
Sporting Arms and Ammunition Manufacturers' Institute, New York City

Having a vital interest in the subject of firearms safety, The Sporting Arms and Ammunition Manufacturers' Institute was very happy to accept the National Safety Council's invitation to participate in this demonstration. It presented an opportunity to accomplish four things: first, to throw some light on the sporting firearms safety record—a record that may prove surprising to many whose ideas on the subject may be based on the number of firearms users and the lethal potentialities of the gun; second, to outline the Institute's approach to the accident problem; third, to present a series of concrete safety suggestions; and

fourth, to outline specific ways in which the Institute is prepared to cooperate with you and all other organizations and groups interested in accident prevention.

Shooting a Safe Sport

According to figures issued by the Fish and Wildlife Service of the United States Department of the Interior, more than eight million Americans purchased hunting licenses in the fiscal year ending June 30, 1943. This total is swelled by participants in trap, skeet and target shooting, sports for which no license is necessary. It is further increased by landowners and members of their fam-

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illies not required to purchase licenses in some states for hunting on their own lands, and by other gun users whose numbers are not reflected in the Fish and Wildlife Service's figures.

While this total is impressive, it does not tell the full story by any means. A survey made by *Fortune Magazine* a few years ago, in which 5,000 representatives of various economic groups from all parts of the country were asked to specify their favorite forms of recreation, revealed that hunting and fishing (two activities jointly followed by many sportsmen) stood first among all sports, both participating and non-participating. The only pastimes more popular than hunting and fishing were given as 1—"Listening to the Radio," 2—"Going to the Movies," and 3—"Reading Books and Magazines." According to this survey, more people expressed preference for hunting or fishing than sporting events of all kinds combined—more than selected newspaper reading—more than chose outdoor games—more than named card playing—more than specified visiting the legitimate theatre.

To those not familiar with the facts, such a widely patronized sport as hunting, in which an implement capable of inflicting serious accident or death is employed, may appear to constitute a serious safety hazard. What then are the actual facts?

The gun, like fire, the automobile, and numerous other elements and devices useful to man, can be misused, and, like them, can cause injury or death when misused. As it can be a lethal weapon, the popular mind is likely to exaggerate the danger inherent in its use. But the danger of *careless* use of the gun is so obvious, and the user has had this danger impressed upon him so constantly, that shooting has become one of the safest of all sports, despite its wide popularity.

Recently the Travelers Insurance Company published several analytical tables covering claims made on the company in 1943 as the result of accidents. One table divided the causes into the broad general groups shown in this table:

TABLE "A"

Travelers Insurance Company
Accident Claims

Accidents resulting from causes to which all men are exposed without regard to their

employment for which the Travelers paid claims in 1943.

1. At Home (Inside)	25.79%
2. At Home (Outside)	18.56%
3. Pedestrians	17.32%
4. SPORTS AND RECREATION	17.05%
5. Automobiles	12.28%
6. Travel	3.52%
Miscellaneous	5.48%
	100.00%

It will be noted that among the Travelers 1943 accident claims, sports and recreation stood fourth in this group of seven with an accident percentage of 17.05%. Now let us examine information from the same source, which shows the position of hunting in comparison with other forms of recreation within the group:

TABLE "B"

Travelers Insurance Company
Accident Claims

Sports and Recreation Accidents 1943

Activity	Claims
1. In Country or Woods	361
2. Horseback Riding	270
3. Baseball	256
4. Football	248
5. Bicycle	246
6. Winter Sports	219
7. Bathing and Swimming	202
8. Golf	178
9. Basketball	157
10. Athletic Games	156
11. HUNTING	140
Other Classifications*	1,103
TOTAL	3,536

You will note that accidents in country or woods (exclusive of hunting) were responsible for 361 accidents. Horseback riding was second with 270 accidents. Baseball was third with 256; football was fourth with 248; bicycling was fifth with 246; winter sports sixth with 219; bathing and swimming seventh with 202; golf eighth with 178; basketball ninth with 157; athletic games tenth with 156 and hunting eleventh with 140, or only 4% of the 3,536 accident

*Boating and Canoeing; Bowling; Tennis and Squash; Skating; Scuffling and Wrestling; Gymnasium; Fishing; at Theatres, Churches and Concerts; at Parks, Picnics and Outings; Dancing; Billiards and Pool; Boxing; Miscellaneous.

claims in the sports and recreational group.

Carrying this analysis a step further, we find that hunting was responsible in 1943 for less than 0.68% of the total number of Travelers' 1943 accident claims, as against 16.37% for other forms of sport and recreation.

The Institute's Safety Activities

The enviable safety record achieved by the users of firearms has not been accidental. It has been the result of careful planning, persistent education and intelligent cooperation by the National Safety Council, the Boy Scouts, State Game Departments and numerous others, with whom the Sporting Arms and Ammunition Manufacturers' Institute has collaborated since it was organized in 1926.

The Institute's first step in this direction was to inaugurate, through the instrumentality of its Technical Committee, certain standard safety measures within the industry itself. These included:

- Marking of chamber lengths on shotgun barrels.

- Marking of corresponding shot shell lengths on cartons, and in some cases on the tubes, of shot shells.

- Warning notices on shot shell cartons containing special purpose ammunition developing higher pressures.

- Warning notices against insertion of smaller-gauge shot shells in chambers of larger-gauge guns.

- Warning notices on appropriate shot shell cartons against use of ammunition in obsolete arms.

- Warning notices on cartons of .22 caliber cartridges against possible danger to others at extreme ranges.

- Establishment of proof-load standards for testing of shotgun chambers at pressures greatly in excess of normal.

- Warning against use of smokeless powder in Damascus or twist steel barrels.

Special alloy steels and other metals were also developed and utilized in the designing of modern weapons to accommodate extra-high-velocity rifle cartridges with safety. These cartridges are designed specifically to fit only in rifle chambers built to handle them.

Another Committee of the Institute, one dealing with Simplified Practice, cooperates

with the Technical Committee to discontinue cartridges whose ballistic performance is unsatisfactory from the standpoint of safety or otherwise.

An important function of a third committee, the Committee on Promotional Activities, is to conduct, through member company organizations, such activities as may be necessary to insure proper instruction of member company field personnel.

The foregoing, however, were merely steps to put the industry's own house in order. Obviously, it was not possible to reduce hunting accidents to a minimum without educating and instructing the shooting public, especially children and youths, in the prevention of firearms accidents. The value of such instruction had already been made increasingly clear by the marvellous safety records of such supervised shooting sports as skeet, trapshooting and rifle target shooting, which had continued to increase in popularity with a negligible number of accidents.

To handle this task of safety education, the Institute created a Committee for the Prevention of Accidents with Firearms. The activities of this committee were outlined briefly before this same group last year, but I would like to take a few minutes to bring you up-to-date on what has been and is being done.

(1) Ten Commandments of Safety

The first material released was a terse set of rules entitled "The Ten Commandments of Safety" which covered rules considered basic in the safe handling and use of sporting firearms. Copies of the "Ten Commandments" have been included in every carton shipped by any gun manufacturer, irrespective of whether it contained a new or a repaired gun. Since 1939, over 3,500,000 have been distributed by Member gun manufacturers.

Over 6,700,000 copies have also been distributed by State Game Departments, bringing total leaflet distribution to over 10,000,000, while at least 18 States have printed the "Ten Commandments" on their licenses or in their various publications released at or about the opening of the hunting season. The 4-H Clubs also have distributed over a quarter of a million copies in leaflet form.

(2) Poster Program

Supplementing distribution of the small

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leaflet, over 15,000 copies of a large cardboard poster containing these same "Ten Commandments" have been supplied by the Institute and distributed among gun clubs and at various places where hunters congregate, by agencies such as the Boy Scouts of America, the National Rifle Association and member companies of the Institute.

With the active cooperation of the Milwaukee Chapter of the Izaak Walton League, 5,600 cloth posters, size 17x22, were used in a test campaign in Wisconsin in 1940. The Conservation Department, various sportsmen's clubs, hardware stores and others helped erect these posters, and 50,000 of the "Ten Commandments" in leaflet form were distributed throughout the deer hunting sections of the State. Both fatal and non-fatal accidents were materially reduced that year and the Milwaukee Chapter of the Izaak Walton League expressed its belief that this decrease was due at least in part to the test campaign.

In view of this success, special art posters, printed in three colors on waterproof material, were used in 1941 and 1942 in extending this safety poster program to include six leading big game states—Maine, Michigan, Minnesota, New York, Pennsylvania and Wisconsin.

In 1943, the poster program was again expanded to include distribution of new three-colored posters aimed at the hunter of small game. These were distributed in Illinois, Indiana, Michigan, Minnesota, Oklahoma and Pennsylvania. In all a total of 92,000 posters were distributed last fall.

In the three years during which these art posters have been in use (and in which a total of 166,000 have been distributed) reported non-fatal accidents from the six states named have dropped 31.25% despite much stricter laws requiring the reporting of shooting accidents. Fatal accidents have dropped 32.9%. This year a total of more than 75,000 of these posters are again being distributed.

(3) Safety Motion Pictures

In 1942, the Institute released a motion picture to promote safety in the use of sporting firearms. This film "The Making of a Shooter" was photographed in full color and produced in both sound and silent versions. To avoid all semblance of lecturing, the subject was approached from an inspirational angle. The lessons in safety

were incorporated in an interesting plot, narrating the experiences of a typical teenage American boy who attended the various national trap, skeet and rifle shoots, and who hunted in the field, absorbing instruction bit by bit.

The film has been distributed through the various state game departments and many organizations and groups interested in sport and safety. As a result, despite gas rationing, which has materially reduced meetings in suburban and rural areas, distributors' reports show that the picture was exhibited to over three quarters of a million people in the first two years.

(4) Institute Radio Program

During the 1940 hunting season the Institute sponsored a radio program over ten midwestern and southern radio stations, called "Shooting Adventures of Famous People," designed to increase shooting and game restoration. Safe handling of guns came in for direct attention in several of the broadcasts. Throughout the series, listeners were urged to join sportsmen's clubs, through which they could avail themselves of expert supervision and instruction in the safe handling of sporting firearms. This program, interrupted by war was very well received and undoubtedly was helpful to the cause of safety.

(5) Handbooks on Rifle and Shotgun Shooting

Two Institute booklets "Handbook on Small Bore Rifle Shooting" and "Handbook on Shotgun Shooting," while primarily designed as aids to improved shooting, have heavily stressed safe gun handling. More than 335,000 of these books have been distributed. We are convinced that they have contributed materially to the cause of safety.

(6) Publicity

In connection with the various activities listed, an intensive publicity campaign has been carried on by the Institute's Sportsmen's Service Bureau through outdoor and general magazines, newspapers and other publications. The Institute's regular S.S.B. *Outdoor News Bulletin*, published bi-weekly, and various special timely releases have stressed safety measures and revealed the availability of safety material for distribution.

How to Prevent Firearms Accidents

A few minutes ago I mentioned the Ten

Commandments of Safety that have proved so effective in combatting the causes of accidents with sporting firearms. These commandments appear so simple as to be obvious to anyone, and yet we all know that many accidents in all pursuits result from neglect of the obvious, and that it is only by constant repetition that the most simple precautions become habit. For instance, take Commandment Number One:

"Treat every gun with the respect due a loaded gun. This is the cardinal rule of gun safety."

Rigid observance of this commandment is probably the greatest of all insurance against gun accidents. There is no excuse so invalid as "I didn't know it was loaded." The hunter must always assume his gun is loaded, and must handle it accordingly.

Now let us take Commandment No. 2:

"Carry only empty guns, taken down or with the action open into your automobile, camp and home."

This commandment offers a safeguard against discharge in the car due to jolting or to accidental trigger pressure, either while riding, or while removing the gun or material placed with the gun from the car. It prevents discharge in camp or home as a result of falling, accidental trigger contact, or possible handling by children. Incidentally, care must be taken at all times to keep even unloaded guns out of the reach of young children.

Commandment Number 3 is equally simple:

"Always be sure that the barrel and action are clear of obstructions."

The careful gun-user will avoid having his gun muzzle come in contact with the ground or with snow. If such contact is made accidentally, he will immediately investigate to make sure that the muzzle has not become plugged, and when doing so he should never look into the muzzle. Any looking through the barrel should be done from the breech end. If necessary to take a gun apart to follow this advice, this should be done. It's time well spent. The barrel should always be inspected before loading to see that no cartridge of a smaller gauge or calibre than the gun calls for has been placed in the chamber by error, or that no foreign object has worked its way into the barrel from the chamber. These precautions will prevent any possibility of a barrel

bursting as a result of obstruction, when the gun is fired.

Commandment Number 4:

"Always carry your gun so that you can control the direction of the muzzle even if you stumble."

This commandment is of special importance where two or more hunters work together. It is easy to stumble in the woods and brush, and guns are sometimes discharged in this manner. Another good habit to develop while carrying a gun is to keep the safety on until ready to shoot.

Illustrating the proper manner of carrying guns, I have two photographs. These are both stills taken from the Institute Safety film "The Making of a Shooter."

You will note that these hunters have removed shells from their guns, and that all muzzles are pointed in safe directions.

Note that in this illustration, both guns are lying in the boat with muzzles pointing over the stern. Guns are empty, and will not be loaded until the decoys are out and both hunters fully in position and ready for the incoming birds.

The Institute has furnished pictures such as these to sporting and other publications. They have been given wide circulation and have done a great deal to impress hunters with the importance of safe gun handling.

"Be sure of your target before you pull the trigger."

The responsible hunter will never assume that the object he sees through the woods or brush is legal game. He will make sure! And he will also make certain that his quarry is not in such position that his shot will endanger others.

This commandment has been stressed in two of the Institute's Safety Posters—one designed to appeal to big game hunters—and one designed to catch the eye of the man after small game.

These posters clearly illustrate the importance of this Commandment.

"Never point a gun at anything you do not want to shoot."

The man who violates this commandment is inviting trouble. The safe gunner will never choose him for a shooting companion, but will avoid him like a plague.

"Never leave your gun unattended unless you unload it first."

You are just as responsible for your gun

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when it is out of your hands as when it is in them. The man who leaves a gun loaded is every bit as guilty as our friend who didn't know it was loaded.

"Never climb a tree or a fence with a loaded gun."

It is an invitation to trouble to violate this commandment. How much better to take the few necessary extra seconds to make sure of safety when crossing a fence.

You have already seen one illustration of three hunters crossing a fence. This man is alone, but he is taking no chances. He has removed the cartridges and opened the action of his rifle. If he slips or falls, the piece cannot be accidentally discharged.

"Never shoot at a flat, hard surface or the surface of water."

Shots often "ricochet," that is, glance off rocks, trees or water surfaces, and may cause injury to persons apparently out of the line of fire. As rifle bullets have a much longer range than shotgun pellets, a greater amount of care is necessary when a rifle is being fired.

"Do not mix gunpowder with alcohol."

A gun, like an automobile, should be manipulated only by a person in full control of his faculties. The careful shooter never takes a drink until after his day's shooting is over, nor does he resume his shooting after he has been drinking.

The foregoing commandments, as I have explained, have been distributed to more than ten million American hunters, and more than a million of them are being distributed to hunters and prospective hunters each year. They have also been printed and are being reprinted each year in numerous publications read by hunters. So are the pictures you have seen, and others, designed to impress hunters with the *right*, not the wrong way, of handling firearms. In addition, radio and other safety talks elaborating upon the commandments have been distributed upon request to various organizations and groups concerned with firearms safety.

Proffer of Cooperation

Throughout its Safety Program, the Institute has solicited the advice and the cooperation of such organizations as the National Safety Council, the Boy Scouts of

America, the various State Game Departments, the National Rifle Association, numerous sportsmen's organizations, hunting and fishing and other outdoor publications, the newspapers and many others. Such cooperation has been given freely and enthusiastically, and has been utilized in the fullest possible measure.

In addition there has been considerable independent effort on the part of these groups and organizations, all of which have contributed substantially to the cause of safety in the use of sporting firearms.

Copies of the Ten Commandments of Safety will be furnished without cost to organizations or groups that are in a position to distribute them to users or prospective users of sporting firearms.

Copies of safety radio broadcasts, other talks and newspaper or magazine articles are also available without charge upon request. The same holds good for photographs illustrating the safe use of firearms.

The motion picture *THE MAKING OF A SHOOTER*, in either sound or silent film, may be obtained for showing by any responsible organization or group. The only cost to the user is that of shipping charges. Descriptive folders are also available.

The Institute will always be glad to consult with any person, organization or group interested in the prevention of accidents with sporting firearms, either to obtain the benefit of their suggestions or to determine whether it may be of assistance in connection with special problems or campaigns which may embrace the subject of firearms safety. Inquiries in this connection should be addressed to the Sportsmen's Service Bureau, 103 Park Avenue, Room 506, New York 17, N. Y.

The Sporting Arms and Ammunition Manufacturers' Institute plans to continue its safety efforts, and wishes to assure all groups here represented of its desire to cooperate fully with the 33rd Safety Congress toward the achievement of its objectives. Furthermore the Institute wishes to assure all who have an interest in the matter of safety in the use of sporting firearms, that it will continue to cooperate with them to the end that the safe sport of hunting may become even safer in the future.

The Most Important Cause of Serious Home Accidents: Falls

By HAROLD DANFORD

Director, Education Division, National Conservation Bureau, New York

Accident statistics for homes, industry and schools show that no other single type of accident causes more disabling injuries and deaths than falls. Home accidents take a total of approximately 30,000 lives every year. Falls account for over one-half (15,500) of these fatalities. At present, statistics on home accidents show only death rates. There are no accurate figures available on disabling injuries. However, it is a recognized fact that 25,000 people are killed each year in the United States due to falls in all places—that is: in homes, in industry and in public places. Two-thirds of these occur in homes, which makes falls the most important cause of serious home accidents. This presents a problem which needs urgent attention as well as the active co-operation and participation of every person in a position to contribute to public education.

What is the reason for the extremely large number of falls compared to any other type of accident? "He just fell" is an excuse so often used as a reason for an injury. But falls do not "just happen." They are caused like all other accidents. Most of these causes resulting in falls, are of a very simple nature. A wet floor, a torn rug, a toy on the stairs, etc. That sounds insignificant in comparison to problems in industry such as machine guarding or chemical hazards. The fact, however, is that these seemingly simple causes encountered in homes represent such a tremendous hazard just *because* they are so simple. Whether a broken hip or arm resulted from a fall at home, or from an accident in industry, the suffering, loss of time and money are the same, and only too often there is no compensation for the expenses involved in home accidents.

Another reason for the large number of falls is the difficulty to organize the educational programs that reach the homes. What has been done in industry, and transportation and other public or commercial organizations through the more centralized executive sponsorship, can and

must be done for the homes as well. The need for safety education on "off the job accidents" is also urgent.

In order to successfully plan an educational program, it is necessary to analyze accidents in form of cause, type, frequency and type of people involved. In this connection it is interesting to know that five out of six persons killed by falls are 65 years and over, which is 84% of the total. One reason is that people of advanced age fall due to such physical impairments as: defective eyesight, prolonged reaction time, lack of agility and the tendency to be forgetful or to become confused. Another reason is the increasing brittleness of the bony structure which will lead to more serious results when a fall occurs. In summarizing these facts, the need for special consideration of older people in the prevention of falls becomes obvious.

In delving into the reasons for falls, a multitude of causes develop and present themselves, many interlocking and contributory, but all having their share in the final picture. In the causation of most accidents there is both a physical and a personal factor present. Unsafe physical conditions, such as defective ladders, poor lighting on stairs or obstructions, once recognized, can be corrected or repaired. This is not the entire answer in stopping accidents. Poor judgment, hurry, carelessness, lack of knowledge are personal attitudes that can only be changed through education and constant personal efforts.

The following grouping presents a complete picture of all falls and their causes:

Falls occur either on
Same Level or
Different Level (fall from—fall to)

CAUSES

Physical

Unsafe Condition:
Faulty Design
Neglect of Maintenance
Improper Equipment
Poor Housekeeping

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Personal**Unsafe Practices:**

Unsafe Attitudes (Inattention, Haste, Etc.)

Poor Habits

Lack of Skill

Lack of Training and Knowledge

Body Defects (Old Age, Invalids)

TYPES OF FALLS

Slip—Trip—Sudden Change of Balance—
Misstep

Prevention and Control

For the purpose of prevention and control, the problem may be broken down into two divisions:

A. Important factors surrounding physical conditions.

B. Basic Personal Practices and habits.

Physical Conditions

Common practice among safety engineers divides falls which are due largely to physical conditions into two groups:

1. Falls on the same level.

2. Falls from different levels.

Falls on the same level constitute about 65% of all fall accidents and under this category are included floors, sidewalks, and gridded or latticed walkways such as on open porches or fire escapes. Of major importance, of course, is the principal trouble spot of walking surfaces in the home. Here, the principal items of prevention include:

1. Clean Walking Surfaces

(a) Obstructions in walking areas. A chair or a table which protrudes into normal walking path constitutes a tripping or bumping hazard.

(b) Loose objects. Toys, magazines, newspapers, may very likely cause a misstep, slip, or insecure footing. Of particular importance are small objects that tend to roll, such as cylindrical objects, like pencils or toy blocks.

(c) Electric lamp cords. Many floor and table lamps are so placed that excess cord, which is initially placed out of the way, eventually dangles loosely on the walking surface. The safest practice, particularly where the lamps are fairly permanently placed is to have cord

lengths approximately equal to the distance to the electric outlet. Where this change is impractical for special reasons, at least cord should be so fastened or covered so that it will not be moved by oil mop or vacuum cleaner, etc.

(d) Defects in the floor. Most common trouble in this connection arises from protruding nails that work out of the flooring from their flush position causing a tripping hazard.

(e) Water or grease. Fats and grease in the kitchen should be promptly wiped up after spilling. Water spilled on waxed hardwood floors, also substantially increases the possibility of slipping.

2. Condition of Walking Surfaces

(a) Highly polished floors. All floor wax is slippery—some more so than others. Floor wax will vary in slipperiness between the various types of surfaces to which it is applied. Good judgment is necessary in selecting floor wax and in applying it to minimize possibility of excess slipperiness. In the walking surfaces particularly, waxed floors should be covered with carpeting, securely fastened small rugs or other relatively non-slippery floor coverings.

(b) Scatter rugs. Small scatter rugs, orientals, and the ordinary "rag" rug create very little friction between the underside of the rug and hardwood floor. For safety, it is essential that such rugs be either tacked down or that some of the non-slip materials which are available on the market as under rugs be placed between the rug and the floor. There are many very efficient products on the market which will absolutely prevent any small rug from slipping.

An inexpensive way by which reducing the slipping of scatter rugs can be accomplished through the use of the ordinary mason jar rubber rings. These may be sewed to the underside of the rug. The important point here is to have the thread pass through the thickness of

the jar ring rather than be wound around it. This insures better suction effect. A minimum of four rings is generally required and more may be necessary to control accidental movement of the rugs.

- (c) Linoleum: Curled edges or torn sections need tacking or cementing down.
- (d) Floor unevenness: A common hazard in the long halls of older type homes is a hump in the floor caused by a buckling of the floor boards. Best remedy, of course, is to tear up the buckled section and have the proper repair made by a carpenter. Where such expense may be of critical importance, falls may be avoided through the use of an "attention arrester" such as a warning sign or use of contrasting paint.

Other principal physical conditions causing falls on level include:

3. Overhead Obstructions

Pipes, beams, etc., which cross over an indoor pathway can rarely be removed without excessive expense, but again here, the use of a contrasting color may be used to call attention to the obstacle. An even better improvement is to pad such obstructions in a vivid colored cloth to further minimize bumps or bruises.

4. Floor or Walk Defects

- (a) Porches with latticed type wood floors are often found with broken sections. Sometimes this is due to normal wear or weather conditions and in other cases, a small section of planking may break loose, where the carpenter used a short piece to finish out the strip and the pieced section did not bear on the floor's joists. Permanent correction usually involves a shortening of the longer length so that the butt end of the two pieces of planking can be joined at the center of the joist.
- (b) Concrete sidewalk and porch floors crack and buckle due to moisture getting underneath and freezing in the cold weather months. Often the correction of these jobs is post-

poned due to alleged expense. Actually almost anyone can inexpensively repair the condition to a satisfactory extent by cleaning out the broken sections and then filling the entire hole or crack with mortar mixed as follows: half cement, half fine sand, and water.

5. Icy Walks

Use cinders and salt where ice or snow has become too hard to remove with shovel.

Falls from Different Levels

The most important item under this category as respects frequency of home accidents is stairs and steps. Ladders, open windows, elevator shaftway openings (in apartment or tenement buildings) and use of chairs or boxes as stepladders are also responsible for a sizeable number of accidents each year and produce a high severity of injuries.

Stairs and Steps

- 1. Recognized practices in safe construction
 - (a) best angle of incline from the horizontal—30-38°.
 - (b) constant tread depth and riser height for each flight.
 - (c) handrail placed 30-34 inches above tread line.
- 2. Good Housekeeping—no materials stored or left on stairs.
- 3. Decent lighting!

Electric light outlets in the average home are available at the upper end of the stairs and the proper size bulb can easily be determined by allowing a minimum of one-half watt per square foot using the overall dimensions of the staircase. (Example—a stairway 3 feet wide and 20 feet long has 60 square feet, thus use minimum of a 30 watt bulb.)

On basement stairs which are usually dark, visibility can often be enhanced by painting top and bottom steps in a light contrasting color. This particularly aids a person approaching the steps to see where they begin and end.
- 4. Mats or carpeting are one of the best "fall preventers" especially where steps are of hardwood construction. In homes where there are very

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young children or elderly people, this should be considered a "must" even in families with a limited income. Rubber mats can be purchased for the home for \$1 to \$1.50 for the entire staircase (usually 10c a step).

It is important, however, to have mats or carpeting installed rigidly. Carpets should fit snugly especially at the nosing, while mats should have no raised edges which may cause tripping. Many stair mats use a brass or metal covering over the nosing and these need checking from time to time to be sure that they have not worn slippery. Slight grooves filed on the diagonal will do much to curb this cause of slipping.

5. Use of collapsible gate at top of stair flight to protect babies and "toddling" children.

Other Raised Levels Ladders

While design and construction details of reputable manufacturers follow recognized standards for the safety practice, accidents are often the result of abuse in the care of equipment or use of makeshift or homemade equipment. Among the more important points are:

- (a) Ladders should never be painted as this makes it difficult to detect weaknesses caused by cracks or checks.
- (b) Rungs require regular inspection and at the first sign of noticeable wear or cracks, they need to be replaced.
- (c) Storage of ladders when not in use should provide protection from weather and freedom from collision or falling objects.
- (d) To avoid undue strain and also instability of a straight ladder, when placed against a wall, good practice calls for having the base of the ladder at a distance from the wall approximately one-fourth the length of the ladder. (Example—a sixteen foot ladder needs to have its base four feet from the wall against which it is placed.)

Open Windows and Wall Openings

- (a) In homes — especially apartment

buildings — with young children, avoid having chairs or sofas placed near open windows unless the windows have well anchored screens or barriers.

- (b) Wall openings such as laundry chutes, dumbwaiters, etc., should always be protected with a full enclosure, preferably installed with a hook or lock not readily opened by children.

- (c) Doors at elevator entrances need to be installed so that they cannot be—

1. opened unless elevator car is at the landing.
2. left open and yet permit car to move away from landing.

- (d) Where clothes lines operating on a pulley are loaded and unloaded from windows, pulley should be attached to the wall as near the window as possible and at a convenient height so as to avoid undue reaching or stretching. Safer practice is also to provide a barrier bar which can serve as a railing in case of a slip.

Makeshifts Used as Substitutes for Step-Ladders

Accidents from this condition are very often attributable to haste or laziness in not wishing to take the time to get the step-ladder when it is necessary to obtain objects out of reach. (Changing overhead light bulbs, putting up curtains, storing material on closet shelves, etc.) The purchase of a step-ladder for the home is often neglected, however. If obtained and used, its cost is saved many times over in just one doctor bill.

Falls from Bed

There are, of course, a number of bad accidents each year due to people actually falling out of bed. Undoubtedly, many accidents cataloged under this heading are actually cases where the person had to arise during the night in the dark and due to stupor or lack of equilibrium, fell near the bed. In homes where mothers have to arise to take care of children, the idea of an automatic light which turns on and shines on the floor when the person arises from the bed, has distinct merit in preventing accidents. Units embodying

this principle are a reality and are quite inexpensive.

Chairs

Two notable accident hazards are prevalent under this item:

- (a) Chairs where the rungs have become loose through heat drying out the glue. An inexpensive, yet effective remedy is metal shims or collars available in many hardware or 10c stores which fit over the dowel end of the rung and when inserted into the dowel hole, restore the original rigidity of the chair supporting members.
- (b) Folding chairs: Due to their portability, this type of equipment is never entirely safe. Best means of prevention here lies in setting them up where they are least liable to slip, such as on a rug, and also the use of full care in erecting them so that they are set up in a fully opened position.

11. Balcony, Porches

These facilities represent a sizeable hazard to children. While most porches are originally equipped with barrier and porchrail, they are usually designed only to prevent accidental stepping off the raised level. Due to the inherent tendency of children to climb, the average porchrail is an ideal ladder for their antics. Primarily, the solution is a matter of training the children themselves although a frequent step employed by safety-conscious mothers or fathers is to either—

- (a) Install an additional railing to raise the overall height.
- (b) Place wire screening on the inside of the railing supports which not only closes the openings between bars but also makes climbing ineffective by blocking the "rung" effect of the railing and intermediate support.

Also, of course, consideration is necessary to keep the barriers in good sound condition (no rotted posts, broken sections or loose supporting brackets).

Before discussing the *Personal Factors* (unsafe practices) and their control, an understanding of the fundamental rules on Body Stability is essential. Many falls can be avoided, even in spite of unsafe

conditions, if people know how to "handle themselves."

A fall is a loss of balance. Equilibrium is maintained through constant muscular control. From early childhood on, practically every person develops certain habits that lead to awkward positions and movements while performing their daily tasks. These habits are gradually forming patterns of muscle-actions which are reflected in people's posture, way of walking, turning, lifting, and whatever body action may be concerned. The human being in his upright position is supported by a very small base. His feet as a base, compared to his height, form such a small support that constant muscle action is necessary to maintain this balance. Muscle control varies with the state of physical fitness. Fatigue—poor diet—lack of sleep, nervous tension will increase fall-proneness. Therefore every effort made to improve public health will act as an aid in fall prevention. However, regardless of the type of person involved, there are three basic rules on Body Mechanics, which, if properly applied, will provide better muscular control and thus aid in the prevention of falls.

1. A broad and level base for support.

Examples:

Use legs to increase base when pushing, pulling, lifting. Proper ladders or chairs for climbing—High vs. low heels. Condition of footwear (worn-down heels).

2. Weight centered and near base. Example:

Proper placement of person or ladders towards object to be reached—weight of person in center of platform.

3. Step in direction of action. Examples:

Advance one foot when getting up from chair. Step backwards when sitting down. Place one foot behind when pulling—step forward when reaching forward, etc.

(These practices should be demonstrated and associated with the "unsafe practices," leading to falls.)

Control Through Personal Factors

1. Personal Equipment:

- (a) Fall-proneness arising from in-

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complete or defective vision. If a person, particularly of advanced age, seems to be fall-prone, and no actual cause can be detected, defective eyesight might be the reason and an optical examination suggested. Vision can change so gradually that a person might not be aware of the need for glasses for a long time.

- (b) Condition of footwear: Worn-down heels cause some footstrain and affect balanced walking. Loose soles and dangling shoelaces are tripping hazards. Soles of rubbers and galoshes when worn to a smooth surface often lead to falls (slip). Some shoemakers can put on a new "tread."
- (c) Clothing: Long housecoats, robes and dangling belts are a tripping hazard, particularly on stairs. These should be lifted up when traversing steps. The combination of slack cuffs and high heels are "trouble makers" and "care" is the only solution if they are worn.
- (d) Bathtub: Falls in and around the bathtub are very common, particularly with elderly people and children. Handholds should be placed on the wall above the tub. Any support of this kind must be attached firmly. To prevent slips in the bathtub, soap should be kept in the soap holder. A rubber mat or bath towel at the bottom of the tub will prevent slipping. There are products available which can be sprayed or brushed on the tub surface to minimize slipperiness. These may be especially warranted for use by people having orthopedic difficulties.

2. Habits:

It is much harder to change a person's habits (mental or physical), than to correct an unsafe physical condition. A habit cannot merely be dropped. It must be combated by substituting for it an opposite habit, properly defined as a clean aim. Wil-

liam James has given us the following useful formulae for changing a bad habit into a good one:

1. Define the desirable habit to be acquired.
2. Practice the desirable habit at every opportunity.
3. Create opportunities for practicing the desirable habit.
4. Allow no exceptions or omissions to occur.
5. Never permit a return to the old undesirable habit.

Some of the habits that result in falls:

- (a) Non-use of handrails.
- (b) Carrying objects. When carrying objects, it is important that they do not obscure the vision.
- (c) Tilting chairs. Tilting chairs not only weakens them, but often causes nasty falls.
- (d) Walking habits. When walking, a person's weight should be balanced evenly on both feet. Diagonal approaches should be avoided, since they disturb the balance.

It is safer to walk, than to run.

Look in the direction you are going.

Avoid sudden turns or any quick change in direction.

3. Non-Routine Activities:

- (a) Refrain from changing too rapidly from inactivity to activity, such as jumping up from chair or out of bed to answer telephone or bell.
- (b) Pulling and pushing objects: While pushing or pulling drawers, furniture, windows, etc., feet should be well braced and placed apart in direction of action.
- (c) Objects out of reach: To reach high places (shelves, ceiling to change bulbs, hanging curtains, etc.) a strong stepladder or step stool correctly placed (See Physical Conditions 5) is the proper thing to use. If not available a sturdy chair will serve as a good base to stand on. A firm level base is essential. Leather, cloth, or straw seats are not made to carry weight. It is

dangerous to use rocking or folding chairs, or to increase height by placing boxes, telephone books or other devices not intended for this purpose on top of chairs or tables. Remember: Center your weight for proper balance, which means in this case: Step on the middle of chair, place ladder or chair close enough to object to be reached to avoid leaning over. Avoid standing on the top of a step-ladder. Use one sufficiently high to let you stand at least two steps from its top.

- (d) Traversing dark areas: To avoid falls in dark areas when no light is available, walk as though blindfolded. Inquiries at institutes for the blind revealed the surprising fact that falls

hardly ever occur amongst their inmates. They know their limitations and act accordingly to avoid hazards.

The best way to prevent a fall is to remove the hazard, and if the hazard is not obvious enough to be easily remedied, then the most effective accident prevention is "Watch your Step"!

In conclusion it may be said that no matter how simple the subject of falls prevention may seem, the fact that almost 16,000 people are killed each year in the United States by falls is reason enough to DO something about this most serious of all home accidents. The remedies are as simple as the causes. In general, little money or effort is necessary to remove a hazard. "Watch your step," a phrase as simple as that—if observed and practiced can save thousands of lives every year.

Don't Get Burned—Preventing Burns, Explosions, Fires Within the Home

By THEODORE GUNN

Engineer, New Hampshire Board of Underwriters, Concord, N. H.

Mr. Gunn's presentation was in the form of a demonstration. He demonstrated a dust explosion, using corn starch as his explosive agent. He showed clearly how gasoline vapor is heavier than air and tends to flow to lower levels. A fire from gasoline vapor used as cleaning fluid in the home may be started at some distance from the source of the vapor and "flash back" to the source. Some cleaning fluids are safe, however, Mr. Gunn explained, and the vapor from these cleaners actually extinguishes a flame.

What happens when a householder replaces a fuse by the well-known penny was beautifully demonstrated by Mr. Gunn. The little doll-house in which the over-loaded wires were strung began to pour forth

smoke and flame. Another electrical hazard caused by defective insulation was presented. This was a floor lamp which had actually been responsible for the death of a child. Mr. Gunn showed that the metal stand and holder were electrically "alive" by running a grounded wire along the metallic parts. From top to bottom the lamp stand sparked and cracked against the grounded wire.

Christmas tree lights, tinsel decorations, oily mops, even certain dry chemicals in cracks in the floor—all are potential fire hazards. The wise householder takes precautions to prevent fires and has a fire extinguisher handy in case a fire does get started.

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WEDNESDAY AFTERNOON SESSION

October 4, 1944

Joint Session—Home Safety and Women's Programs

Presiding: DONALD B. ARMSTRONG, M.D., Second Vice-President, Metropolitan Life Insurance Co., New York City, and Chairman, Home Safety Advisory Committee, National Safety Council.

Safe Homes — A Community Responsibility**Finding a Program That Will Work**

Digest of talk given

By MRS. NORMA F. WULFF

Vice-President, Cleveland Safety Council, Cleveland, O.

When we of the Greater Cleveland Safety Council met to discuss ways and means of bringing safety to the public, we decided that the message had to be carried *directly* to the people and that it had to reach people in all walks of life. For this reason we decided to develop a course to train homemakers in home safety.

We started with a panel of four making talks to local organizations such as the Parent Teacher Association, the American Red Cross, literary guilds, etc. This panel course was a proving ground for the one that followed.

The panel of four grew to one of seven in which the following subjects were discussed in ten sessions:

"Safeguarding the American Home—Our Second Line of National Defense," by Judge Lee E. Skeel, President of the Greater Cleveland and Ohio State Safety Councils.

"Food Protection and Protective Foods," by Dr. Enos B. Buchanan, Chief, Food and Drug Administration, Division of Health, City of Cleveland.

"Rodent Control," by myself. Let me explain that this session was felt to be particularly necessary in Cleveland as we have had an unusual problem in this respect.

"Safe Use of Electrical Equipment," by Jack North, President, Electrical League of Cleveland.

"Eye Conservation" by Mr. M. M. Bowman, Regional Safety Consultant, National Committee for the Conservation of Manpower in War Industries, Division of Labor Standards, U. S. Department of Labor.

"Falls—the Greatest Home Hazard," by

Director Frank D. Celebreeze, Department of Public Safety, City of Cleveland.

"Fire Prevention in the Home," by Captain W. T. Fergus, in charge of Public Relations, Cleveland Fire Department.

"Burns, Shock, Infections, and Asphyxiation—Prevention and Treatment," by Dr. A. J. Pearse, Health Commissioner, Cuyahoga County.

"The Homemaker and the Law," by Mr. Harold H. Gorman, Vice-President of the Greater Cleveland Safety Council and General Counsel of the Ohio State Safety Council.

"Poisons, Firearms, and Other Causes of Home Accidents," by Captain Arthur Roth, Juvenile Bureau, Cleveland Police Department.

"Review of the Course."

As I am also Vice President of the Cleveland Board of Education we have had an advantage that others may not have had. This made the giving of a course in the Cleveland schools possible, and it gave us the use of the Board of Education's own radio station, WBOE.

Judge Skeel opened the course with a speech that was actually broadcast to 3000 people in 76 public schools. Afterwards the speech was transcribed. Each member of the panel had his or her speech transcribed so that it was possible in one instance for me to attend the start of the broadcast at the station of my own speech and to hear the finish of it in the classroom. It was extremely valuable and interesting to get firsthand reactions.

The course was given in ten sections. The radio program was given three times a

week so that those who could not come on one day might be able to come another. Anyone who attended eight or more sessions got a certificate.

Again we were fortunate in having my connections with the school board which made it possible to get the cooperation of the teachers who conducted the meetings in each school. The homemaker listened to

the broadcast in the schoolroom and afterwards a discussion was held led by the teacher.

In the future we are going to have uniforms and the course is to be copyrighted. Any other communities or organizations who care to may then make use of it. This year the course is to be a regular part of the home economics course in Cleveland.

Women's Place in a Community Safety Program

By MRS. MARGARET L. STUTE

Executive Secretary, Fort Worth Safety Council, Fort Worth, Tex.

Women to the right of us—women to the left of us—Women, Women, Women. In every community today, be it large or small, we are asking ourselves certain vital questions. What can I do to hasten the end of the war? What of tomorrow? How shall I use the knowledge and skill I have acquired to the best advantage—for myself and for mankind? Will the safety movement be alert to this storehouse of human motivation, and use the wealth of woman power for safety power?

For a complete picture let us take a glance back into history. Recognize the place of women which has been established and accepted by the world. Recognize some of the outstanding achievements of women. Admit that which has been lacking in our efforts and in the failure of society to fully utilize this wealth of Woman Power.

"In the beginning the earth was without form and void, and darkness was upon the face of the deep. And the spirit of God moved upon the face of the water and God said let there be light and there was light."

This was the first Safety act. But how was it accomplished? It grew from an urgent need, the spirit of willingness, and the power of action.

"And of the tree in the midst of the Garden, the Serpent said . . . 'For God doth know that in the day that ye shall eat, your eyes shall be opened and ye shall be as Gods, knowing good and evil.' . . . 'And when the woman saw the tree was good for food, pleasant to the eye and a tree to be desired to make us wise, she took of the fruit of the tree and did eat and gave also unto her husband.' . . . 'And God said behold the man is become as one of us, to know good and evil.'"

Here Eve, the first woman spirit, set the example for the centuries to follow. Women point the way, create the pattern.

Since the beginning of time women have

been the true pioneers, the spirit of adventure; while men have carried out the deeds. Review your Bible history. Study the women of that time. Study profane history. Study the women of each age and period. What is the one predominate characteristic of women in each cycle? By being the so called "weaker sex" woman has always been the one to guide and inspire the mighty male. Women have pointed the way, have created the pattern.

The Spartan mother of old placed the testing garments on her son and urged that he take his place among men. She created within him the awareness of life itself by developing a strong and rugged body.

Men sailing the seven seas in ancient times protected themselves by charms and ornaments made of women's hair, teeth and other personal items. That belief, instilled at their mothers' knee, kept them strong and unafraid.

So as we thumb through the pages of history we find women acting as the safe guard. We see them urging forward, yet holding firmly to that thing called life.

I challenge anyone to successfully prove that women were not the first safety directors, the first safety engineers, and the first safety inspectors. I say they were and they still are.

Woman First Safety Director

Who was it that first guided your tottering baby steps? A woman, the safety director. Who was it that placed all the lovely shiny objects that could so easily have caused you pain, out of your reach, when those faltering steps became strong

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enough to carry you where ever you wished to go? It was the safety engineer, your mother. Who cleaned the closets, trimmed the wicks of the lamps to make them as safe as possible? It was the first safety inspector, a woman, your mother and mine.

Grant Shay has said, "Safety is the difference between a smile and a tear, that certain something that comes through just before a sure accident happens." What is that "certain something"? Some people have called it intuition. Some have called it wisdom. Some have called it awareness. We as safety people know that it is the ability of one person to listen intelligently and the refusal of another to listen at all.

World War I took women from the kitchen and into the business offices of America and they stayed. World War II has put women in almost every conceivable job. The fond hope expressed by some dreamers, that when the war is closed women will return to the kitchen, is purely wishful thinking. Millions of women have become an integral and permanent part of all the working world—in industry, in public life as well as in the home. This is evidenced by our presence here today.

The world was alarmed when the first women began to leave the home for the industrial plants and we were warned that the health of the nations would suffer. Last year at the Safety Congress the Rt. Honorable Margaret G. Bondfield said, "... A nation" ... "battered by war for three years" (speaking of England) "has reason to be proud" ... "when medical authorities assure us the nation's health need cause us no alarm." So women did prove they could carry on their share of the industrial burden and that the nation's children need not suffer in health.

In America, in 1940, women laid down their bridge cards, put aside their jewelry, donned overalls and safety hats and proved they could do a job, a big job, very well. Miss and Mrs. America have qualified themselves through intensive training by millions of hours of study. The American woman has acquired a thirst for knowledge and achievement. She has discovered she has skills of which she little dreamed. Then too, it will fall the lot of hundreds of thousands of these women to become the permanent bread winners for the children of their men who sleep in Flanders

Fields, at Bataan, Africa and the far away places of the earth. Other women will be forced to assume the care of aging parents, smaller brothers and sisters as never before. Reluctantly, industrial leaders will part with certain of their women employees, because they have proven to be excellent and dependable workers.

Think for a moment of the thousands of women in our military forces. These women have learned something women of no other age have learned; that they can work and live together and find a comradeship in each other's company, just as men have always done since the beginning of time. Will they give all this up and return to the same life as before the war? John D. Durand, in the December *International Labor Review*, estimates that by 1950 there will be a labor force of 59,000,000 persons with women numbering 16½ to 17 million. Mary Anderson, Director of the Women's Bureau, has said, "We know from our 25 years of study" ... "that the vast majority of women workers seek employment from economic need." I think, too, that women's health has greatly improved in the past few generations. Thousands now find themselves at middle life, with their children educated and gone from home; while they, themselves, have the energy, education and desire to go into business with at least an expectancy of 20 to 30 years of active public life. Not all women desire to be mothers and many of them cannot bear children. These women, after the war, will be living in the ultra modern homes of that time. Because of the many new housekeeping aids, much of their time will be unoccupied unless they have some outside activity.

Considers Industry

Let us consider industry first. The type, the number and the severity of accidents among women employees will be discussed in other talks of the Congress. The problems of industry to change machines so they could be operated by women is for another topic. Yet we all know that the cause of accidents is 95 per cent the human element as against 5 per cent mechanical and "acts of God." In industry, then, who would be better prepared to instruct the new woman employee than another woman? This instruction, if given in the right way, is the safe way. And safety is a definite

part of the plan. Who better than a woman can supervise women and girls and understand their physical handicaps? Women are the natural housekeepers. A woman in an industrial safety department will help care for that problem. Many women like and have a knack for minute detail. They have long been the natural teachers of our young. This attribute can be capitalized on by our industries, if they are alert. In industry as supervisor, inspector, assistant safety director, women will find their place and bring credit to their company when given an opportunity in the safety field.

When we survey where our accidents are happening we find a large number in the home itself. Here trained leaders are needed. Through the National Safety Council and other service organizations classes are being taught in home accident prevention. This is a field where trained women can be of great service to humanity at all times.

In many of our larger cities war conditions have placed women in our traffic squads where their excellent work has brought honor to the police department and to their sex.

Few women have mechanical ability. Those who do are, as a rule, very proficient. In teaching a beginner to drive a car, class room instruction in motor parts, rules, regulations, etc., can be taught more effectively by women. Men, as a rule, are better at actual driving instruction.

All of our engineering, all our enforcement can bear little fruit, if we fail to create an awareness of the value of human life in our offspring. Safety-First is a false slogan for youth. Without adventure, without daring the world would have no prog-

ress. But it is the ability to have adventure and daring, *safely*, that we as mothers, safety directors, must create within our children. The teacher in the school must be made aware that the pattern of life is woven with the golden thread of the ability to listen.

Let us sum the total of our job.

In industry, we shall be the safety instructor of other women—the safety counselor and guide. Here we will take our place by the side of our men—the helpmeet in building a better and a stronger world.

In public life we shall teach home safety, correct driving and fully inform ourselves in all safe manner of living. We shall point the way, create the pattern.

If we are wise we will be willing to assume our share of the responsibility if we wish to share also in the rewards.

In the Women's Clubs, the PTA's and all the groups where women gather we will plan to spread the gospel of safety.

As professional and business women we will take an active part in the national and local safety movement.

The woman-citizen will observe all safety rules and regulations and urge those about her to do the same.

Some women with leadership ability will find a place in organizing for safety in the community.

They will be in industry—some in teaching—some in organizing—some in training—women have a large place in a community safety program. But wherever they are they will still hold fast to that immortal place of women—as they call the world to listen. They will point the way—they will set the pattern.

Coordinating Various Community Interests

By B. L. CORBETT, M.D.

Executive Secretary, Milwaukee Safety Commission, Milwaukee, Wis.

We started our expanded home safety program in the City of Milwaukee in March of this year. One of the first things we did in order to bring city-wide attention to the movement was to have the Common Council pass a resolution which called upon all residents of the city, and every branch

of municipal government, to cooperate in a home safety movement to combat the heavy toll of life and injury in this field.

The National Safety Council assigned Mr. Bernard Lundy to us for approximately six weeks at the start of the program. With his aid we developed our Home Safety

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Board, which is composed of thirty outstanding civic and public agencies.

Spot maps were made showing locations of home fatalities over a period of the past eight years. All of the home fatalities were analyzed as to type and nature. This material was then presented to the Home Safety Board with the request that this matter be taken up with their respective organizations and an educational campaign inaugurated to acquaint their membership with the causes of home accidents—also to focus attention on the locations.

A home safety portfolio was devised, copies of which were distributed to the representative of each organization. The portfolio contained a large assortment of safety material and members of the Board were instructed that they could obtain same in quantities so that their respective organizations could see to its distribution where it would do the most good.

Each of the thirty representatives on the Home Safety Board was given a specific territory to cover, after being told of its particular problem, and each was urged to work this out in whatever manner best suited his organization.

Various women's organizations are represented on the Home Safety Board and their cooperation has been wholehearted. In fact we have learned that once you get the women started on a project, it's pretty tough to stop them! They do a splendid job. . . . This doesn't mean that the men do not do an equally fine job.

Labor Cooperation

We were indeed surprised at the cooperation we received from the Unions, particularly the A.F. of L. and the C.I.O. Let me recommend to you not to overlook these unions in any home safety project you undertake in your community.

To show you the type of cooperation we received, I have a full-page ad which appeared in our daily papers. This advertisement was placed through our local transit company and, at current advertising rates, cost approximately \$4,000. Naturally it cost the Home Safety Board nothing, but it carried our message into practically every home in Milwaukee. Other firms will place similar ads in the press later in the year, calling attention to other home hazards.

The Veterans of Foreign Wars and the

American Legion, and their auxiliaries, have been most cooperative. And, of course, the City Health Department through its visiting nurses is a splendid medium for promoting home safety. So also are the other social agencies. Our public health nurses alone average a thousand home calls per day.

Another activity which the Home Safety Board has sponsored, and which we believe will be far-reaching, is the Accident Prevention course of the American Red Cross. All 8th grade pupils in the parochial schools of Milwaukee during the 1944-45 term will receive the standard home accident prevention course of the American Red Cross. This is a requisite to graduation. This means that several hundred boys and girls will be fully qualified home safety instructors when they have completed the 8th grade. We are watching this course very closely and hope it will be extended to the public schools at an early date.

Distributed Leaflet

The leaflet CONGRATULATIONS, which calls attention to infant safety, is being distributed to every new mother in Milwaukee. This comes directly from the office of the Safety Commission with a congratulatory letter attached.

We carried on a very successful radio campaign during the height of the canning season. This was sponsored by one of the agencies represented on our Home Safety Board, namely, the Home Economics in Business Group, who were themselves, amazed at the success of their venture. Home canning accidents in Milwaukee this year took a considerable drop and we feel that a large share of this improvement is due to the educational program carried on by the Home Safety Board.

We in Milwaukee are proud of the work of our newly formed Home Safety Board, as this is one of the first years in which home fatalities (up to October 1st) have shown a decrease. We believe this is particularly significant in view of home conditions at the present time. Our record is thus—

First 9 months of 1943—84 Home Fatalities
First 9 months of 1944—73 Home Fatalities

We have found in our home safety activities so far in Milwaukee that the matter

of budget is negligible. In any message to the entire community, you need cooperation.

Let me emphasize that: COOPERATION! You must enlist the help of every agency in your community and you must

see to it that each agency obtains the proper materials and is given some idea of the methods to pursue in order to effectively fight the biggest accident problem of our age—the home injuries and fatalities.

THURSDAY MORNING SESSION

October 5, 1944

Presiding: KATHERINE FISHER, Dir., Good Housekeeping Institute, New York City.

Hazard House or Happy Home?

Home Design and Arrangement

By KENNETH SARGENT

Associate Professor of Architecture, Syracuse University, Syracuse, N. Y.

To the architect, home design and arrangement is the fusion of utility, aesthetics, safety and physical features of site into what we call plan. To discuss the subject from each of these basic premises would require far more time than allotted. Each of these particular phases perhaps might be dull to certain individuals. As it is our purpose to become more informed concerning home safety, let us consider home design and arrangement as it is specifically influenced by safety requirements, remembering that utility, site, and aesthetics will always modify this subject.

With the group attending such a meeting as this, it would seem somewhat needless to point out the necessity of "Safety in Design" of the modern home. However, it would seem desirable that two problems be accepted and considered, namely: first, making new homes and housing construction safe, and second, making existing housing safer.

The latter problem seems in itself worthy of great consideration, since approximately thirty-seven million units of housing exist in the United States, a large percentage of which will continue to be used. It has been estimated that about eight million units of new housing will be required in the next ten years. With this ratio of existing dwellings to anticipated new homes in mind, it would seem that most of the causes of accidental death and injury exist in homes now in use, while the new construction

could not be the controlling factor in the reduction of the home accident rate.

However, for two reasons which I now enumerate, I am focusing my discussion on new housing. First, the faults of new housing are similar to those of existing housing. The problem of correcting these faults in both new and existing houses seems somewhat similar.

Second, even though the elimination of hazards in these new homes would not greatly change the graphic picture of the home accident rate, are we to allow the careless construction of some eight million units of housing and thus add to the already enormous problem of home hazards now causing yearly more deaths than have been inflicted yearly by our national enemies?

The quality of the design, the arrangement, and the safety of housing to be constructed after this war is definitely a local problem, as I believe it properly should be.

To propose a national building code would be folly; yes, to suggest a state code which would eliminate and stop the construction of hazardous homes would also prove most impractical. The success of a building code depends entirely upon its intelligent enforcement by those skilled in the construction industry. Such skilled enforcement officers are not available in the rural areas and in the villages which surround our large cities. I have been in personal contact with such building inspectors in the smaller communities, who, even

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though they were most able in their respective field such as carpentry or masonry, as builders, had little knowledge of electrical, sanitary, or heating equipment and installations. With the expected complication of equipment demanded in the house of tomorrow, it is self-evident that the enforcement of any such building code is impossible.

Assuming, then, that the quality of housing is a local problem, upon whom will the responsibility of providing new safe housing fall? No one group can be held responsible because of the nature and ramification of the building industry as organized in this country. The responsibility of safe design and arrangement of housing must, therefore, be placed upon the following groups:

First, manufacturers who prefabricate most of the material and equipment which is used in the construction of housing.

Second, architects or designers who plan and design the structures and dictate the use of these materials.

Third, the builder who actually assembles the materials according to the design and plan, and

Last, but not least, the banker, the insurance company, or any other mortgagee who may finance the construction.

Fixes Responsibility

The fact that the responsibility lies with each of these groups can be demonstrated. It is certain that the architect cannot be held responsible for the hazards of falls in the bathtub if the manufacturers do not provide him with tubs that have flat bottoms, glazes which are not slippery, and suitable unbreakable grab bars for the person taking a shower. In these cases, the manufacturer would be responsible for the marketing of hazardous materials, and may I add that the catalogues have been filled with such equipment. It would be to the financial advantage of these manufacturers if they designed safe materials and equipment, and so advertised, as the various campaigns by such agencies as the National Safety Council and the many state and local safety councils are fast creating a demand for safe equipment and homes.

Likewise, if the architect or designer places a prefabricated stairway too close

to the door so as to become a hazard, it is certainly not the manufacturer's fault. Similarly, if the builder places the smoke-pipe of the heating unit too close to the floor framing without protection to this wood member, he alone is responsible for the resulting fire which annually destroys a vast amount of life and property. This illustration is typical of the causes of fire about which no one save the fire insurance companies expresses very much concern.

I must add to the group of those responsible, the banker and mortgagee, for who else is more responsible for the limiting of budgets of housing than this group? The extent of the budget, unfortunately, often controls the freedom of hazard of the housing. For instance, there is available today a very fine prefabricated window which also offers the safety features of inside application of storm sash and screen. Both sides of the glass of this sash may be safely washed from the interior of the house. Unfortunately, this window costs more than the common hazardous vertical sliding sash known to the trade as the double hung window. This latter unsafe window offers none of the features above mentioned, but is the cheaper. The use of the cheaper window has been almost universal in this country. The housing built on too limited a budget cannot afford such safety features of design.

Definitely, hazard-free housing depends upon budget. Allow me to paraphrase the letterhead slogan of the New York State Department of Health, "Public Health is Purchasable. Within natural limitations, any community can determine its Own Death Rate." I would restate similarly "Freedom from Home Hazards is purchasable. Any community can determine its own Home Accident Rate."

Again I wish to demonstrate the responsibility of the bankers and mortgagees in liberating the future householders from the home accident hazard. If this group would formulate certain minimum requirements similar to the minimum Construction Standards of the F.H.A., adherence to which would be required of all structures financed, they could by such action, largely eliminate all the more common hazards found in new housing, for little new housing is constructed on a cash basis. It might be financially advantageous to this group to eliminate haz-

ards, for in my opinion, a dead mortgagor is definitely a poor risk.

I have referred constantly to details of hazard-free design and arrangement of housing. To design for safety, all possible hazards which might be the direct or indirect cause of an accident should be eliminated. To play upon that familiar word of today "FREEDOM" as four times repeated in the Atlantic Charter, twisted to suit my purpose—we should so construct these new homes that we would insure for our homes: Freedom from hazards causing falls, Freedom from hazards which cause burns, Freedom from electrical hazards and Freedom from poison gas and mechanical injuries.

The numerous details that require the designer's attention in order to insure this Freedom from Accident hazard are so numerous that it would be impossible to discuss them intelligently in a short time. In order to illustrate a typical hazard from each of these classes of accident causes, allow me to describe an example of each.

Freedom from falls is a major problem of all home hazards. True, that homes planned without a second floor offer many advantages to the homemaker, since such houses eliminate windows above the ground, stairs, and resulting fatigue caused by the additional effort required to maintain two floors. To plan all new housing on one floor only would not entirely eliminate the causes of falls because of the many other causes, such as slippery floor finishes, maintenance of exterior approach, house arrangement, etc. Again the budget offers an obstacle, since the single floor house will always cost more per room because of the added roof area and foundation. In the northern states, I would point out another barrier to elimination of stairs, namely, traditional living. Up to the present time, most prospective home owners demand a cellar because they have not been educated to the benefits of the cellarless house now possible because of modern improvements in heating equipment.

Stair Hazards

Since stairs are demanded in most houses, what are typical hazards of stairs? The lack of hand rails are a common defect. Many builders still believe that stairs enclosed between partitions need no hand rails. It

seems common practice to omit rails on cellar stairs. Too small a space for stairs also frequently demands the introduction of winders to secure the proper number of steps for the vertical distance traversed from floor to floor. Naturally, the danger of this device is the unequal width of treads. Elimination of details such as this and the construction of adequate rails would safeguard most stairs. These simple common defects thus illustrated are by no means the only stair hazards.

To illustrate freedom from burns, I present these common errors of design and arrangement. The kitchen planned by the unskilled designer, who, in order to place the necessary appliances in the space allotted, locates the kitchen range near the window. The curtains which every homemaker demands are frequently the cause of fire when blown into the open gas flames.

Or again, the improperly planned home or house constructed with a limited budget is so arranged that the cellar stairs are not cut off from the furnace room. The fire that so often starts in this area is immediately spread to the only exit available from the second floor, since the usual practice is to stack the basement stair below the stair to the upper floor. You open your morning paper to see that John Jones' children were burned to death because a fire blocked the only means of escape.

Freedom from electric hazard is very closely related to other accidental causes but its identity is so marked that it merits individual attention.

The equipment used in past years often invited accident. The very device used to safeguard your appliances and your personal safety, frequently was the indirect cause of a fire. When the last fuse was blown, how many of you have inserted a penny in place of the fuse in the fuse box? Mr. Gunn illustrated this hazard yesterday. You did not think that the very cause of the fuse blowing was overheating of the circuit, which you permitted to continue and which might have resulted in a fire in the system. He did not tell you how this hazard was eliminated in modern construction.

Perhaps you have not been guilty of this infraction of safety but have you placed a 30 ampere fuse in place of the 15 ampere fuse which you removed? This allowed the

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overheating of some appliance which perhaps ultimately will cause a breakdown of the insulation and ultimately fire. New equipment such as the automatic circuit breaker, an improvement of the fuse box, eliminates these hazards, as it eliminates the personal element in its operation. I might add that this safety device does not affect the budget greatly.

My final classification of housing hazards is that of freedom from the hazard of poison gas and mechanical injuries, perhaps a rather miscellaneous classification. During the heating season, your daily paper regularly shows the toll of life taken by furnace gas. The usual furnace blower installed by the householder to burn small sized coal and thus reduce his fuel budget, is a source of fatality. It is true, that with care and caution, this equipment may be reasonably safe, but my experience leads me to believe that this means of forcing combustion is frequently the cause of fatal accidents. Coal, when improperly burned, is a common source of carbon-monoxide gas. Modern stokers are safe, in that this carbon monoxide from the coal is burned as it passes through the fire since the coal is properly fed into the fire from below, a system not now possible with hand stoking.

If the designer fails to study the circulation of the house, the arrangement may result in considerable traffic through such rooms as the living room. These arrangements may influence furniture placement that involve safety. This hazard may be further increased if light control is not installed to allow advance lighting of your passage. This is especially true if your homemaker is what I term a "furniture mover" or perhaps you never have stum-

bled in the dark over the coffee table that wasn't there this morning.

From the examples cited, it is evident that planning, arrangement, and design of the safe home is by no means simple and lacking in complications. The common illustrations selected demonstrate that home safety is dependent upon the collaboration, ability, and training of all involved in the construction of housing, the architect or designer, the builder, the manufacturer, and the financier. As I have demonstrated the importance of each group, I have also attempted to show a few examples of hazard through poor design and arrangement.

The building code will never insure the four Freedoms from Hazard in all new housing. What then is the means of elimination of accidents from these new homes? I believe that educational programs should be fostered and continued among these groups. The program of teaching those whose responsibility it is to provide new housing, will not only result in safer new homes but will also improve existing dwellings which are subject to maintenance and improvement by these same groups in the building industry.

Lastly, I emphasize the desirability of enlisting every organization in a program to inform the householder and tomorrow's homemaker of these built-in hazards and inferior planning so that they will recognize the most common hazards incorporated in their existing homes, and so that they would avoid the purchase of the unsafe, poorly planned and "Jerry-built" home, and so that they would not allow unsafe details to be incorporated in the home being planned for them. Safety in the home cannot be and should not be a matter of legislation.

Let the Seller Beware!

By H. D. VALENTINE

Sales Promotion Mgr., The Peoples Gas Light and Coke Company, Chicago

I believe we are in agreement that rigid safety measures and rules of conduct to preserve safety, are a resultant of modern technological civilization. Primitive man did not need to worry about his personal safety beyond an alertness to attack by wild animals, enemy forces or natural acts of God.

With modern invention however, living has become more complex until at the present time, we are surrounded with mechanical gadgets that inherently carry the possibility of hazards to life, limb, or property. That this is true is evidenced by the need for and the splendid accomplishments of this great institution, the National Safety Council.

With the advent of the automobile, the relatively high speed obtainable coupled with very impersonal mechanical linkages, produced, and continues to produce, an alarming number of accidents. Fortunately there is a more comforting side to this picture since from the consciousness of possible danger from the use of the automobile have come better automobiles, better roads and more stringent regulations as to who may drive, and how, and where.

Similar conditions obtain in most mechanical equipment that people use in and about their homes. It is this appreciation of hidden dangers that spurs engineers, technicians and legislators to investigate means whereby these hazards can be eliminated or minimized and thereby help to promote the general safety.

In this category of mechanical equipment can be grouped domestic gas appliances—the gas range, the gas automatic water heater, the gas refrigerator, and the gas heating or winter air-conditioning system.

We need spend only a moment in covering the first three of these since continued research over many years has developed a highly recognized element of efficiency and safety which undoubtedly has contributed to their increasing popularity. The development of burners that prevent the possibility of any carbon monoxide in the flue products and the invention of positive burner ignition and thermostatic controls are samples of the features which have added to the

safety and general usefulness of these appliances.

A more recent and more inclusive approach to the subject of safety in modern home appliances can be illustrated in the more or less recent complete acceptance of gas for home heating and winter air conditioning.

The popularity of gas for home heating dates from 1931 when natural gas was brought to the Chicago area. This coupled with an effective promotion of conversion burners which could be installed in existing boilers and furnaces, provided the impetus towards a mass acceptance of gas for heating homes. In recent years, as the conversion burner proved the value of gas for heating, gas designed boilers and furnaces have become more popular.

This increasing popular demand for gas home heating equipment introduced a series of conditions, which if not properly controlled could have influenced, adversely, the high standards of efficiency and safety of heating installations which was, and continues to be, the hallmark of Peoples Gas service.

These conditions are of two types, the first engineering in character and the second related to business and public relations. Let us review the engineering phase first.

Gas conversion burners and gas burning central heating boilers and furnaces are in themselves unit mechanisms designed and constructed to include maximum operating efficiencies and the highest factors of safety.

However, in the case of conversion burners, installations generally are made in older boilers and furnaces designed for solid fuel. These may be faulty in one respect or another. Consequently the assembly of burner and furnace unless thoroughly examined and supervised, would be as inefficient and hazardous as the least perfect part—which in this case would be the old boiler or furnace.

Again a gas designed boiler and furnace or an ideal conversion burner installation cannot provide heating service until it is

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ties to a heat distributing system which includes piping and radiation for steam or hot water or duct systems and register openings in warm air systems. Here again if the heat distribution systems were faulty in one way or another the complete installation could not be expected to give fully satisfactory results.

Installation a Specific Problem

Consequently every installation must be regarded as a specific engineering problem. Each part of the system must be as near perfect as possible so as to insure maximum customer service.

It is understandable that in the promotional period of home heating with gas it was possible for Peoples Gas to carefully supervise each job from beginning to end. First a heat loss was calculated together with a careful engineering survey of all conditions which could in one way or another affect the final results obtained. In addition ideas for obtaining additional economy and safety were suggested—insulation, changes in the heating system, chimney linings, etc., etc.

All such engineering data together with an estimate of the normal heating season cost and recommended equipment comprised the "proposal." After the sale was made Peoples Gas supervised the installation and checked its operation. Each installation was "custom built."

However, as acceptance grew and the market for gas home heating expanded the second, the business and public relations phase, became imminent.

Certainly Peoples Gas, even had they wished to, could no longer, as a single organization, acquire each house heating equipment sale and installation.

At the same time, however, Peoples Gas believes that when a certain acceptance of a use for its product has been reached through Company promotion, any expansion should flow into a free market through the normal channels of trade. This means as the demand for gas home heating grew, more and more of the business fell to the heating contractor.

Such a change in distribution actually occurred. In 1935 most of the sales of home heating equipment were made by Peoples Gas. In 1944 over 90 per cent of the

business was on the books of heating contractors.

Such cooperative effort, commendable as it is, could present a problem which could depreciate the already acquired high acceptance of gas for home heating.

It must be remembered that when a free market grows in response to demand, then competition enters. Under such a condition a customer is likely to shop for price. This price consciousness would naturally be reflected in the business programs of manufacturers and contractors. It is evident, however, where price is dominant, quality may easily deteriorate. If this occurs in the purchase and installation of gas home heating equipment, customers could never be certain that they would enjoy a heating service of maximum efficiency and safety.

In order to retard the growth of such a condition, Peoples Gas announced its Certified Quality program in January 1940.

What the Certified Quality program is and how it functions can be most easily explained in a series of questions and answers.

1. What is the meaning of "Certified Quality?"

(a) Certified Quality aims to protect the ultimate user of gas as a fuel by giving recognition to such factors of equipment selection and installation practice which make gas service for heating satisfactory and economical.

(b) It means that boilers and furnaces which are made to use gas as a fuel have certain quality features of construction and performance which will give a user greater assurance of satisfactory and economical operation. These quality features are over and above those now required under minimum national standards and apply to the serviceability, durability, added safety and efficiency and capacity factors of the equipment.

(c) It means that the selection of equipment, design and construction of the heating system and the installation of the unit will take into consideration such installation factors which also give greater assurance of satisfactory and economical operation and which are, in many instances, above the minimum standards now recognized by

architects, contractors' associations and national organizations.

2. Whom does the Certified Quality plan benefit?

The benefits that can be derived from this plan will primarily accrue to the purchaser of gas heating equipment because it is designed to protect his interests. Manufacturers and dealers who follow this program will also indirectly benefit through continued acceptance of their products and workmanship.

3. What are the steps that a customer should take to obtain Certified Quality heating?

The Peoples Gas Light and Coke Company has provided a certification form which can be offered by the contractor or demanded by the customer. This form serves in a sense as a guarantee bond to the customer that the contractor will furnish and install equipment that meets Certified Quality standards.

4. What are the steps that a contractor should take to obtain Certified Quality equipment?

The Peoples Gas Light and Coke Company has provided a certification form which can be offered by the manufacturer or demanded by the contractor. This form serves in a sense as a guarantee bond to the contractor that the manufacturer will furnish equipment that meets Certified Quality standards.

5. Who has Certified Quality equipment?

Any manufacturer who reasonably complies with the various factors listed in "Information on Certified Quality Requirements for Gas Fired Winter Air Conditioning Equipment Installations," a pamphlet which has to do with the selection of the equipment, can be assumed to have Certified Quality equipment.

6. Who makes Certified Quality installations?

Any contractor who agrees to sell Certified Quality equipment, as mentioned

before and to reasonably comply with the installation considerations covered in a pamphlet entitled "Information on Certified Quality Requirements for Gas Fired Winter Air Conditioning Equipment Installations" can be considered as providing Certified Quality installation.

7. Will the Peoples Gas Light and Coke Company verify a contractor's proposal to see if it meets Certified Quality standards?

No. Peoples Gas Light and Coke Company has published the standards for Certified Quality and any proposal which complies with those standards constitutes Certified Quality.

8. Will the Peoples Gas Light and Coke Company check the completed installations to see if it meets Certified Quality standards?

Yes. Field engineers make an inspection of each installation and, in addition to determining necessary information which makes it possible to approve or disapprove of it as satisfactory gas heating installation, will also obtain the facts which enable the Company to interpret whether or not such an installation can be classified as meeting Certified Quality standards.

9. How does The Peoples Gas Light and Coke Company enforce this Certified Quality program?

It is important to bear in mind that The Peoples Gas Light and Coke Company does not enter into any dictatorial attitude nor does it propose to act in any way as a police power in the enforcement of these standards. Our purpose is primarily to put into the hands of the manufacturer, architect, builder, contractor and customer the essential information which makes it possible for them to sell or buy in terms of Certified Quality.

The Certified Quality program has been most successful in its so far short life. It has added considerably to the consumer's knowledge of home heating, has supplied manufacturers of equipment and heating contractors with an instrument to enhance

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their prestige, and Peoples Gas feels reassured that in the sale of gas for home heating their customers will continue to enjoy the best of service.

It should be remembered that the plan in no way suppresses progressive competition. It identifies no private name, brand, or system. It prescribes fundamental engineering and operating minima all keyed to the use-needs and expectations of the ultimate customer.

Its greatest value, however, lies in its

schematic adaptability. Such a plan can have usefulness in any industry that is more or less a product monopoly and consequently has a tendency towards strong internal competition. It tends to increase the total market without danger to any vendor, except he who attempts to secure business at the expense of service. If properly operated, the slogan, "Let the Buyer Beware" will soon be amended to "Let the Seller Beware," truly a more progressive approach to successful postwar marketing.

Planning for Present and Future Electrical Needs

By FRANCES ARMIN

Director, Consumer Education, National Adequate Wiring Bureau, New York City

There is an old saying that "hind-sight is always better than foresight." Unfortunately, never was this more true than when it is applied to home planning! If the home-builders of 15 or 20 years ago could have foreseen the increasing dependence of every family upon electricity, I am sure we would not be faced with the unfortunate conditions that are present today in thousands of homes.

Many of us come face to face with annoying evidence of these conditions, daily, in our own homes. Homes that are serene and safe, by day, often become fearsome caverns by night where unseen dangers lurk. If we safely negotiate the "no-man's-land" between the door and the light switch, we congratulate ourselves at having reached our goal without tripping over the extension cord entanglements!

But inadequate lighting and inadequate numbers of convenience outlets are only part of the story. We would probably all be shocked if we could know the numbers of 25 and 30 ampere fuses being used on wiring circuits that are intended to carry only 15 amperes of electricity. The entire situation is typified in a survey made just before the war, in Wichita, Kansas, by a graduate home economics student from Syracuse University. These results were recently published in *Electric Light and Power* magazine. Here is what this student found:

Table I.

Size of Fuses in Use in 59 Homes Using No. 14 Wire, in Wichita, Kansas, 1941

Per Cent of Homes	Fuse Sizes in Amperes
33.8	15
15.3	20
15.3	25
35.6	30

Table II

Number of Circuits in Homes in Wichita, Kansas, 1941

Number of Circuits	61 Older Homes	50 Newer Homes
	Per Cent	Per Cent
1	42.6	—
2	41.0	56.0
3	9.8	22.0
4	5.0	14.0
5 or more	1.6	8.0

Perhaps this looks to be a gloomy picture. I assure you it is not an exaggerated one. But remember, I have been indulging in "hind-sight." Merely to eliminate from the homes of tomorrow the possibility of such conditions as those I have mentioned would be a great public service. It so happens, however, that adequate electrical planning has very interesting advantages today for those who plan and build homes for sale,

in addition to the improvements it makes in the home's safety factor.

There are several reasons for this:

1. The public has learned its "ABC's" of home wiring. During the war, consumer groups everywhere, in the course of learning how to get along without the power company's service man, have learned also that overloaded circuits cause fuses to blow. They have learned to count the number of fuses or circuit breakers in the box near the meter, and thereby find out how many circuits there are in the home. And in many cases they have learned that there are *not enough*, to permit convenient, safe, and efficient use of electric service. To these people, the new home with *enough* circuits will have extra appeal.

2. The home buying public has recently been exposed to vast amounts of publicity about the "glamour-gadgets" with which every postwar home will be fully equipped. Much of this publicity has been unfortunate, and steps are being taken by responsible members of the building industry, and by the better manufacturers, to correct false impressions. But the fact still remains that much emphasis is being given to the automatic features of tomorrow's homes.

Regardless of whether the equipment itself is immediately available or not, when home construction is resumed, the home which has *provision* for that equipment in its electrical system will be much more acceptable to the buyer and to the financing agencies than the one which does *not* have such provision.

All over the country today groups of people are gathering regularly under the auspices of civic and business organizations, for courses which will help them in wise planning and selection of the homes which they will build or buy tomorrow. All such courses include sessions on "Planning for Present and Future Electrical Needs." A large number are using a series of charts, developed for the purpose by the National Adequate Wiring Bureau, and based on the National Minimum Standards of Residential Wiring Adequacy. I should like to run through several of them, quickly, to give you an idea of the contributions which adequately planned electrical facilities make toward a home that will be *safe*—and a home that will *sell*.

Every day, nearly all the important func-

tions of a home depend wholly or partially upon electricity. We depend upon it—

FOR HEATING, VENTILATING AND AIR CONDITIONING

Room Coolers
Air Filter
Automatic Heat Control
Complete Air Conditioning
Humidifiers
Portable Fans
Kitchen Ventilator
Attic Fan
Space Heater

FOR LIGHTING— FOR BEAUTY AND DUTY

Decorative Lamps
Niche Lighting
Window Valance Lighting
Panel Lighting
Outdoor Lighting
General Lighting
Lighted Work Spaces
Night Lights for Safety
Christmas and Garden Lighting

FOR MEAL PREPARATION AND FOOD STORAGE

Electric Cooking
Refrigeration
Mixing and Beating
Toasting
Waffle-Making
Coffee-Making
Roaster-Meals
Home Freezing

FOR ENTERTAINING AND HOSPITALITY

Lighted House Number
Door Chimes
Table Appliances
Radio-Phonograph
Entrance Lighting
Bridge Lamps
Motion Picture Projector

FOR HOUSECLEANING, LAUNDRY AND SANITATION

Vacuum Cleaners
Floor Polishers
Washer
Drier

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FOR EDUCATION, RECREATION HOBBIES

Study and Reading Lamps
Radio
Television
Photographic Equipment
Electric Tools
Sewing Machine
Electric Toys

FOR HEALTH PROTECTION AND GOOD GROOMING

Sterilizers
Germicidal Lamps
Ultra-Violet Lamps
Heating Pads
Vibrators
Exercisers
Shavers
Electric Blankets

FOR UTILITY AND PROTECTION

Pump
Electric Water Heating
Extension Telephones
Signalling Bells
Fire Alarms
Door Openers
Lawn Mowers
Insect Exterminators

Is there any doubt that we should plan home electric operating facilities that will be adequate to the family's needs of today and tomorrow?

Most of us consider electric wiring a very mysterious technical matter upon which we cannot check unless we are trained engineers; but there are certain fundamentals that will help us to plan Adequate Wiring systems for tomorrow's homes. Here are the ABC's of Adequate Wiring—

- A An adequate entrance for electric service
- B An adequate number of circuits, of large-enough wire
- C Adequate locations for use and control of electric service

Now let us see what constitutes each of these three elements.

Most of us think of a "service entrance" as a place where packages are delivered. Sometimes it is the back door; sometimes the back porch. The "Electrical Service Entrance" is the place through which electric service is delivered. If it does not have great enough capacity, we can bring in only a limited amount of electricity.

If you see to it, however, that your home's electrical service entrance is *adequate*—you will be able to operate any piece of electric home equipment you want—today or tomorrow.

The capacity of the electrical service entrance varies with the size of the home. For the smallest home, three wires of No. 6 gauge will provide sufficient capacity for most needs (3-wire, 60 ampere). If you have a larger home, a service entrance of greater capacity would naturally become necessary (No. 4 or No. 2 gauge wire).

An electrical service entrance of at least three No. 6 wires will be your home's symbol that it is electrically modern, and it will enhance its value as long as the house stands.

Annoyances such as fuse-blowing and the hazards of overloaded wiring can be shut out forever from the home which has enough circuits of large-enough wire. There should be four *kinds* of circuits.

(1) *Circuits for Lighting, Radio and Small Appliances.*

There should be at least one of these general purpose circuits for every 500 square feet of floor area. These are the wires that carry electricity to lighting fixtures and to convenience outlets which serve portable lamps, radios, vacuum cleaners, and other small "plug-in" appliances that are used once in a while. These circuits are generally No. 14 gauge wire. If, however, such a circuit must travel more than 35 feet or so from the fuse or circuit breaker, it should be No. 12 gauge wire. This will permit the electricity to reach its destination without losing part of its power along the way.

(2) *Circuits for Kitchen, Laundry and Dining Table Appliances.*

In order to do their best work, and to prevent frequent fuse blowing or opening of circuit breakers, appliances

such as roasters, refrigerators, waffle irons, toasters, irons and washing machines, must have circuits of their own, which are not used for lights.

To provide for this equipment, every home should have one or more circuits of No. 12 gauge wire which carries electricity *only to convenience outlets* in the kitchen, pantry and dining spaces. There should be *another* such circuit serving laundry equipment.

These circuits will be more important than ever in the years to come, as new and improved electrical devices become available for our homes. For example, we would connect a home food freezer to such a circuit.

(3) *Circuits for Built-in and Individual Equipment.*

There are certain pieces of electric equipment which must have individual circuits, to which no other equipment or lighting is connected. A home that is well planned electrically will have one special circuit, probably of three No. 6 gauge wires, which serves a special receptacle outlet in the kitchen at the range location. An electric water heater, a built-in space heater (perhaps, in the bathroom) or other built-in heating devices each requires a circuit of its own, using No. 10 gauge wire. The automatic control for the house heating system would also have its own circuit, probably of No. 12 gauge wire.

(4) *For Future Additions to Home Electrical Equipment.*

You may feel some of the electrical operations we have mentioned might not be possible immediately in the home you are planning.

But remember what has happened to home wiring systems in the past ten years!

It is considered good practice to make sure that the main fuse box or circuit breaker panel contains at least two spare terminals for future circuits. If this is done, future additions to home electrical equipment will not make it necessary to install a new distribution panel.

In most homes (and in all new homes) there is one circuit for each fuse or circuit breaker. The rating on the fuse or circuit breaker should tell the capacity of

the circuit. It should be 15 amperes for the general purpose circuits, and 20 amperes for the kitchen, laundry and dining table appliance circuits. The special circuit, of course, would vary according to the piece of equipment each one served.

Having provided an adequate entrance for electric service and enough circuits of large-enough wire to carry electricity through the home at full power, the next step is to provide for safe and convenient use and control of electric service. Remember that location is just as important as *quantity*, in planning lights, outlets and switches.

Outside of House

First, let us go outside. Here we see one of the first requirements for a well planned and well lighted home—a light at the entrance. We are told that a very high percentage of home accidents occur on the front steps. How many of them could have been avoided if the entrance had been well lighted—to say nothing of the cheerful glow of hospitality a lighted entrance provides for guests!

There are many uses for electric service out-of-doors as well as inside. Outdoor weatherproof outlets, located on the outside of the house will provide for such things as outdoor dining, outdoor lighting, the electric lawn mower—and even the electric insect killer.

Hall and Stairway

Another safety measure is the inclusion of lights at the head and foot of every stairway, with switches to control them from above and below. Notice on the chart the little switch symbols marked "3". This means that they are so arranged that you can turn downstairs lights on and off from above, and upstairs lights on and off from below.

A switch controls the outdoor entrance light from inside the hall, and there should be another to control the same light from the garage.

Closets need light, too, for convenience, as well as to help us avoid pulling down unseen boxes on our heads!

We often forget all about the telephone until after we move into the house. But why not think about it in time to provide concealed runways for the telephone wire,

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and designate the most logical place for its location? A light and a special outlet near the 'phone, will help to save time in emergencies.

Extension telephones can be provided for in a similar manner; so can communication systems within the house or between the house and the garage or other outside buildings. On farms, particularly, such installations are helpful—and safe.

Living Room

Here, in the living room where family and friends gather, it is most essential to provide adequate outlets, properly located. First let us consider lighting. Ceiling units are generally needed for adequate illumination in a room as large as this one. This unit can be controlled from either entrance. No groping through the dark here! In this house, provision has been made for concealed trough lighting over the windows. The little triangular symbols signify provision for such special uses.

Notice the convenience outlets, including one in the top of the mantle shelf! The homemaker who lives here will be able to re-arrange her furniture at will, without having to worry about connections for her lamps, and never need she resort to 3 or 4 plugs! The rule is: at least one duplex convenience outlet for every twelve feet of wall that is unbroken at the floor line (baseboard), and one such outlet in any wall space which measures three feet or more.

The square symbol, marked "T" on the chart, indicates provision for a special outlet for ground and antenna connections for radio—or television. The adjacent convenience outlet, connected to a general purpose circuit, will provide electric power for its operation. Meanwhile, regular outlets can be used for the radio.

Bedroom and Bath

In the bedroom, too, provision has been made for concealed cove lighting at one window, controlled by a switch at the door.

A central ceiling unit controlled by another switch at the door, provides plenty of light for dressing, and for finding things in the bureau drawers. Convenience outlets, placed according to the 12-foot rule, will assure ease in locating an electric clock, radio, bedside lamps, and the like.

Some day, these same outlets may serve

germicidal lamps to help protect the family's health; or they will make it possible to use a sun lamp, or, perhaps, a little spot heater to help take off the chill on cold mornings.

In the bathroom, lights on either side of the mirror give illumination for shaving, while the outlet is handy for the electric razor. Although the bathroom in the chart is small enough so that adequate illumination can be provided by the mirror lights, it might be well to provide an overhead unit. It not only gives general light, but also provides for installation of an ultra-violet lamp which will make a sun room of the bath. If switch controlled, it could be used for long or short periods.

Kitchen

And here is the workshop of the home where electric service is constantly needed.

The central ceiling unit which floods the kitchen with light can be controlled from either doorway, providing safe passage by night. Here is a single convenience outlet provided, in advance, for the refrigerator. Do you think it strange that there is an outlet under the window? Remember in the kitchen, we have continuous counter space. This outlet will be located at counter height, to serve the mixer, or any other appliance which is to be used here.

There is a light over the sink controlled by a nearby switch. No danger here of knicked fingers when vegetables are being peeled. So many such little accidents occur simply because we cannot see clearly.

Another of those "special" outlets is provided for the electric sink. We find an outlet for the range, with another outlet in the wall above for an electric clock. Next, we find another duplex convenience outlet. Homemakers all have recipes which say "simmer over slow heat, stirring or beating constantly." But what good is the electric mixer for this purpose, if there is no outlet handy? This same outlet is also convenient for preparing toast and coffee while keeping an eye on the eggs, and when used that way would prevent the tip-overs of scalding coffee which sometimes occur on crowded range-tops.

In the dining space, a ceiling light assures us of a cheerful eating atmosphere, and convenience outlets at table height make it possible to use the waffle iron, coffee-maker,

toaster, and the like, at the table, or on the buffet.

Basement

This is quite an elaborate basement. Most postwar utility rooms will occupy only a fraction of this space. But this serves as an illustration of how to provide for all possible electrical needs in this area.

Note the light at the foot of the stairs, which can be controlled from above and below. I hardly need to stress, for this audience, the essential need for this kind of control.

The central light in the laundry space can also be controlled from two points; as can the light in the recreation room. With control so convenient, there will be far less inclination to forget, and leave basement lights on, when no one is there, and certainly it will help to eliminate nasty falls.

In the heater room, we have, of course, another overhead light, and one in the storage room. In the heater room we find two pieces of equipment which require individual circuits—the one marked "A" is

the automatic furnace control and the one marked "B" is for the water heater.

The laundry section has been planned to make good use of available space. An outlet for the washer is located to the left of the laundry trays, and one for the ironer is at the right. There is a special outlet for the drier, because this is another piece of equipment that requires an individual circuit.

The convenience outlet on the wall opposite the washer will serve a small hotplate, for heating starch, bleaching, dying, and so on. An electric sewing machine could be used in this corner, too, since there is a convenience outlet available.

Convenience outlets for portable lamps and for small cooking appliances make the recreation room a hospitable spot instead of just an unused basement space. And provision is made in the storage closet for a home food-freezing unit.

Planning the home's electrical life is a fascinating game, and one which will pay big dividends in future satisfaction.

Safety Features of Modern Plumbing

By RUSSELL G. CREVISTON

Director, Public Relations, Crane Co., Chicago

Presented by H. A. Bergdahl, of the Crane Company

We can assume that the house of tomorrow will be essentially the house of today with improvements that have a real justification. Certainly anything that contributes to safer construction and to greater safety in mechanical equipment is a real contribution to housing progress, and will find a general acceptance among builders and the public.

Let us check over the household plumbing, therefore, to see where improvements can be made that will contribute to greater safety.

I think we should start with materials, because these, after all, are the basis of all product design and engineering.

In this respect, public preference is a sound criterion. Enamelled cast iron and ceramic materials, because of their eminently satisfactory record of service in the past, will continue to be the preferred ma-

terials for the manufacture of plumbing fixtures in the foreseeable future. As for fixture trim, that is, faucets, valves, drain controls, etc., there is no question that chromium plated brass is the ideal material.

What? No plastic plumbing fixtures, you may ask.

No. I don't think so. Neither, as far as I know, does anyone else in the industry who has given the matter careful study.

Nor are we likely to see aluminum fixtures or glass fixtures in the near future. Manufacturers of aluminum have said that varying water conditions make aluminum unsuitable for use on a large scale in the plumbing industry.

As for plastics, there are, of course, many kinds. At the present time none of them present any outstanding advantages either in cost or in durability over traditional piping materials such as galvanized

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Piping is, of course, the basis of all plumbing. I think we should begin this discussion of greater safety in the house of tomorrow by consideration of the fundamental importance of good piping.

Piping has been termed the veins and arteries of the house. It should be exactly that. Unfortunately, however, for many existing houses the piping is more like capillaries than veins and arteries.

I have reference, of course, to inadequate sizing of the supply piping in many houses, schools, institutions, commercial, and industrial buildings. Much present day piping is woefully inadequate, according to good piping standards.

Excellent research work on the fundamentals of good piping has been done by various agencies in the plumbing industry, notably the Institute of Hydraulic Research at the University of Iowa under the direction of Dean F. M. Dawson. The work at Iowa is sponsored by the National Association of Master Plumbers.

Compares Piping

Piping may be compared to a bridge. Just as a good engineer would not design a bridge without an adequate safety factor, so a good master plumber will not design a plumbing system without an adequate safety factor—but safety costs a little more—and your support is needed to aid the cause of adequate piping for postwar housing.

What are the disadvantages of inadequate piping?

First of all, an inconvenience. Many of you have used faucets that delivered only a dribble of water because fixtures in other parts of the system were in use.

Second, a health hazard. Inadequate piping sizing is one of the causes for vacuum formations in supply lines. A vacuum is dangerous because, under certain conditions, back-siphonage from certain types of fixtures may occur.

Third, potentially injurious. All of you, I suppose, have heard and some of you may have experienced sudden changes in the volume of hot or cold water while taking a shower. Perhaps you unknowingly blamed the shower when actually the fault lies with

the piping behind the walls—pipe sizes so small that the water for either line might be starved by a sudden demand for water somewhere else along the line, usually on the floor below or at adjoining fixtures.

Thus I think you will agree with me when I say that the first step in building greater safety into postwar plumbing is to provide adequate sized piping. This is particularly true because the water demand curve goes up with every advance in living standards.

The demand for water will be greater because we will have more plumbing facilities, showers will be more evident, both the type over a tub and in a separate compartment, and water requirements will be greater because of new equipment such as air conditioning, lawn sprinkling systems, disposal units, and electric dishwashers.

Let us turn now to a detailed consideration of the fixtures. If we begin with the bathroom, we are first of all confronted with the fact that the bathroom, in the past, has been unjustly blamed for too great a percentage of accidents in the home.

Bathroom Safest

As a matter of fact, the records of the National Safety Council justify the statement that the bathroom is the safest room in the house. I hesitate to make this statement, however, lest I seem complacent. This is not the case. I merely wish to place the matter in its proper perspective.

According to an annual report issued by the Kansas State Department of Health, approximately 3 or 4 per cent of the fatal falls that occur in the home take place in the bathroom.

As for non-fatal accidents, we know little about them statistically. It is safe to say that a large number of falls occur in bathrooms which do not get into the headlines or are not serious enough to be referred to hospitals. Slipping in the tub is, of course, unfortunately one of the most common. Others are scalding from uncontrolled and unregulated hot water, electrical shocks from the use of electrical appliances in the bathroom, and cuts on the hands resulting from broken or cracked handles on faucets or valves.

The plumbing industry is fully aware of what the hazards in the bathroom are, and we are doing our utmost to correct those

which come within the scope of our activities. The design of the fixtures naturally is our responsibility. We can not assume responsibility for incorrect or careless use of fixtures.

Postwar plumbing fixtures, like the best of prewar models, will be designed with rounded corners instead of sharp corners to reduce the danger from cuts and bruises in the case of accidental falls in the bathrooms. The rounded corners are more pleasing and thus this trend in design combines aesthetic as well as utilitarian advantages.

The modern tub is low—the trend in bath heights has been downward for years. The present day built-in bath stands about 16 inches from floor to rim as compared with about 22 inches for the tub on legs. The modern bath has a flat bottom and straight sides to provide greater safety. The trend toward seats, either of the integral rim type or end seats, is all to the good because the *bather who sits on the rim before attempting to get in, is unlikely to slip.*

Besides these factors of design, there are other precautions to which I should like to invite your attention. The plumbing industry believes that every bathroom should be equipped with one or more firmly anchored grab bars or hand rails. We also advocate the use of vacuum grip rubber mats in bath tubs. Unfortunately, this item is a war casualty and is unobtainable at present.

Tubs equipped with a shower—and I believe every tub should be—should have a grab bar long enough to serve the shower bather. There was available before the war an L-shaped bar which was most attractive as well as practical for both the user of the bath and the shower.

Shower cabinet manufacturers before the war had developed a very satisfactory type of non-slip receptor.

Reference has already been made to the importance of piping of adequate size as a safety factor. There are, of course, three ways in which the volume and temperature of water for the bath and shower may be regulated. The simple way is by the conventional two-valve system. When the spout of the tub is equipped with a diverter valve, the flow of water may be switched to the tub or shower. The flow of water is automatically diverted to the tub when the valves are turned off after the shower has

been used. This is a safety feature in that it prevents unexpected showers. The bather should always take the precaution of first adjusting the water temperature by letting the water run into the tub and testing it with his hand or toe before stepping under the shower.

Regulates Water

Another way to regulate the water for a shower either over the tub or in a separate compartment is by use of a mixing valve. This unit offers the advantage of convenience inasmuch as the turn of one handle will produce the proper water temperature.

The utmost in safety is provided by the thermostatically-controlled mixing valve which automatically cuts off the flow of water if a safety temperature is exceeded.

In connection with the question of water temperatures, reference should also be made to the desirability of equipping the main water line with a water mixer or water blender to prevent excessive temperatures. A temperature of 140 degrees for hot water heaters is adequate for general use.

This, of course, brings up the entire question of controls for the safe-guarding of the equipment for heating the domestic hot water. Every water heating unit should be equipped with a pressure and temperature relief valve of approved make. Furthermore, the owner should be instructed how to operate the valve so that he will at intervals of two or three months lift the valve off its seat so as to prevent corrosion of the operating parts of the valve. Unless the valve operates freely there is no assurance, of course, that it will perform its function when most needed.

Porcelain handles are a definite hazard. They should be replaced as soon as metal or satisfactory plastic handles are available. The plumbing industry of the United States has not made porcelain handles for a number of years because we recognize the danger from broken handles. Those handles which were on the market just before the war and which unfortunately were purchased by some owners instead of changing to metal handles came mostly, I understand, from Japan. Presumably, after the war this source of bathroom hazards will be eliminated.

Attention is called to the importance of firm anchoring of shower curtain rods.

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Often a bather who feels himself slipping will grab for the nearest object which is likely to be the curtain or the rod. Rods should be securely fastened with long screws into the studding and not merely into the lath and plaster. House blueprints should specify studding where the curtain rod is to be fastened.

Electrical equipment in the bathroom calls for every precaution. The basic law is: electricity and water do not mix. A shock which might be only unpleasant to a thoroughly dry skin may prove instantly fatal when the hands or feet are wet. Electric heaters, hair dryers, therapy machines, and yes, even electric razors, have all taken their toll in the bathroom.

Probably the most common source of trouble is the foolhardy business of attempting to handle a light chain or switch while part of the body is in water or some of it is wet. You are flirting with suicide when you stand in a tub of water and pull the unforgivable metal chain on a lamp.

What to do about it? How can we make the postwar bathroom safe electrically? Obviously, there are several precautions that should be taken:

All switches should be more than arm's length away from the tub and wash-basin so that the bather can not reach them.

All lights should be controlled by wall switches rather than by metal pull chains.

Only the finest grade extension cords should be used in the bathroom. Excess humidity can convert an inferior cord into a live wire.

The bathroom is the health center of the home. Quite naturally people go to the bathroom when they feel ill. The bathroom, therefore, often is blamed for falls and other accidents which occur because people went there when they probably should have gone to bed.

All of this is by way of introduction to the question: Shall we do away with the lock on the door of the postwar bathroom?

Questions Lock

I am asking this question in all seriousness. Is it necessary in a house occupied by one family to have a lock on the bathroom door? Why not some kind of a signal

system or even a "Do not disturb" sign on the bathroom door? All of which is another reason for making generous provision in the house of the future for a sufficient number of bathrooms to accommodate all the traffic, so that doors will not have to be locked to insure privacy.

If the builder feels that the bathroom must be provided with a lock, he should specify the type that can be unlocked from the outside. There were, before the war, special locks for bathroom doors which could be unlocked from the outside with a small square key provided the lock was properly adjusted when installed. It would help if locks on bathroom doors were above the reach of small children.

In conclusion, let me summarize briefly some of the *do's* and *don't's* for greater safety in the bathroom. I am not now speaking primarily of the postwar bathroom but of the ordinary routine day-to-day precautions:

Safeguard your tub or shower stall with a vacuum grip rubber mat to prevent falls.

Have a substantial grab bar or handholder on the wall beside the tub or inside the shower.

Use porcelain rather than metal electric light fixtures to reduce the shock hazard.

If you can't do away with the metal chains on bathroom lights, insert an insulator in each one. Or tie a pull string at the end.

See that no electric switch comes within arm's length of the bath tub or wash basin.

Use only the finest grade extension cords.

Use a fairly rigid soap container.

Never get in the tub while a cake of soap is loose at the bottom.

Never leave a small child in the tub—or even in the bathroom—by himself.

And last but not least, find out how hot the water is before you get into the tub or shower, not after.

Simple precautions, surely. But with them your bathroom will continue to be the safest room in the house.