or possibly death may result. Radiation sickness is *not* contagious, regardless of how much exposure the victim has had. It is important to know that many of its symptoms may appear in anyone subjected at any time to anxiety and great stress.

Symptoms of three degrees of radiation sickness are: *Mild*—the especially sensitive person will show some nausea, lack of appetite and fatigue within a few hour after exposure. He should rest but can continue normal activities. Recovery will be rapid. *Moderate*—the same symptoms appear, but well within two hours of exposure, and more markedly. Vomiting and even prostration may occur. By the third day, recovery may seem complete, but symptoms may recur in the next days or weeks. *Severe*—again, all the early symptoms show up and may vanish after a few days. But after a week or more, fever, mouth soreness and diarrhea may appear; gums and mouth may ulcerate and bleed; and, in about the third week, the patient's hair may start to fall out. Recovery may take seven to eight weeks. When exposure has been overwhelming, death comes in hours or weeks.

Treat symptoms in this way: General rest. Aspirin for headache. Motion-sickness tablets for nausea. Liquids as soon as possible for diarrhea and vomiting, but not until vomiting has stopped (ideally, one teaspoon of table salt to one quart of cool water, to be sipped slowly). For sore mouth, this solution can be used as a mouthwash.

## First aid

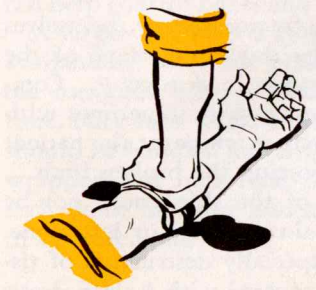
Since doctors, medical supplies, and other aids may not be available to everyone for days or even weeks in some areas, it is important for at least one adult in every family to know standard first aid. Civil Defense units, in cooperation with Red Cross Chapters, give courses you can take. In addition, a new training course in Medical Self Help, with a reference handbook, contains valuable information on what to do should professional medical care be unavailable to you because of emergency conditions.



There are five basic first-aid rules that *everyone* should know. They are:

*How to stop bleeding.* The average adult body contains only six quarts of blood; the loss of one quart is serious, so bleeding has priority over all other emergencies. Apply pressure to the wound at once—with your hand if nothing else is available, although a bandage, clean cloth, or sanitary napkin will help prevent infection. But don't waste time looking for them. Don't wash the wound. Apply pressure hard and fast, bringing the edges of the wound together if you can. You may have to continue the pressure for 30 minutes.

Never apply the old-fashioned tourniquet except as a last resort. It may cost the patient his limb.



CONTROL OF BLEEDING

SPLINTING

BANDAGING A BURN

ARTIFICIAL RESPIRATION

*Breathing difficulties.* Getting air into the victim's lungs fast is vital. Remove throat obstructions such as mucus, debris, a jarred-loose denture. If he is breathing, place him on his stomach, head to one side so that blood or secretions will not flow into air passages. If he is not breathing, apply mouth-to-mouth respiration. Tilt victim's head back to "sword-swallower" position (a blanket or pillow under shoulders will help), pinch his nose shut (*see drawing*), seal your open mouth over his, inhale deeply through your nose and exhale deeply into his mouth 12 to 16 times a minute for an adult, 20 for a child. Continue this for two hours, even if life seems extinct, before giving up. As he revives, adjust your breathing rhythm to his.

If the patient has a chest wound, cover it with an airtight dressing.

*Handling fractures.* Simple bone fractures show themselves by being tender to touch, or by the unnatural shape of the affected part, or by swelling and change in skin color. Compound fractures are indicated by broken skin, sometimes with the bone protruding. Splint the fracture wherever the patient lies before moving him, firmly supporting the broken limb.

*Burns.* Light burns (reddening of the skin) need not be covered, and can be treated with pain relievers or left alone. Deeper burns, where blisters and especially destruction of tissue under the skin occur, should be covered with a clean dressing. No ointments or salves should be used. Fluid that oozes from the burn and forms a crust is a good dressing in itself. Don't puncture blisters unless they are likely to break; in this case make a small slit at the edge.

If the burns are severe, get the victim to drink a salt solution if possible (one level teaspoon salt to one quart of water) in small amounts. A gallon during the first 24 hours is not too much.

*Comfort.* Reassuring the patient in a confident way is vital. Move him only if necessary and then as little as possible. It may be useful to place the patient in a slightly head-down position. Do not give alcoholic drinks as a stimulant.



## Sanitation

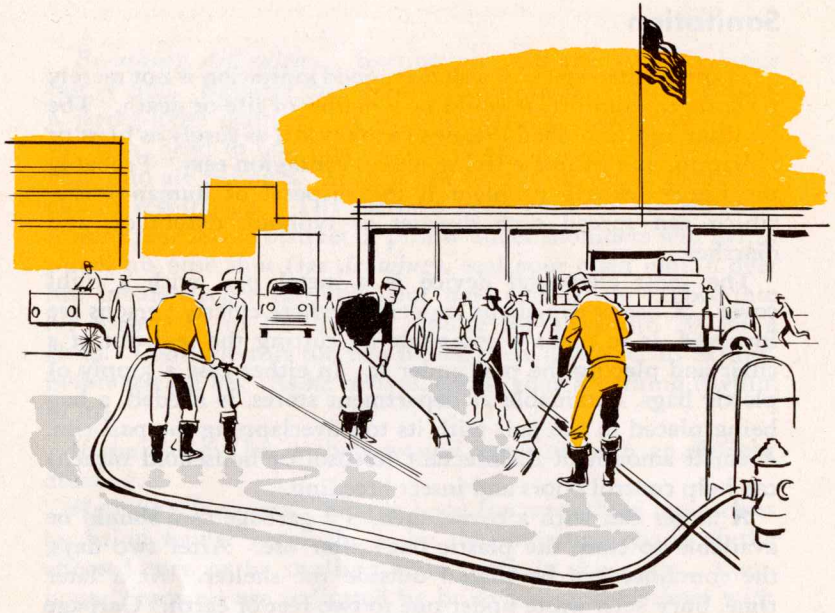
In the limited space of a shelter, good sanitation is not merely a matter of comfort; it could be a matter of life or death. The familiar, old-fashioned diseases can still kill as surely as blast or radiation, and intimate living makes contagion easy. Probably the biggest single problem is the disposal of human waste, which can spread such diseases as typhoid, dysentery, and diarrhea.

The most elemental device is a metal pail with a tight cover. A better expedient, especially where elderly persons are involved, is to make a commode by cutting the seat out of a chair and placing the pail under it. In either case a supply of plastic bags, obtainable at department stores, is needed, a bag being placed in the pail with its top overlapping the pail rim. A small amount of disinfectant (creosol or household bleach) can help control odors and insect breeding.

A larger can with a cover, such as a garbage can, should be available to store the plastic bags after use. After two days, the container can be placed outside the shelter. At a later time, bury such waste under one to two feet of earth. Garbage should be handled and disposed of in the same way. It is best wrapped first in several thicknesses of newspaper, which absorbs some moisture and helps hold down odors. Then put it in a covered can.

## Control of vermin

Measures to control vermin would be vital in the event of an attack, but some measures can be taken now. The shelter area should be painted or sprayed with a five per cent solution of DDT or other insecticides containing chlordane, dieldrin, Diazinon, or ronnel—taking the usual precautions against inhalation or skin contact. Repeat every few months. Lice and other body-infesting insects can be eliminated by dusting with a 10 per cent DDT dust which should be kept on the body and in clothing for 24 hours. The shelter should be stocked with screening material, a fly swatter, mouse and rat traps. Do not use spray insecticides in an occupied shelter; there is danger of explosion or of injuring eyes and lungs.



## FIRST STEPS TOWARD RECOVERY

The world and your community would be shattered by a nuclear war. Normal services would be disrupted; essential skills could be in short supply; equipment you had taken for granted might not be available. You would face the aftermath of a catastrophe, but if there had been previous planning, you need not face it alone.

### Using community resources

As in the case of natural disasters, community action is by far the best way to do all that must be done to recover from a nuclear attack. Local governments have at hand many organized units, such as the police and fire departments, the county road commission and the health department, whose survivors can serve as a hard core for organized recovery actions immediately after people can emerge from shelters. Government agencies, military units, and other organizations, such as construction companies and the repairmen of the public utilities, would help to repair damage and restore service as soon as possible—as they have in past natural disasters. But many more helpers would be needed. Wherever you might be, in a community or family shelter, your help would be needed. If your community is lucky and receives little fallout, you may be needed to help a neighboring community.



The communities that are well organized and have planned their recovery actions would be able to return to tolerable living conditions in the shortest time. The first job in this would be to clean up pre-selected areas to make them safe for living outside of shelters. The initial action may well originate with organized units in community shelters—from the basement of the city hall, from a shelter at a school—or it could come from groups in several shelters working together. As groups, they would have more of the manpower, equipment, and communications needed to start the job.

### Getting rid of fallout

The process of removing fallout particles from exposed surfaces and disposing of the particles in places where they cannot harm people is called radiological decontamination. Paved areas could be decontaminated with firehoses or street flushers, using high-pressure nozzles, and with motorized street sweepers. Roofs could be decontaminated with fire hoses. Unpaved areas could be decontaminated by scraping off or plowing under a thin top layer of soil. This could be done with large earth-moving equipment—such as motorized scrapers and motor graders—on large open areas, and with bulldozers, tractor scrapers, shovels and wheelbarrows on smaller areas around houses and trees. Another method would be to cover a contaminated area with clean earth.

In decontaminating paved areas, crews could flush the particles into storm drains or into ditches, where the particles could be covered with clean earth or picked up and hauled to a dumping area. The scrapings from the unpaved areas could be dumped in a pile about 100 feet from occupied areas, or

hauled away. The dumping area might be a gully, refuse area, or even a vacant lot roped off at a safe distance.

Since the most effective and rapid methods of decontamination would involve the use of crews and equipment working in large areas, the best places to start the decontamination are likely to be at schools, shopping centers and downtown areas, and at parks and open fields where large equipment can operate.

It is vital that communities set aside in advance many rallying points where people can meet to start work after an attack. If you are in a home shelter and have a ratemeter, you should wait until the radiation level has fallen to a point where you can go out for about an hour without receiving more than a few roentgens. You could use this time to go to your local school, shopping area or other designated gathering place and join with your neighbors in community decontamination efforts.

If you do not have a radiation instrument, stay in shelter until you are assured, by radio, by contact from local authorities, or by other means, that clean areas are established near you and that it is safe to proceed there.

In areas of heavy fallout where the first decontamination actions can be started, if well organized, within the second week after attack, there is relatively little danger from fallout particles getting on people doing cleanup work—especially if normal habits of personal cleanliness are maintained. The most likely articles of clothing to pick up fallout particles are shoes, so keep them brushed clean.

## On a farm

If you live on a farm, your pre-fallout preparations will have a lot to do with your cleaning up afterward.

You should place as much of your livestock and produce in barns as you can. A normally filled hayloft affords some shielding from fallout radiation for animals below. Farm machinery, troughs, wells, and any produce you cannot get into barns should be covered with tarpaulins. You should store as much water in covered containers as you can, taking the precautions already outlined.

Afterward, any livestock exposed to fallout could be washed or brushed to remove fallout particles. Water from wells and



streams would be safe for animal use. Even water standing in a pond could be use since fallout particles would settle to the bottom. Pond water could be made even safer by stirring up a clay bottom and then letting it settle out. Feed and fodder stored under cover should be used first. If no other feed is available, animals could be turned out to pasture after a few days when the radioactivity has decreased.

Farm animals and poultry would be an important source of human food and they should not be allowed to sicken and die from thirst and starvation. Animals which have been exposed to early fallout or which have fed on contaminated pastures could be slaughtered and the muscle meat would be fit for human consumption. Internal organs, however, such as the liver and spleen, should not be eaten unless no other food is available. It would be easier to preserve meat on the hoof than on the hook. Hogs and steers could be kept alive even with water and feed containing early fallout particles.

Animals, like humans, can have radiation sickness. If the radiation level in your area indicates that animal sickness may be widespread, you probably will be told and given instructions on slaughtering. Care must be taken in slaughtering to prevent contamination of the carcasses by fallout particles from the hides and digestive tracts.

Chickens and eggs would be a particularly important direct food resource because they are relatively resistant to radiation, especially if they are raised under cover using safe packaged feeds.

Milk from cows that have grazed on contaminated pastures would be radioactive, but in the absence of other food in an emergency, it could be used.

Potatoes, corn, and other field crops exposed to early fallout would be safe to eat after cleaning. Grain that has been covered, as in elevators, would be safe. Threshing would reduce the amount of fallout particles in grain. Threshed grain exposed to fallout could be made safer by washing.

If county agents are available, they can help you decide what crops, pasturage, and methods will be best and safest to use. Seeds of all sorts are quite resistant to radiation and do not require any special protection.

## ORGANIZING FOR CIVIL DEFENSE

Fallout shelter is only one part of a complete Civil Defense Program. The details of a Civil Defense Program may change with changes in the kinds of missiles that might be used against us. But the essential elements of the program remain the same. They consist of a warning system to alert the civilian population to an imminent attack; a system of shelters equipped and provisioned to furnish protection against those effects of an attack for which protection is feasible—i.e., radioactive fallout; and a system to provide training and equipment, so that the survivors can monitor the effects of the attack and carry out the tasks of decontamination, fire fighting, rescue, and reconstruction, that would be necessary to restore a functioning society.

An effective civil defense requires the participation of every citizen. It calls for advance planning at every level of government—local, State, and national. This planning must be flexible enough to adapt itself to changes in enemy weapons and tactics. It must be comprehensive enough to cover people living under widely different conditions from ranch houses, to apartment buildings, to frame cottages.

### Responsibilities

The Federal Civil Defense Act puts the responsibility for civil defense jointly on the Federal Government and the States. Until this year, there has been little interest, and less money available for civil defense, so that it has not been necessary to define responsibilities precisely. Now we have launched a major program. Under this program, the Federal Government has assumed four responsibilities: First, to keep track of the nature of the threat which the Civil Defense Program must be designed to meet; second, to prepare information about the threat and how it can be met; third, to bear a major part of the costs of



certain kinds of civil defense activities, where such sharing will stimulate State and local and private activities; and, fourth, to provide technical assistance through State and local channels for civil defense planning.

Your State and local governments, on the other hand, have the operating responsibility for civil defense. An individual must be able to look to some agency of his State or local Government for advice and assistance on civil defense planning, just as he looks to them for police and fire protection services. By the same token, the responsibility for organizing community civil defense protection falls on the States and, through them, on local government units. Because the job is an extraordinarily difficult one, the Federal Government is preparing to assist the States with technical help and matching funds for certain programs.

The key element in our new program is the provision of fallout shelter. We expect community shelters to protect a large part of the population; but we recognize that many families, because of their location or individual preferences, will choose family fallout shelters. The Federal Government will join with States and communities, in a variety of ways, to help provide fallout shelter.

### National shelter survey

We have already taken the first step towards a realistic Civil Defense Program by launching the National Shelter Survey. The survey will identify the approximately 50 million shelter spaces that are now available in existing buildings, tunnels, subways, and other structures to provide protection from radioactive fallout.

Many of these spaces in the central areas of large population centers would be exposed to destruction by blast and fire in the event of a nuclear attack. But the pattern of attack cannot be predicted, and existing shelter is more widely distributed in relation to population than appears to the casual observer. Further, this space is immediately available, and the cost of identification, marking, and stocking is less than $4 per space.

All such shelter spaces, accommodating 50 or more people, and which would be open to the public in an emergency, will be marked and stocked with essential food, water, first-aid kits, and radiation detection instruments.

## Proposed shelter incentive program

The President plans to seek funds from the Congress to support a Federal Shelter Incentive Program in which the Federal Government would meet a substantial part of the costs of providing fallout shelters in schools, hospitals, and other public welfare institutions. The program is designed to encourage the construction of fallout shelter in these essential community facilities. Many of these institutions are in excellent locations for group fallout shelters, but many of them have very limited resources of their own to pay for shelter construction.

The Federal Shelter Incentive Program would help to fill this gap. The plan provides a Federal grant of something less than actual cost for every shelter space meeting approved standards, and created in public, or private non-profit institutions, engaged in health, education, or welfare activities. A substantial number of these shelters would be dual purpose, serving a useful peacetime community purpose, in addition to offering protection from radioactive fallout in the event of attack.

In order to qualify for incentive payments, each shelter would have to accommodate a minimum of 50 people, and would have to be open for public use in time of emergency. Upon completion, each shelter would be identified by the continuing operations of the National Shelter Survey, and would be marked and stocked with food, water, first-aid kits, and radiation detection instruments. All schools, colleges, hospitals, clinics, and welfare institutions would be eligible for shelter incentive payments, provided they were operated by a State or local government unit, or by a private non-profit organization.

The Federal Shelter Incentive Program, together with the Federal Shelter Survey, is expected to stimulate a good deal of additional construction and modification of shelter space. The primary responsibility for exploiting the exemplary effect of the Federal programs lies with the State and local civil defense



organizations. Their success will depend largely on their ability to organize a local civil defense program in each community. This effort includes not only the provision of shelter, but an adequate system of warning, of radiological monitoring, and of training and information on survival techniques.

## Other federal programs

Every citizen needs to know how he will be warned of imminent attack, where he will take shelter, how he should behave in the shelter, and what he should expect when he emerges from it. In addition, as many citizens as possible should be trained in the techniques of shelter management, radiological monitoring, decontamination, rescue, fire fighting, and restoring essential service.

Besides helping to build shelters, the Federal Government will help in building these other elements of the Civil Defense Program in a number of ways.

The Federal Government helps to provide warning against an attack. The National Warning System carries the warning signal from the Headquarters of the North American Air Defense Command to State warning points. From these points the States send the warning to local warning systems. The Office of Civil Defense is studying national installation of a new warning system, the NEAR System, which would bring the warning into every home with electric power. The NEAR system operates through signal generators placed in the electrical power grid. These generators would be actuated directly by the National Warning System, and in turn, actuate buzzers plugged or wired into home electrical circuits.

The Federal Government is providing equipment for 50,000 radiological monitoring stations, and is training operators for this equipment. The eventual plan calls for 150,000 of these monitoring points to be established in selected community shelters and tied into a control point at the local emergency operating center.

The job of educating every citizen on the results of thermonuclear attack, and what he can do about it, is necessarily the responsibility of State and local civil defense organizations. So

is the job of giving specific training to the literally hundreds of thousands of volunteer workers who must be prepared to undertake decontamination, rescue work, firefighting, first aid, and restoration of necessary services. The Federal Government has available a wide range of informational and instructional literature, including course material, technical manuals, and training aids. It also conducts schools to which States may send civil defense operating officials and civil defense instructors. These instructors can then conduct technical training at the local level.

These Federal schools will offer instructor-training courses in shelter management, radiological officer training, radiological detection, civil defense director-training, civil defense operations and plans. This training is provided at Federal expense, and the Federal Government helps pay travel costs to and from the schools. The training materials will be prepared and packaged for the instructor's use in his home State.

The Federal Government, through the Department of Health, Education, and Welfare, also provides instructor training and instructional material for an adult education course in the elements of civil defense, which is currently being conducted in 15 States, and will be extended to cover 35 States by next summer. The President plans to seek funds from the Congress to cover the entire country.

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Shelter, warning, radiological monitoring, training and education are all parts of a total community civil defense program. The responsibility for integrating these parts, and relating the whole to the needs and capabilities of the community, necessarily falls on the State and local civil defense organizations. The Federal Government is prepared to help in major ways. As has been indicated, it has already begun, through the National Shelter Survey, to make civil defense a reality.



## MORE INFORMATION IS AVAILABLE

In addition to this booklet, there is a considerable amount of published information available from State and local Civil Defense offices on various aspects of Civil Defense.

A new booklet, *Family Shelter Designs,* published by the Department of Defense, Office of Civil Defense, containing construction drawings and step-by-step construction procedures for building eight types of family fallout shelters, will be made available without charge from State and local Civil Defense offices.

Several associations have developed plans for family shelters, available upon request. These include the following:

American Concrete Pipe Association
228 North LaSalle Street, Chicago 1, Ill.

American Iron and Steel Institute
150 East 42nd Street, New York 17, N.Y.

Asbestos Cement Products Association
509 Madison Avenue, New York 22, N.Y.

Douglas Fir Plywood Association
1119 A Street, Tacoma 2, Wash.

National Concrete Masonry Association
1015 Wisconsin Avenue, N.W., Washington 7, D.C.

National Lumber Manufacturers Association
1619 Massachusetts Avenue, Washington 6, D.C.

Portland Cement Association
33 West Grand Avenue, Chicago 10, Ill.

Structural Clay Products Institute
1520 18th Street, N.W., Washington 6, D.C.

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