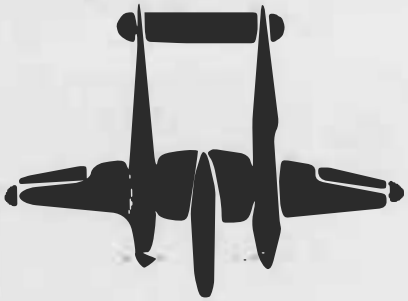
HANDBOOK OF CIVILIAN DEFENSE

WHAT EVERY LOYAL AMERICAN CAN DO TO HELP THE UNITED STATES WIN THE WAR

REVIEWED AND PASSED BY

OFFICE OF CIVILIAN DEFENSE

DOUGLAS
BOSTON
(R.A.F.)



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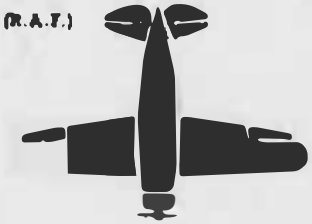

MARTIN
MARINER
(NAVY)

BREWSTER
BUFFALO

CONSOLIDATED
LIBERATOR

NORTH
AMERICAN B-25

SILHOUETTES OF U.S. WARPLANES

(See other silhouettes in back of book.)

A Handbook of

CIVILIAN DEFENSE

What Every Loyal American Can Do to Help the U.S. Win the War

By LIEUT. ROBERT H. RANKIN, *St. John's Military Academy*

Reviewed and Passed by
THE U.S. OFFICE OF CIVILIAN DEFENSE

Including
WARTIME FIRST AID
from the official OCD Handbook

ILLUSTRATED

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The Duty and Destiny of Every American

WE ARE at war. Stirring words at any time in history, these four syllables today are fraught with a terrible meaning.

Let us Americans take heed. This is a war in which we all must fight—with arms, with labor, with any help we can give. No one can escape this present and fateful responsibility. Until we *realize* this, deeply and fully, we shall be in grave peril.

Americans, fortunate inhabitants of the richest country on earth, have been as a nation well-housed, well-clothed, and well-fed—and in this prosperous "land of plenty" (enviously so known abroad) Americans have been wasteful. In countries now numbered among America's enemies, the people have been frugal, self-sacrificing, and by dictator-law deprived of all but bare essentials so that their governments might prepare for world conquest. Germans, Italians and Japs were for years starving themselves—with never quite enough to eat, never keeping quite warm enough in winter, foregoing all luxuries. They are still doing without *because they count on defeating the United States of America* in this war. They believe we will not stand up unified against the bitter truth *in time*.

In this darkening hour Americans must get along with less in order to preserve what they have and provide a prosperous, peaceful future for their children. We must do without all except the essentials—to conserve materials and to *save the money* for increased taxes imposed upon us by the staggering costs of this vast world war against ruthless enemies, and for investing every extra penny in U. S. Government Savings Bonds and Stamps. Only by paying this proud price can we win the victory—and Americans aware of this are asking for instructions, for guidance, for suggestions on how to do it.

The United States of America is a democ-

racy. That is why we are *volunteering* our services behind the firing lines—you and I and our neighbors—in the country-wide program of Civilian Defense.

For the first time in our national existence there is a need for Civilian Defense—for *definite* and *active* cooperative participation on the part of the civilian population in time of war. In modern warfare no one—man, woman, or child—is safe from attack. Civilian non-combatants must be organized so that efficient and intelligent defense action may be taken *without delay*.

It is not easy to understand just what this means. We are now called upon to abandon the easy ways of peace. We must now submit our lives and fortunes to unified authority and command. The enemies trying to destroy us are far stronger than any we have ever fought before. Every one of us must be ready and willing to sacrifice personal comforts and ambitions, even lives and property, to the end that we may be organized in effective defense against enemy raids and so that we may deal intelligently with threatened sabotage.

A job is waiting for each of us to do and *we have to do it*. The time for talking has passed. *Right now* is the time for Civilian Defense. Our patriotism must be translated into action. We have already paid a terrible price for our laxity and complacency in the face of threats to our national security. It must not happen again. If we fully prepare ourselves we need fear no enemy, however strong that enemy may be. *Appalling defeat will be the price of negligence now.*

The purpose of this Defense Manual is to acquaint all civilians with the problems which confront us as defense workers, and to explain just how *you* may best serve your country. This pocket handbook is designed for ready reference. All aspects of Civilian Defense problems are discussed at some length, and suggestions are made and references given to enable the reader to secure further official information.

Civilian Morale in Wartime

EVERY American must regard his country's enemies as *his* enemy, and guide himself accordingly, for this is *total war.*

The enemy may attack civilian morale by lies (propaganda) and by sabotage—fire, destruction, and casualties. Regardless of what may happen around you or what may happen to you, *keep cool* and don't lose your head. Above all don't be alarmed by rumors and don't ever be guilty of spreading alarm by repeating rumors. Stop and think before you say or do anything. Circulating false rumors is part of the enemy's technique: *don't help the enemy.* Wait for *official* information before believing any report and before taking action in any matter. Cooperate *fully* with everyone engaged in defense efforts. We can lick the enemy at the first line of defense if we remain cool and calm and strong and alert, and if we cooperate in every way with our fellow Americans.

Avoid feeling "blue" or being mentally depressed. No matter what happens, never give up. Fight all defeatism wherever you may find it. There are certain to be some dark days ahead for us but we must keep alive our faith and confidence in America and in those men of ours in uniform who are out there fighting for us. They won't let us down—and *we* must not fail *them.*

Be careful of what you say in the presence of others, particularly in the presence of strangers. If you have any information of a military nature, such as where certain regiments are stationed or when troop ships are sailing, or if you know where various items of defense equipment are being manufactured, don't be a "loud mouth" and tell it to the world. Keep such information to yourself. Thoughtless gossip may destroy a regiment and a bit of idle talk may sink a ship. Trust no person with military secrets—not even your best friends. Do not

discuss matters of a military nature which you may read in letters that you receive from those friends or members of your family who may be in the armed services. If you are employed in a defense industry, do not talk about your job and never speak of the nature of the work you are doing or of the quantities being made. You never know when an enemy agent may be listening to you. By putting together scraps of seemingly innocent information gathered from widely separated points, an intelligent enemy agent can easily get a very clear picture of just what we are doing. Always keep in mind the old proverb, "Even the walls have ears"—especially in time of war.

If you can't find a place in an organized defense unit, do not be discouraged. Remember that all of us can't be in uniform. By the same token, all of us can't find a defense job where there is a lot of publicity and excitement. Do your regular job faithfully, honestly, and cheerfully, and you will be doing no small part in helping the United States to win this war. Just as much as your country needs soldiers and sailors, it needs efficient workers in industry and business.

Temper everything you do with common sense, as, for example, your attitude toward enemy aliens. The mere fact that a person was born in enemy country does not make him an enemy now. Many of our strongest friends—loyal supporters of our country—are just such people. Many of them have sons, brothers, or husbands in our armed forces. Be very sure of yourself before you go about accusing a person of disloyalty. Unless you know for certain that a man is an enemy sympathizer, don't bother him. Remember—you are not a G-man. If you are sure of your ground and know for certain that an individual is a disloyal enemy alien, don't tell the world about it but immediately inform the nearest F.B.I. (Federal Bureau of Investigation) office. If you are near an Army post or a Naval station, take your information to the Intelligence Officer there.

What You Can Do

THE defense of American democracy depends upon every able-bodied person in this country. Modern warfare is not confined to the trenches and the battlefields.

Civilians are needed to act as air raid wardens, auxiliary police, nurses' aides, and as auxiliary firemen. You can find a job as a messenger or as an emergency driver or work in decontamination groups, rescue squads, and in road repair, demolition and clearance crews.

In addition to this, there are less publicized but just as essential tasks. It is up to you, for instance, to do everything you can to keep this country healthy. Only healthy countries win wars. You must assist in reducing the threat of epidemics. You can be of great service in boosting the morale of the men in uniform and of the multitude of workers in defense industries who have been separated from their homes. By simply understanding your own job better and developing a cooperative attitude toward all war effort you can be of great benefit to your country. This can be done through talks, conversation, study groups, and Civilian Defense training courses.

You may volunteer your services to your Civilian Defense Organization and do valuable work in assisting this country to carry on regardless of the disturbances and changes caused by war. If there is a Civilian Defense Volunteer Office in your community, call there for information. If there is no such office in your locality, contact your Defense Council, Chamber of Commerce, Mayor, City Manager, or Postmaster.

VOLUNTEER!

Your country needs you now. We are at war with a brutal and ruthless enemy. This is no time to be careless or indifferent. There is something for every civilian to do. Volunteer your services now!

The U.S. Office of Civilian Defense

IN ORDER to provide for intelligent, directed, and cooperative defense effort, the United States Government has established the Office of Civilian Defense (OCD), in Washington, D.C. This office has the full cooperation of all other Government agencies, such as the Army and Navy. It is completely organized to direct and supervise all official Civilian Defense units. Directly under the Office of Civilian Defense, and a part of its organization, are the regional defense councils which are coterminous with the army corps areas. Under these are the State Defense Councils which control the defense activities within their respective borders. Within the states and under the supervision of the State Defense Councils are the county and municipal councils which supervise the work of the individual citizens engaged in official defense activities.

The actual work of the various councils falls to the local coordinator and his staff. They are charged with the responsibility of all administration and supply. Under their immediate control are the various organized groups of workers and specialists charged with actual defense work. Certain responsibilities and duties are charged to each of the several local specialized defense groups, and each has distinctive insignia. You are vitally interested in this, Mr. and Mrs. Average Citizen, for there is a place for you. Review your own training and abilities, decide what you can do best after studying the following pages, contact your local Defense Council and offer your services.

General Information

In general it is considered unnecessary to lay down any complete physical requirements for the various protection groups. It is intended by the Office of Civilian De-

fense that the local defense organizations will establish their own physical standards. Most normal people between the ages of 16 and 60 will be physically qualified and can be taught some one of the various jobs to be done.

To the end that there be efficient control of the various units, it has been necessary for the Office of Civilian Defense to issue certain regulations. Once the units have volunteered, the individual members are from that time forward subject to the control, command, and general administration of the Commander of the Citizens Defense Corps. The various officers will hold command only when their appointments have been confirmed by the Coordinator of Defense for each city or locality. They will remain in office under exactly the same conditions as any other unit commander or leader.

The individual members of any group serving with the U. S. Citizens Defense Corps may, in the event of emergency, be reassigned, transferred, or relieved from duty, according to the decision of the Commander of the Citizens Defense Corps. At any time any member may be removed for cause—incompetence, and inefficiency, on the same basis as any other volunteer.

The Office of Civilian Defense will welcome volunteer services which are equipped or organized so long as such services make a contribution to the civilian defense effort. The OCD will not allow any organization to use the civilian defense effort for building up its own prestige, membership, or authority. No organization shall be given the exclusive right to perform any service and, by the same token, membership in any other organization shall not be a condition of membership in the Citizens Defense Corps.

In times other than an emergency it is a matter for decision of the local authority whether command and administration shall be exercised by the officers of the unit or by the city authorities.

Rank Insignia

Members of the Civilian Defense organization hold rank according to the training they have received, the nature of their work, and the responsibility charged to them. Each rank is identified by a distinctive insigne. The U. S. Director of Civilian Defense wears four gold stars; Regional Directors of Civilian Defense, or principal Assistant to the U. S. Director, wear three gold stars; State Coordinators, two gold stars; Local Coordinators, a single gold star. As with all rank insignia, these are worn on uniforms and are authorized for display on flags. Three silver pyramids indicate Chief of Service, local or state; two silver pyramids, a Chief of Local Group; one silver pyramid, a Captain of Wardens, assistant to Chief. A Zone Leader wears three black triangles; a Senior or Sector Leader, two black triangles; a Worker who has satisfactorily completed his training, a single black triangle.

The stars and pyramids are sewn or pinned on both sleeves starting at a point 4 inches from the bottom of the cuff and so placed in a vertical line at intervals of 1 inch. Triangles are placed in a horizontal line at 1-inch intervals directly below the insignia on arm bands or on uniform sleeve insignia. Triangles will appear on both sleeves of the uniform coat. Pyramids are to be of such size that they will fit within a ⅝-inch circle, while stars must fit within a ½-inch circle.

All insignia are restricted in use to those people duly enrolled as trained defense workers entitled to use the respective insignia by reason of their enrollment and successful completion of the prescribed training courses. All the insignia used by the Civilian Defense organization are fully covered by U. S. Letters Patent and their use by unqualified persons is strictly prohibited by law.

Official OCD insignia are illustrated on the following pages.

Emergency Defense Work for Men and Women

See also Red Cross Services, which need both men and women, page 21.

Staff Corps

The Staff Corps of the OCD is charged with the administrative duties at the various headquarters. Work includes the keeping of records, typing, switchboard work, and general office duties. Dependable and capable men and women of the executive type are needed for this division.

The basic insignia of all civilian defense consists of the letters "CD" in red set within a white triangle which in turn is set in a blue circle. It is used on all uniform collar and cap ornaments with the exception of Nurses' Aides. When superimposed on the letters "U.S." it is the Federal Staff insignia. State Councils are identified as shown below (right). In common with all other Civilian Defense insignia it may be worn *only* by enrolled civilian defense workers. It is the sole emblem permitted on headgear, on which it may appear in metal or cloth, or it may be embroidered. It may also be stenciled on helmets. For uniformed groups only, it is worn on the lapels of the uniform coats. It may appear on stickers and plates for automobiles *actually* used in the work of Civilian De-

fense. A large letter "E" is authorized to be stenciled on front, sides, and rear of vehicles that must move during raids. Most volunteers, however, will wear only official arm bands which are issued after training is completed. The foregoing is also the regulation for all Civilian Defense insignia.

Air Raid Wardens

Air Raid Wardens, identified by a red and white diagonally striped triangle set in a blue circle, work in close cooperation with the local police force. One such warden is required for about 500 civilians. He is assigned a post which must be easily accessible and plainly marked. Inasmuch as one must always be on duty, each Air Raid Warden usually has three Assistant Wardens. Their duties include: (1) watching for lights during a blackout and warning the offender; (2) directing persons to air raid shelters; (3) reporting to the control center all fallen bombs; (4) reporting fires to the Control Center and assisting in fighting incendiary bombs; (5) detecting and reporting the presence of gas; (6) administering elementary first aid; (7) assisting victims of air raids generally. The wardens are equipped with first aid belts, gas-proof capes, gas masks, helmets, work gloves, and flashlights.

Emergency Drivers

Members of the Drivers Corps, identified by a red steering wheel in a white triangle

set in a blue circle, serve in casualty clearing stations, in message centers and on the staff of defense co-ordinators. Both men and women may qualify, working as individuals. They are given necessary instructions in driving under blackout and other air raid conditions. A Coordinator of Transporation is usually in charge of the corps and organizes it into sections. Each driver furnishes his own vehicle.

Messengers

Messengers, identified by a red flash of lightning in a white triangle within a blue circle, operate as individuals and are assigned to key points. The personnel is composed of young women, and boys and girls (15-21 years old). They should be able to ride either bicycle or motorcycle. Stationed at Control Centers, Hospitals, Fire and Police Stations, Air Raid Warden Posts, and other such posts, their duty is to carry messages and dispatches when other means of communication break down.

Emergency Medical Personnel

The Emergency Medical Personnel, identified by a red caduceus on the basic Office of Civilian Defense design of a white triangle on a blue circle, is organized into working units of usually 3 for each 1000 population. They are assigned to first aid posts, stretcher teams, casualty stations and to hospitals. Their duty is to assist

doctors and nurses. In an emergency, under orders from the Control Center they will proceed immediately to the scene of the disaster and assist in the setting up of a first aid post. They are equipped with gas-proof capes, gas masks, and helmets.

Fire Watchers

Fire Watchers, identified by a red flame in a white triangle in a blue circle, take posts at vantage points during air raids in order to spot and reach fallen bombs. Both men and women may serve. Members must be keenly alert and have fast reflexes. There are 10 to 20 for each 1000 population. Their weapons are sand buckets, scoops, and spray tank pumps to be used in putting out fires started by falling bombs.

Civil Air Patrol

The Civil Air Patrol, identified by a red three-bladed propeller set on a white triangle on a blue circle, is organized for the purpose of pooling the abilities and efforts of civilian pilots. Any citizen pilot of good character, holding a certificate issued by the CAA in the grade of private pilot or higher, or any citizen of good character holding a Government certificate for any skill or experience related to aviation, such as A. and E. mechanic, tower operator, or radio telephone operator, is eligible for membership.

The Civil Air Patrol will serve as guards at all airports and under war conditions will serve as aerial couriers. Members will

also be used for observation and patrol of back-country areas and long reaches of uninhabited coastal areas. They may also be used to pilot ships towing aerial gunnery targets; for ferry service for training and observation aircraft; for mechanical work on service craft; for patrolling traffic during evacuation; and for searching for military aircraft forced down or crashed in remote areas. Other duties will suggest themselves as the war emergency continues.

This branch of civilian defense is most important and should appeal especially to those interested in aviation.

Airplane Observers

Both men and women are needed as airplane observers. Those who desire to train for this service may apply to their local Volunteer Office or Civilian Defense Council.

It is the duty of these observers to spend a certain amount of time each week noting and reporting to Army authorities the direction of flight, approximate height, type and number of all planes within the range of their observation. This important service is not connected directly with the local Civilian Defense Council. The Volunteer Office and the Civilian Defense Council act only as a recruiting agency for the military authorities.

Blood Donors

The *Red Cross Blood Donor Service* supplies the need for thousands of units of human blood to be used in transfusions to save the lives of wounded soldiers and sailors.

Any healthy man or woman between the ages of 21 and 60 years may be a blood donor. Since this defense service is not under OCD supervision, for information consult your local Red Cross Chapter.

Emergency Defense Work for Men

For Emergency Defense Work for either men or women, see pages 12-16.

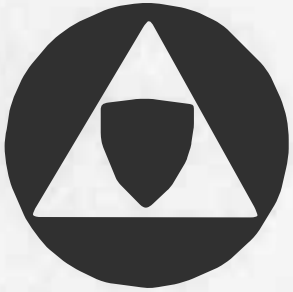
Auxiliary Firemen

Auxiliary Firemen, identified by a red Maltese cross in a white triangle set in a blue circle, are charged with assisting the regular local firemen in laying hose relays, operating engines and pumpers, and in all sorts of fire-fighting duties. They wear clothing similar to that worn by regular firemen. There should be at least four Auxiliary Firemen to every 1000 civilians. The men in this branch should be of proved courage, and they should be strong and agile. The personnel of this section are also equipped with gas-proof capes, gas masks, and helmets.

Decontamination Squads

The men in Decontamination Squads, identified by a red chemical retort on a white triangle set on a blue circle, work in units of from 4 to 6 and are equipped with helmets, gas-proof clothing, and gas masks. They work with a water tank, flusher, chloride of lime, brushes and shovels. Members must be sturdy and dependable. They are charged with the responsibility of the chemical neutralization of streets, walls, and buildings contaminated by the persistent liquids known as "blister gases" or vesicants. They are especially trained for their work by instructors from the Civilian

Defense schools conducted by the War Department at Amherst, Leland Stanford, Texas A. and M., and the University of Maryland. Candidates for these schools submit their names to Regional Civilian Defense Directors through their local Defense Council.



Auxiliary Police

Auxiliary Police, identified by a shield of red within a white triangle superimposed upon a blue circle, assist the regular police in the enforcement of all laws pertaining to emergency control, guard bridges, docks, factories and public buildings, and stand watch against looting of shops and homes during and after air raids. They are equipped with gas-proof capes, gas masks, and helmets. Four are needed for every 1000 civilians.

Utilities Repair Squad

The Utilities Repair Squad, identified by a red pliers set on a white triangle on a blue circle, is organized from employees of the utility services, and is charged with the maintenance of gas, water, light and telephone services of their community.

Road Repair Crew

The Road Repair Crew, identified by a red shovel set in a white triangle on a blue

circle, must see to it that the normal flow of traffic is restored just as rapidly as possible after an air raid. Generally working under the direction of the local Street or Public Works Department, their job will be to reroute traffic, replace road signs and markings, fill in holes, smooth roads, and replace top dressing. Husky men capable of working long, hard hours are required for this work.

Rescue Squads

A Rescue Squad, identified by a red ladder on a white triangle set in a blue circle, usually will work in squads of 10. They will have tools for removing trapped persons, and first aid equipment. They will have helmets, civilian protective clothing, and gas masks. Men assigned to the Rescue Party must be husky, resourceful, and fearless, trained to rescue persons trapped in debris and to shut off broken gas, electric, and water lines.

Demolition and Clearance Crew

Husky and dependable men are required for demolition and clearance work. There should be at least two for every 1000 civilians, identified by a red pick within a white triangle within a blue circle. After an air raid streets are strewn with rubble, partially demolished buildings tilt dangerously, and streets and sidewalks may have become impassable—so these men are assigned to assist in removing debris. These crews may be provided with such explosives and demolition equipment as may be required.

Emergency Defense Work for Women

For Emergency Defense Work for either men or women, see pages 12-16.

Food and Housing Corps

The Emergency Food and Housing Corps, identified by a red coffee cup set in a white triangle within a blue circle, is charged with coordinating emergency services for feeding and housing those civilians made homeless by air raids. The members assist public welfare organizations and private agencies. Persons enrolled in this work must have a working knowledge of mass feeding and dietetics, and of handling large groups of people.

Nurses' Aides

Nurses' Aides, identified by a red cross set within a white triangle on a blue circle, assist in the field, work in wards and in outpatient clinics of hospitals. Intelligent and physically strong women are needed for this corps. It is required that all members complete special training by the American Red Cross or by hospitals officially designated as Training Centers. The size of the operating units of this corps varies considerably.

Red Cross Services

In addition to defense work under the authority and direction of the office of Civilian Defense, there is an excellent opportunity for volunteer work in all services of a chapter of the American Red Cross.

In the *Staff Assistant Corps* there is opportunity to do such work as filing, typing, keeping books, preparing reports, working at information and reception desks, translating, and even organizing classes for other services.

The *Production Corps* provides clothing for refugees, as well as furnishing hospital comfort articles and surgical dressings. The members sew, knit, and mend.

An important branch is the *Braille Corps,* which makes books for the blind. Its members must know the Braille system. They transcribe, duplicate and bind books in Braille; read to the blind and teach them to read the Braille system.

Members of the *Canteen Corps* take over the responsibility of emergency and group feeding in times of sudden need.

The *Motor Corps* provides, in connection with regular Red Cross chapter activities, transportation to the armed forces, disaster relief and the Junior Red Cross.

The *Home Service Corps* members assist local chapters of the Red Cross in discharging its obligation to active service and ex-service men and their families. Its members visit and interview individuals and families under supervision. It is required that the members of this corps have training in social service case work.

The *Hospital and Recreation Corps* is charged with the maintenance of morale of active and ex-service men in hospitals. The medical officer directs the members in providing recreation work for the patients. Members may also serve as receptionists in clinics. For membership in this corps the completion of a prescribed course and of a probationary course is required.

For *Blood Donors,* see page 16.

Defense Services at Home

SOME of the most important help to civilian defense can be given right in the home. If you find it impossible to volunteer for active work under the Office of Civilian Defense, you can "do your bit" in various other ways. Even though you are engaged as a volunteer worker, you can aid your country still more by always remembering that the defense effort begins in your own home.

You can always play a part in winning the war: following are a few suggestions as to how you can further help in small but nevertheless vital ways.

Salvaging Needed Materials

The factories engaged in making guns, tanks, airplanes, armored cars, tents, uniforms, and all the other equipment needed by our soldiers, sailors, and marines, must have an ever-increasing supply of raw materials. Many of these materials can be made from so-called waste and scrap. Look about you! In attics, backyards, and garages—in our homes, in our stores and on our farms are neglected materials that can help to aid our war industry.

Just think, not only old newspapers and magazines, but all scrap paper is useful. Start now to save *all* waste paper and cardboard, old rags, scrap metal and old rubber. Wrapping paper, cardboard, paper bags, cartons, newspapers and magazines are needed to make new paperboard in which to pack airplane and tank parts, shells and ammunition, foods, clothing and other articles for our armed forces stationed both here and overseas. Old rags, such as cast-off clothing, burlap bags, draperies, pillows, sheets, and mattresses, as well as such things as discarded carpets, can be reprocessed and used in factories for wiping rags and for roofing and flooring materials in emergency construction. They can also be used for reworked textiles.

Scrap metals such as iron, steel, copper, brass, aluminum, lead, etc., can be reclaimed and worked into guns, tanks, airplanes, ships, and shells. Such things as discarded tools, automobile parts, metal beds and picture frames, stoves, railings, wire fence, tire chains, old pots and pans, metal coat hangers, toothpaste and shaving cream tube-containers, pieces of pipe, bits of hardware, old batteries, and just about everything else made of metal—except tin cans—should be salvaged. Even tin cans are being salvaged in some areas which have proper facilities for using them. Old rubber in the form of discarded tires and tubes, rubber overshoes, and garden hose can be reclaimed for military use and made into retreaded or new tires and tubes, and items of rubber needed in motorized forces.

In preparing to dispose of salvaged materials, flatten out all cartons and boxes and tie them in neat bundles. Pile newspapers separately and tie them in bundles. Keep all paper clean and dry. Keep rags, metals, and rubber in separate cartons or bags if possible. This sorting and tying is work you can do to help the United States win the war---don't expect those engaged in collection to do this work too.

Such materials may either be sold to a collector (junk man) or given to schools, charities, and other such organizations engaged in gathering them. If you desire to sell your salvage and a collector does not make regular rounds in your neighborhood, look through the classified advertising section of your newspaper or telephone directory and get in touch with a collector. You should wait until your collection of waste paper has reached about 100 pounds before asking to have it carted away. Metals, rags, and rubber can be taken at the same time. If you prefer to donate your salvage, you can arrange with a local charity or other similar organization to collect it.

If you are not sure about what materials should be salvaged in your community, consult a junk dealer, a charitable organ-

ization making such collections, or the salvage committee of your local Defense Council. *You have a definite duty in helping your country to win this war! Part of your duty is to salvage materials needed in war production industry!* SALVAGE NOW FOR VICTORY!

Victory Gardens

The Victory Garden program offers an excellent opportunity for you to contribute to your share to win the victory. These gardens are sponsored in every community. Although the emphasis will vary according to local needs, community, home, and school gardens should be planted whenever and wherever possible. The produce from a community garden which is divided into plots worked by individual families will go to the family doing the actual gardening. Produce from gardens managed and worked as a community undertaking, as well as surpluses from home gardens, will be used for school lunch projects and for emergency public food needs.

The quantity of garden tools, seed, and fertilizer in the United States is limited and should be used carefully and efficiently to avoid waste. Well planned community gardens should conserve these materials and make the best use of skilled supervision. Home gardens, if worked by experienced gardeners, or if supervised properly, are also advisable. They will lower food costs for individual families and at the same time will provide a varied and healthful diet. If you are interested in this phase of defense or if you have land available which can be used for these gardens, by all means see that your community cooperates with the Dept. of Agriculture.

Sewing and Knitting Projects

Another way in which you can aid defense is by knitting and sewing. Such projects are sponsored by local agencies, including local chapters of the Red Cross. Various articles of clothing are needed by

members of our fighting forces, by hospital patients, and by civilians in war-torn areas. If you can sew or knit don't neglect to consult your local Red Cross chapter at once!

Your Children

If there are children in your family, don't talk too much about the horrors of war in their presence. Instead, attempt to make them feel secure—that you are confident of victory. Of course they know that we are at war—it is your job to build their morale by keeping family life going along as usual.

The best thing for children is to have some real and useful work to do. Assign them some task that will make them feel that they too are serving their country. They can be of great help to the Red Cross by knitting afghan squares, caps, and sweaters. They can collect paper, scrap metal, and other needed salvage materials. Other tasks will make the child feel his responsibility. Let the children make beds, wash dishes, sweep, dust, cook lunch, or carry on some other practical job. Have them do such tasks regularly. Then help them to feel that their efforts are a definite contribution to defense.

Make your children self-sufficient! See to it that they are able to feed themselves and dress themselves, that they know their names and addresses and how to get home. Keep the children busy at real jobs which they feel are important. This, more than anything else, will keep them free from fear and panic.

War Savings Stamps and Bonds

Regardless of what else you are doing for defense, you can and should give financial support to the United States war effort by investing in War Stamps and Bonds. It is every American's duty to "buy a share in America,"—and such a duty is actually profitable, for in addition to helping fight the battle for democracy, you are also sav-

ing money at a good interest rate. While you are loaning your money to aid in national defense, you are insuring your future against want and fear—and, what is also important, you are postponing a portion of your purchasing power until peace comes, when factories will be turning out ample civilian supplies to meet the demand, which they cannot do in wartime.

The money which the Government borrows through the sale of stamps and bonds is used to insure adequate arms for global war on the widespread world fronts and to lend or lease to every nation fighting for survival against the Axis. Much is also used to finance new plants to make war materials.

If you are unable to buy bonds at first, you may buy War Savings Stamps for as little as ten cents each and save them until you have enough to trade in on a bond. Stamps are sold in denominations of 10 cents, 25 cents, 50 cents, $1.00 and $5.00. You may obtain albums at no extra cost in which to stick your stamps. The albums hold stamps as follows: 10-cent album holds 50 stamps ($5.00 when filled); 25-cent album holds 75 stamps ($18.75 when filled); 50-cent album holds 75 stamps ($37.50 when filled); $1.00 album holds 75 stamps ($75.00 when filled); $5.00 album holds 15 stamps ($75.00 when filled).

Series E Bonds, which are for small investors, may be purchased outright or secured by accumulated stamps. They cost from $18.75 to $750.00 for a single bond and pay an interest of 2.9 percent a year, so the $18.75 bond will be worth $25.00 at the end of 10 years. Series F bonds are for estates and large organizations which invest large amounts of money at one time. Interest on these is lower (2.53 percent) and it takes 12 years, instead of 10 years, for these bonds to mature. Stamps or bonds may be redeemed for cash at any time desired, but to earn interest stamps must be exchanged for bonds and the bonds held as an investment. *Try to hold your bonds till maturity.*

Series G bonds, costing from $100.00 each up, are for those people who want to get their interest semiannually instead of adding that interest to the value of the bond to be paid all at one time when the bond matures—every year the U.S. Treasury Department mails out interest checks on these bonds amounting to 2.5 percent. At the end of 12 years, the investor gets back what he paid for the bond.

Conservation

Because of the increasing needs of the U.S. war production program and because of the fact that the sources of many raw materials have been cut off by the war, it is our duty to do everything we possibly can to conserve every item needed in the defense effort. Every person can help in this defense program—by repainting and repairing old furniture, rather than replacing it; by taking proper care of all household equipment; by conserving tires, gasoline, electric power; in short, by avoiding all waste, we can insure that vitally needed materials will go into articles needed by our armed forces. By simplification and substitution we can stretch what materials we have so that the largest possible number of units will be produced with the greatest efficiency and economy and with a minimum of waste. In this way, strategic materials will be accumulated and men and machines will be freed for war work.

You can also aid in the defense effort right at home by taking a course in home nutrition and learning the proper methods of building up your own and your family's physical well-being. Study not only food values, but also the proper care of clothing, household furnishings and equipment. Boost the efficiency of your purchasing to get the most for your money. What you save can be invested in defense stamps and bonds. *Declare a war of your own against all waste in your own home. Remember that no effort is too small as long as it contributes to the welfare of the nation.*

Helping Boys in the Services

Plan some form of home entertainment for the men and boys in camps near your home. Do everything you can to make them comfortable and happy by mending their clothes, sewing and knitting for them, preparing magazine and book collections for camp libraries and community centers, preparing a guide on community facilities, persuading the publication of home-town editions by local editors, preparing a list of current local amusements or a list of available local recreational facilities, arranging for guest tickets or price reductions for community events; making arrangements for week-end dormitory facilities, listing local restaurants and lodgings with prices. *Make your home a stronghold of democracy!*

Remember that a man in uniform is your protector—that he stands between you and the enemy. Treat him with kindness, courtesy, and consideration.

Remember that these men are away from their homes and their loved ones. They have given up good jobs—have sacrificed their ambitions and careers to protect you. Do everything you can to provide wholesome recreation and entertainment for them.

Be always ready to go out of your way for them. Be willing to act as hostess, chaperon, dancing partner, and the like.

Invite them into your home, a few at a time. Show them the same kindness and consideration that you would your son or brother.

Arrange occasionally to take them to dinner and then to a show and a dance. When you do this, make your guests in uniform feel that it is your wish to serve them and that you are happy to be doing it. Don't get the idea that they should feel honored by your presence. It is you who should feel honored by serving them.

Arrange to send little gifts to men in camp and on our fighting ships. Such little remembrances are most welcome and the

pleasure which they bring will repay many times over the trouble or expense to which you are put. Such gifts need not be expensive, but they should be things that the service man needs and can use. Cigarettes or cigars are always welcome to the man in uniform. Fruit (both fresh and preserved), jelly, jam, cakes, cookies, and candy will be well received and appreciated. Books, magazines, or a subscription to the home town newspaper will not be amiss.

However, don't under any circumstances use the excuse of sending something to a man in uniform to get rid of old books simply because you don't want them. Remember that he may, in many instances, be better educated than you are. Give him books and magazines that you would enjoy reading yourself and that you would have in your own library. Shaving creams, razors, toothpaste, and other toilet articles will come in handy to our fighting men. GIFTS OF DEFENSE STAMPS ARE ALWAYS IN GOOD TASTE.

Give your soldier or sailor guest credit for being a gentleman. Don't take him where you wouldn't want your friends to see you. This is important. Take your guests from the fighting forces to the best places. It isn't necessary to buy them drinks in order to show them you are a good fellow and appreciate their facing death in your behalf. Actually there is less drinking among men in uniform than among civilians. A good steak dinner with all the trimmings, followed by a good show, will do wonders to boost morale!

Last, but not least—write to that friend of yours in camp. He always welcomes long, interesting, amusing and intelligent letters.

Nutrition and Consumer Buying

It is difficult to believe that in this country there are hundreds of thousands of undernourished men, women, and children. Even when there are ample means to buy food, the food is often of the wrong kind

to build healthy bodies. You can be of help in this problem by volunteering as a nutrition aide. For this very important work, the Red Cross gives a nutrition course consisting of 24 study-hours. (If you have equivalent experience you do not need to take this course.) Nutrition aides assist in organizing adult classes to study nutrition or food preparation, in school lunch service and in playground lunch service. They also assist professional nutritionists in conducting food clinics and in organizing neighborhood discussion groups on diet.

For the volunteer who wishes to be of immediate service, other opportunities are open. For example, there is the distributing of reliable reading materials on nutrition, assisting in the distribution of local food surpluses, and arranging for mothers with small children to attend nutrition classes.

Since wholesome food is the basis of good health, the wise purchasing of good food is of vital consideration to every family. Hence, there is work for the volunteer to do in establishing consumer information centers to advise consumers in their buying problems and to make available such governmental aid as is offered to consumers. Volunteers are also needed to check on the adequacy and enforcement of local sanitation ordinances, and to protect community health by decent housing.

Volunteers in Education

Much work has to be done in the field of education, as in the public schools, where volunteers can assist in testing sight and hearing; in teaching classes in home hygiene and first aid; in tutoring sick or retarded children; in aiding counselors in vocational-guidance classes; and in helping to conduct classes for handicapped children. Other volunteers may find work to do in the field of recreation and informal education, in supplying social protection programs in defense areas, in establishing day nurseries in and near defense industrial areas. In the day nurseries volunteer work-

ers supervise play, help with physical care of the children, tell and read stories, etc.

Public Recreation

In public recreation, volunteers are sorely needed who can and will lead and supervise games both in air-raid shelters and on the playground. Leaders are required for adult discussion groups on current topics and for teaching a variety of subjects, including citizenship, art and music appreciation, knowledge of current events, and the like. Enthusiastic workers are needed to cooperate with public library activities in organizing book drives, and in sorting and arranging books, pamphlets, clippings, and pictures. These workers can provide reading rooms in areas which have no adequate library facilities, as well as transport books to factories, canteens, etc.

Social Service Volunteers

Volunteers with social-service training and experience can offer aid in supervising service centers in defense areas where girls and women may receive temporary care and assistance when needed.

Democracy Programs

The importance of "Democracy Programs" cannot be overlooked in the defense effort. Forums and "town hall meetings" should be held to discuss local, national, and international topics. Get people of different nationalities together and instruct them in government, English, American history, and the duties and privileges of citizenship. Promote and safeguard civil liberties, since these are the essence of the freedom for which we are waging this war. We must, as the President has repeatedly said, first win the war and then win the peace. Farsighted leaders will keep ever in mind that the goals of peace must be worth striving for, not only as an inspiration to Americans but as a vision of hope to those captive peoples now held in subjection by Nazis and Japs.

Air Raid Protection

As soon as enemy aircraft are sighted or detected, the military and civilian observers will report the type of planes, number, and direction of flight to the Filter Center. The moment several reports agree, the data are transmitted to an Information Center, where the reports from a large area are plotted on a huge map. Watching this map, Army Air Forces officers order interceptor planes into the air to make contact with the enemy. At the same time, other officers note which cities or areas are threatened and flash an alarm to the proper Warning District Center. *(See illus. on pages 34-35.)*

It is at this point that Civilian Defense takes over from the Air Forces, telephoning the warnings to Control Centers within the Warning District. Here the commander of the local Citizens' Defense Corps orders first the preliminary warnings to units of the Citizens Defense Corps and, as the planes approach closer, has the public warning signal sounded. This signal is usually short blasts on air horns, power horns, steam whistles, or wailing sirens. *You should learn the air raid warning for your city or locality at once!* In the event that enemy planes arrive overhead, the local commander at once activates his corps.

When the public warning is received, if you are an air raid worker and are not already on duty, you will immediately report to your post and carry out all orders until you are relieved. As a volunteer you will have received instruction and training in just what you are to do. If you do not have assigned duties to perform during the emergency, *you should follow the rules given below* as soon as you hear the air raid warning. Learn them carefully and teach them to others.

1. If you are away from home, seek the nearest shelter. By all means *get off the street.*

2. If you are driving your car, park it at once along the curb. At night be sure to switch off all lights.

3. If you are at home, send everyone to the "refuge room." This room (set one aside in your home now) should be as comfortable a place as possible, with little or no window exposure. It should be equipped with drinking water, reading matter, games or other amusements, toilet facilities, flashlight, radio, a sturdy table, and emergency rations of food.

4. See to it that all gas burners, with the exception of pilot lights, water heaters and furnaces, are turned off. Leave electricity and water on. Have buckets full of water for the use of the fire department in the event that the water mains are broken.

5. Make certain that everyone's eyeglasses, artificial teeth, or the like are in the refuge room. Also see that plenty of warm clothing is there.

6. Glass shatters easily so stay out of the line of the windows. *Don't go to the windows and look out during an air raid*—it is a very dangerous thing to do. If planes are overhead there will be antiaircraft fire and antiaircraft fire means falling shrapnel. There may also be machine-gun bullets. You will be safe from them indoors, away from the windows.

7. If bombs start to fall near your home, lie down under a heavy table or a davenport. You will feel the blast least that way and will escape bomb fragments and splinters. Most raids will be over in your *immediate* neighborhood in a short time. However, stay under cover until the "all clear" signal is sounded. But don't rush out just as soon as the signal is heard, for the raiders may return.

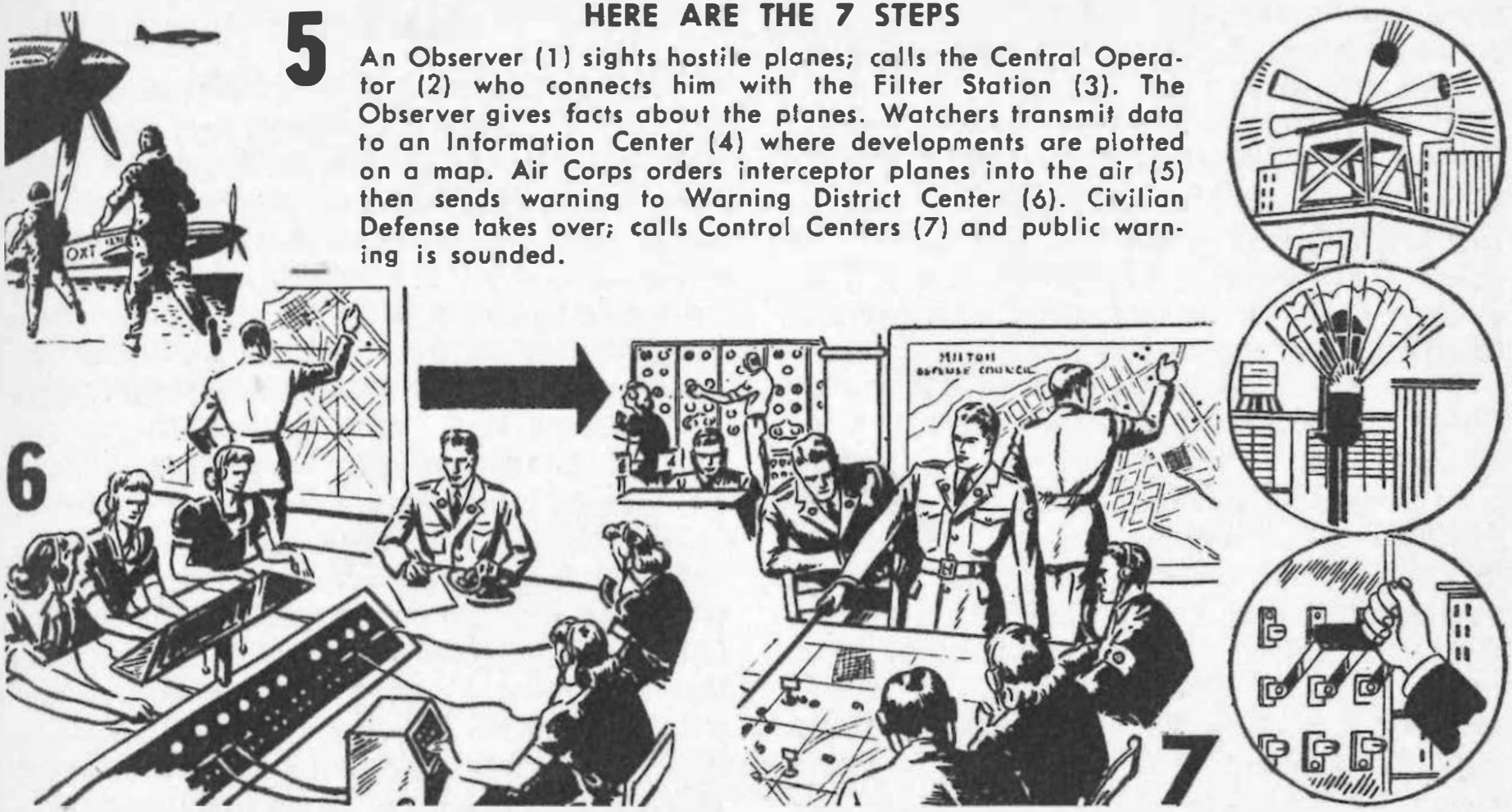
8. If your house is hit, KEEP COOL. Answer tappings from rescue crews if you are trapped. You probably won't be either hit or trapped, but if you are you can depend upon the rescue crews to get you out. Wait! Don't yell until you hear the crews

[*Continued on page 36.*

ARMY FLASH: What happens when an observer sights hostile planes.

HERE ARE THE 7 STEPS

5 An Observer (1) sights hostile planes; calls the Central Operator (2) who connects him with the Filter Station (3). The Observer gives facts about the planes. Watchers transmit data to an Information Center (4) where developments are plotted on a map. Air Corps orders interceptor planes into the air (5) then sends warning to Warning District Center (6). Civilian Defense takes over; calls Control Centers (7) and public warning is sounded.



ARMY FLASH *(continued)*: All this takes only a few minutes!

Continued from page 33.]
coming to you. *Keep cool and set an example for others.*

9. *Remember to keep off the streets during an air raid* unless your duties require you to be about. More than 85% of casualties are inflicted on persons who are in the open. *The safest place is at home.* The enemy wants you to run out into the streets, create a mob, and start a panic. Don't do it.

10. *Keep cool! Stay at home! Put out all lights! Lie down! Stay away from all windows!*

11. UNEXPLODED BOMBS: The responsibility of disposing of all unexploded or delayed action bombs, has been accepted by the Ordnance Department, U.S. Army. If you should discover an unexploded bomb or shell, do not touch or handle it. Notify any Air Raid Warden or Auxiliary Policeman. He will report it, and take safety precautions. Army personnel will then take such steps as are necessary to remove it and render it harmless.

Blackouts

The effectiveness of any defense system depends upon the knowledge and cooperative spirit of the people at large. All concerned must realize that planning and advance preparation contribute most to the effectiveness of a blackout. You will be informed through the press and radio when blackout regulations will go into effect in your locality. At this time these regulations will become law and they must be so respected. Blackouts may be ordered during any period when enemy forces are believed to be in the vicinity. Whether or not a blackout is ordered *never* show more light than is necessary. During actual blackout, put out all lights immediately. Always remember that even a candle light may be seen for miles from the air. Lights in rooms which cannot be shielded must not be used. During the blackout, keep cool and stay at home.

Prepare a refuge room where you can

carry on home duties, and keep the family comfortable.

If you have portieres or heavy curtains, arrange a double thickness over all windows in the room to be used during a blackout. Another method is to paste heavy black paper over all windows. If such paper is unobtainable, hang heavy blankets. Blankets or drapes are preferred as they can be drawn aside during the day to permit sunlight to enter.

Do not drive your automobile. Only vehicles for emergency services, such as ambulances, doctors, fire, police, OCD Officials (Air Raid Wardens, etc.), trucks (utility, produce, dairy, buses, taxis, etc.), will be permitted, and then only with lighting devices approved by the Office of Civilian Defense.

If you must smoke, do so only in a covered place. Never smoke or light a match in the open. No smoking at all is the best procedure. Make all street crossings at intersections. Cross as quickly as possible. Use your flashlight as little as possible. Never point it upward and never let it reflect against any glass or metal.

Keep all pets on a leash if you take them out after dark. If you don't know the neighborhood you are in, ask the first policeman or warden you meet for directions. If you are injured during a blackout, sit or lean against the nearest wall and ask a passerby to notify a warden. Do not wander off into the dark. Know the location of all fire alarm boxes and fire extinguishers in your locality so that you will be able to find them in the dark.

Know the meaning of all warning signals.

In going up and down curbs or steps, hold to railings and keep one hand free so that you can catch yourself if you slip or fall.

Remove all outside light bulbs, such as garden and porch light bulbs so that these lights will not be turned on by mistake.

Immediately after hearing the blackout signal, go around your house to see that no lights are visible from the outside.

Air Raid Protection for Schools

The Office of Civilian Defense has issued special instructions for air raid protection for schools. When the local general air raid alarm is heard (the school fire alarm should be sounded in a special way —short rings, etc.), each class should then leave its room in order as in fire drill. Teachers lead pupils to the Air Raid Refuge. Do not permit pupils to leave the building or return to classrooms until the "all clear" signal is given. Teachers should *not* send pupils home. Since these protective measures require organization, planning, training and drill, *start now.*

The chance of a direct hit on any individual building is very small. You must guard against the blast of bursting high-explosive bombs, machine-gun bullets, incendiaries, and falling fragments of antiaircraft shells. Keep the pupils away from windows and open doors, and *keep away from them yourself.*

The large inside halls of most schools are suitable for Air Raid Refuges. Do not use the top floor of a building. The basement is a suitable Air Raid Refuge provided there are plenty of exits and provided any windows to the outside can be protected by sandbags. Choose the best protected places in the building and be sure that there is enough room to hold everybody without crowding. Also be sure that there is more than one exit. It is important that the Refuge have easy access to drinking water and toilet facilities.

Teachers and principals should be sure that all fire extinguishers are in proper working order and that there are enough people — teachers or older pupils — who know how to use them. These should be appointed as fire guards: have them take assigned posts when the Air Raid Drill sounds. If incendiaries hit the building, the fire guards should try to put them out with a water spray. If the fire gets beyond control, the regular fire alarm should be

sounded. All pupils should then be conducted from the building as in a regular fire drill. Class leaders should escort them in orderly groups to nearby home shelters.

The local Department of Education or other school authority under the direction of the local Civilian Defense Coordinator should plan and adopt a defense program for the duration of the war. School building wardens should be appointed and required to coordinate their duties with their local zone or district Warden Service. Arrangements should be made for special transmission of all Air Raid Warnings from the control center to the schools.

Rules for Parents

If an air raid does come while your children are at school, see to your own safety. *Stay at home!* Do not try to reach the school—you can accomplish no good and you might possibly do a great deal of harm by such action. Keep in mind that Air Raid Rule Number One is to STAY OFF THE STREET AND GET UNDER COVER! Do not try to telephone. The telephone lines must be kept clear for the wardens, the police, and the fire department. By your selfishness in demanding personal phone service you could easily prevent an urgent message from getting through. This is hard advice to take, of course. But it is for your own best interest and for the welfare of your children.

The Threat of Poison Gas

Poisonous gases are used in war to produce casualties and they are likely to be surprise weapons. Substances used for this form of attack are known as *chemical agents.* Screening smokes, as such, are practically non-injurious. For our protection, we are concerned only with those chemical substances used to inflict bodily injury. These are all called "gas" because they can be disseminated into the atmosphere in the form of a cloud, thus rendering the air at and about the target danger-

ous to breathe or come in contact with.

Probably the greatest danger in the event of a gas attack upon a civil community is the likelihood of panic. This can be avoided. If every adult person has at least a fair knowledge of war gases, their action on the body, the means of detecting their presence, and first aid for those exposed to them, there is no reason for fear.

Gas masks will be available should there be a need. Some gas masks left over from the last war are being offered for sale in some localities. These masks are now worthless, due to deterioration of the filling, stiffness, age of the face piece and other faults.

Chemical agents which are true gases vaporize completely almost immediately upon their release. They are quickly acted upon by wind and air currents. Gas mixes readily with the air and is diluted so that in a short time it disappears entirely. These are known as *non-persistent* gases. Chemical agents which are normally liquids vaporize slowly after their release, giving off their toxic vapors for a considerable period of time. These are known as *persistent* gases. Some chemical agents are solid materials but can be disseminated in the form of a smoke cloud in the air from burning or exploding shells.

Gases suitable for war purposes must tend to hug the ground. All war gases are heavier than air, so that they flow downhill in much the same manner as water and thus accumulate in low-lying places. War gas tends to pass over and around a house if the doors and windows are tightly closed. However, unless all cracks and crevices are sealed, the gas will eventually penetrate the house.

(See also page 44.)

Weather determines the effectiveness of poison gas. Gas clouds travel with the wind; hence, low velocity and steadiness of the wind are favorable for the use of gas. If the wind velocity is high or if the wind is gusty, the gas cloud is torn apart and is

quickly dissipated. When the sun shines brightly, the ground surface becomes warm and sends out heat, causing rising currents of air. This is rather pronounced in warm weather and is one of nature's most potent means of ridding the atmosphere of gas. The warmer the weather, the more quickly the chemicals are vaporized and dissipated. A heavy rain is fatal to almost any gas attack. Some gases, such as phosgene, are destroyed by chemical action with the rain water. Cloudy and overcast skies favor the use of gas since such conditions are not conducive to rising air currents.

Study the chart of Chemical Warfare Agents (gases) on pages 42-43, and also the first-aid treatment on page 76.

Screening Smokes.—These gases, or more properly, smokes, are usually used to screen and hide operations. *Sulphur Trioxide* is typical of the group. It smells like burning matches and is dispersed as a liquid which changes upon contact to air to a white smoke. It causes a mild pricking sensation to the skin but is not injurious. *HC Mixture,* another agent in the group, has an acrid, suffocating odor and appears as a white smoke; it is harmless. *White Phosphorus,* in addition to being used as a smoke, is also used as an incendiary. It smells like burning matches and is dispersed as a solid which very rapidly changes to flame and white smoke. There are no harmful effects from the smoke, but the solid particles produce severe burns which heal slowly.

General Gas Protection

A gas-tight room which is suitably located will afford fair protection against probable concentrations of war gas in a city. Defense workers whose duties require them to be in the streets are afforded protection against all but the "blister gases" by a gas mask. To enter areas where Mustard or Lewisite is present, workers require special full protective clothing.

[*Continued on page 44.*

POISONOUS CHEMICAL WARFARE AGENTS

Note: In using this table read across both this and the facing page.

The importance of proper first aid for gas victims cannot be over-emphasized. The following are general rules which apply in all cases.

A. Act promptly and quietly; be calm.

B. Put a gas mask on the patient if gas is still present or, if he has a mask on, check to see that his is properly adjusted. If a mask is not available, wet a handkerchief or other cloth and hove him breathe through it.

C. Keep the patient at absolute rest; loosen clothing to facilitate breathing.

D. Remove the patient to a gas-free place as soon as possbile.

E. Summon medical aid promptly; if possible, send the victim to a hospital.

F. Do not permit the patient to smoke, as this causes coughing and, hence, exertion.

Be sure to read also pages 39-45, 55, and 77-79.

	Names and Symbols	*Form*	*Odor*	*Persistence*
1	VESICANTS: MUSTARD $S(CH_2CH_2)_2Cl_2$ Di-chlorethyl sulfide	Liquid and vapor	Garlic, horseradish, mustard	One day to one week; longer if dry or cold.
2	LEWISITE $CHClCH\text{-}AsCl_2$ Chlorvinyl-dichlorarsine	Liquid and vapor	Geraniums	One day to one week; longer if dry and cold.
3	LUNG IRRITANTS: CHLORPICRIN CCl_3NO_2 Nitrochloroform	Gas	Fly paper, anise	Open 6 hours, in woods 12 hours.
4	DIPHOSGENE $ClCOOC\text{-}Cl_3$ Trichlormethyl chloroformate	Gas	Ensilage, acrid	30 minutes.
5	PHOSGENE $COCl_2$ Carbonyl chloride	Gos	Musty hay, green corn	10 to 30 minutes.
6	LACRIMATORS: CLORACETOPHENONE $C_6H_5CO\text{-}CH_2Cl$	Gas	Apple blossoms	10 minutes.
7	BROMBENZYLCYANIDE $C_6H_5CH\text{-}BrCN$	Gas	Sour fruit	Several days. (Weeks in winter.)

POISONOUS CHEMICAL WARFARE AGENTS, Continued

Note: In using this table read across both this and the facing page.

	Tactical Class	*Protection*	*First Aid* (After removal from gas area)	*Physiological Effect*
1	Hospital case	Mask and full protective clothing	Undress; remove liquid mustard with protective ointment, bleach paste, or kerosene; bathe, wash eyes and nose with soda solution.	Delayed effect. Burns skin or membrane. Inflammation respiratory tract leading to pneumonia. Eye irritation, conjunctivitis.
2	Hospital case	Mask and full protective clothing	Undress; remove liquid Lewisite with hydrogen peroxide, lye in glycerine, or kerosene; bathe; wash eyes and nose with soda. Rest—doctor.	Burning or irritation of eyes, nasal passages, respiratory tract, skin. Arsenicol poison.
3	First aid treatment and hospital case	Mask protection	Wash eyes, keep quiet and warm. Do not use bondages.	Causes severe coughing, crying, vomiting.
4	Hospital case	Mask protection	Keep quiet and warm. Give coffee as a stimulant.	Causes coughing, breathing hurts, eyes water, toxic.
5	Hospital case	Mask protection	Keep quiet and warm, bed rest. Coffee as a stimulant. Loosen clothing. No alcohol or cigarettes.	Irritation of lungs, occasional vomiting, tears in eyes, doped feeling. Occasionally symptoms delayed. Later, collapse, heart failure.
6	First aid treatment	Mask protection	Wash eyes with cold water or boric acid solution. Do not bandage. Face wind. For skin, sodium sulphite solution.	Makes eyes smart. Shut tightly. Tears flow. Temporary.
7	First aid treatment	Mask protection	Wash eyes with boric acid. Do not bandage.	Eyes smart, shut, tears flow. Effect lasts some time. Headache.

Continued from page 41.]

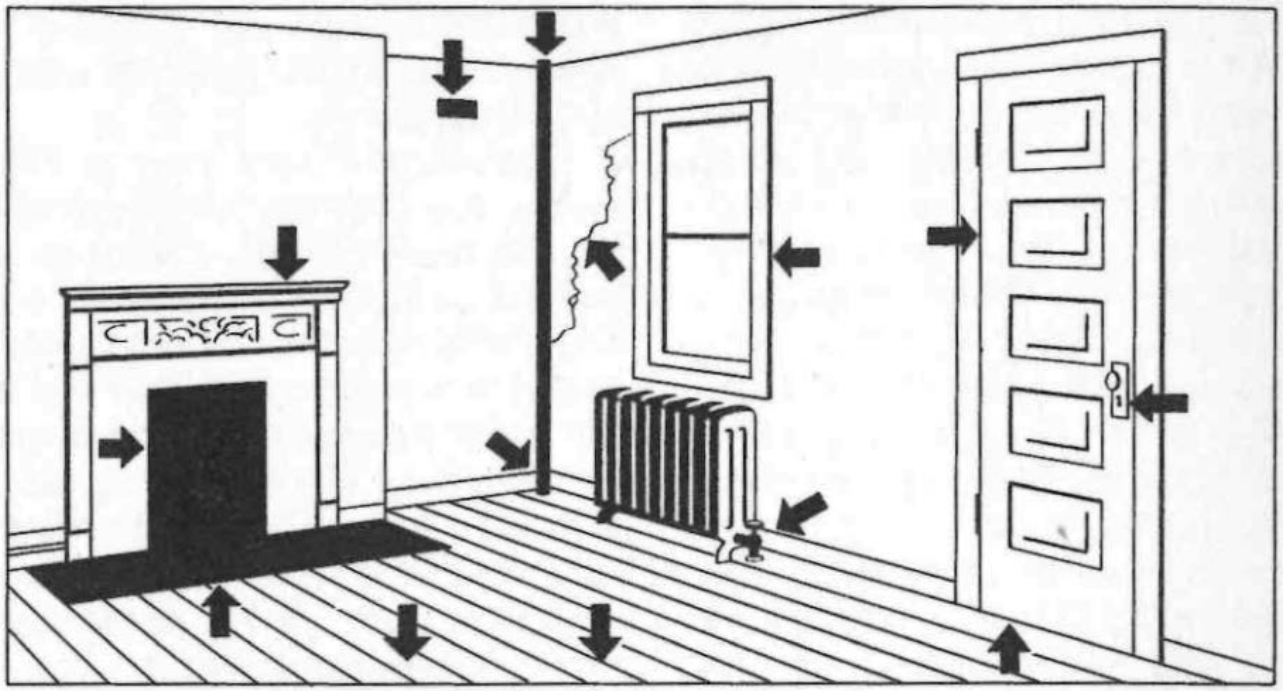
The standard *gas warning* is a "percussion sound"—that is, bells, drums, hand rattles, or rapidly struck resonant objects of any kind. If the presence of gas is suspected, report it to the nearest warden.

Since war gases hug the ground they readily flow into basements. Upper floors of dwellings are thus away from dangerous concentrations of gas. If all openings and cracks are closed, any room will offer good protection against war gases. To stop cracks and small openings, tapes of various types can be used. A mush made by soaking old newspapers in water or patching plaster may be used to stop larger openings. A piece of wall board, nails, and calking material should be kept handy to cover windows broken by blasts of high explosive shells. One door of this room may be used as an entrance by fastening a blanket over it in such a manner as to seal it tightly when no one is going in or out. If soaked in oil to close the air spaces, the blanket will be more effective. It is advisable to allow at least 20 feet of floor space for each person who is to occupy an average gas-tight room. This will give enough air for safe occupancy of the room for about 10 hours.

(See illustration on the opposite page.)

Always remember that Lewisite and Mustard gases are liquids under normal conditions. These liquids give off dangerous vapors which, if not chemically neutralized, may persist for a week—contaminating the air for a considerable distance down-wind. These two agents are so penetrating that ordinary shoes and clothing offer no protection. *Do not go into the streets after a gas alarm except on direction of the warden!*

Please note that this brief discussion of gas warfare is simply for reference. Reading it will not make you an expert in gas defense. For further instruction in this phase of civilian defense consult your local Defense Council.



HOW TO MAKE A ROOM PROOF AGAINST GAS

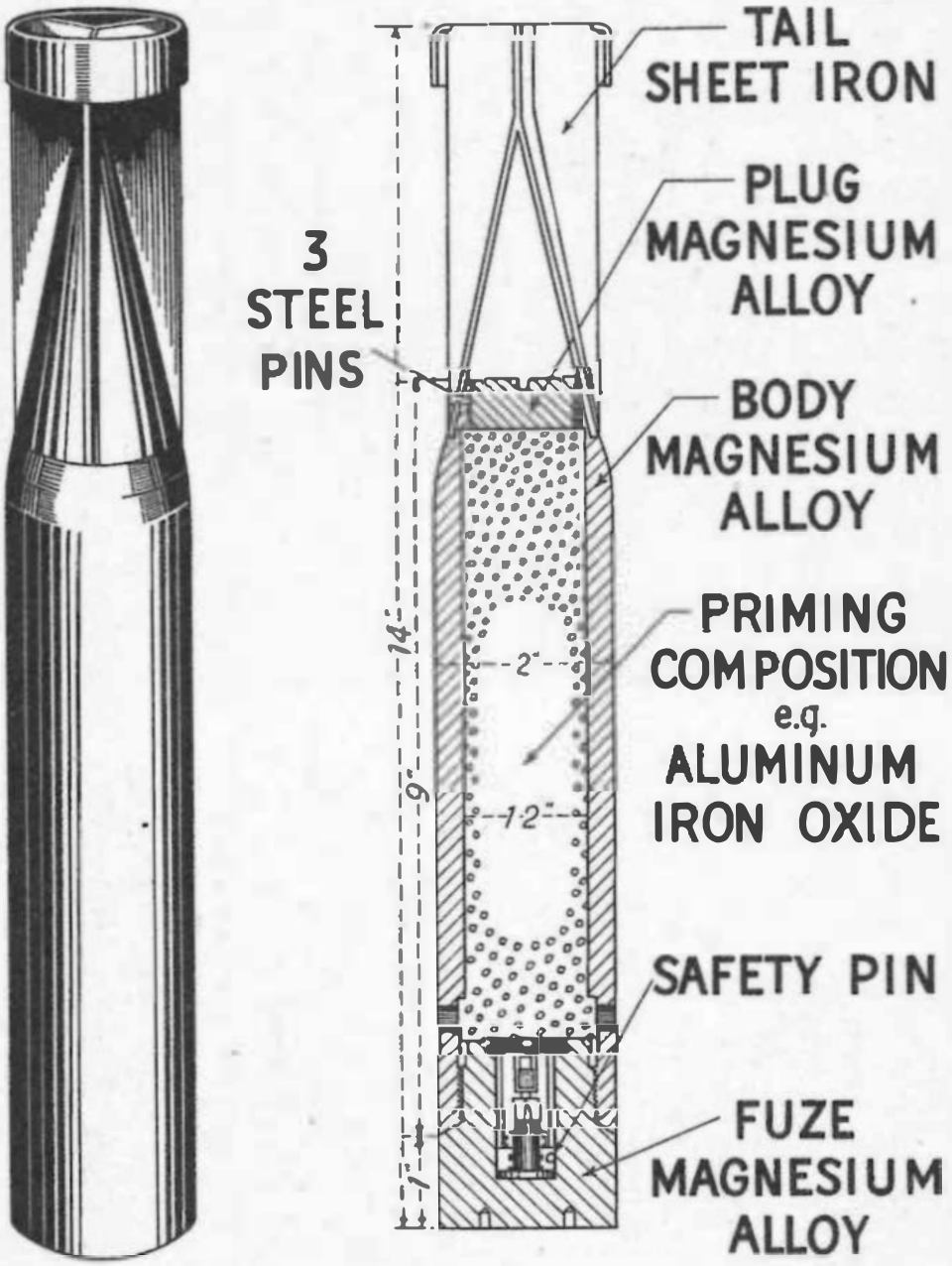
Arrows indicate points to be closed airtight—fireplace, flue, cracks in wall and floor, radiator and other pipe openings, door jambs, keyholes, etc. Also read descriptive text on page 44.

Fire Protection

During an air raid fires will probably be started as a result of bombing. The enemy is almost certain to use incendiaries. Air attacks may be made with high-explosive or incendiary bombs, or both. High-explosive bombs dropped upon any built-up area are quite often followed by fires. Upon detonation, a high-explosive bomb is immediately destroyed and any resulting fire may be attacked in the usual manner. The *incendiary bombs* present a simple problem, since the material of which this bomb is composed is not immediately consumed after the bomb is ignited and will continue to burn for a period up to 20 minutes, the time depending upon the size of the bomb. So intense is the heat generated by these bombs that unless a bomb which has penetrated a building is promptly attacked or removed it may quickly burn through one floor and drop through to the floor below, thus spreading the fire. For this reason, it may be best to deal with the burning area and the bomb at one and the same time. Use a spray of water to hasten the burning of the bomb and a stream to put out any fire in surrounding areas.

The electron bomb or, as it is more commonly known, the magnesium bomb, is by far the most effective used in modern warfare. It consists of a case of magnesium alloy which contains a charge of thermit. Metal fins are provided at one end to steady the bomb in flight and to cause it to strike on its nose. Upon impact, an ignition device sets off the thermit which burns with sufficient heat to ignite the magnesium case, which flames with a sputtering action throwing molten metal about setting fire over a rather large surrounding area. These bombs are about 14 inches long and weigh about 2½ pounds. A large bombing plane can carry 1000 such bombs. They are usually released from 20 to 50 at a time and

[*Continued on page 48.*



INCENDIARY BOMB

Outside appearance, at left. Diagram of interior and parts, at right. Read the text carefully on pages 46-50, and see illustration page 51.

they scatter like shot. Released at an altitude of some 20,000 feet, they develop enough force to penetrate a roof easily.

The thermit bomb is usually employed against exceptionally well planned defense activities. It is composed of a thin, non-inflammable case, filled with thermit that is ignited by a "first fire" mixture. These bombs are made in sizes ranging from 10 to 132 pounds each. Near the head of these bombs is a series of escape holes. Upon impact, the thermit is ignited, developing a fierce heat of over 4500 degrees Fahrenheit, forcing the flame out the escape holes. It is believed that both Japan and Germany are prepared to use thermit bombs of both the 33- and 132-pound class.

Scatter type bombs usually contain white phosphorus. Those used by the Japanese weigh from 33 to 132 pounds. They consist of a thin steel container filled with white phosphorus and a burster charge. When exploded, the white phosphorus is showered in small particles over an area of from 50 to 100 square yards. These particles ignite upon contact with the air and will begin to burn shortly after leaving the bomb shell. As incendiary agents they are very limited inasmuch as they ignite only dry and flimsy materials such as dead grass, leaves, etc. The greater danger from these bombs is the possible contact of the particles with the human body, for they produce serious, painful and slow-healing burns. When white phosphorus burns it produces an intense white smoke which is harmless, although it may cause mild throat irritation and some coughing. Because of their appearance and the irritation they cause, these bombs can have such a demoralizing effect on unsuspecting and uninformed civilians that panic may easily result. *See illustration on page 47.*

It is most difficult to fight incendiary bombs unless some preparatory work is done before the attack. Keep attics clear of all junk and inflammable materials. If at all possible roof and joists should be

treated to resist flames. Paint will do no good but a heavy coat of ordinary whitewash will help some. Better than whitewash is a coating made of 1½ pounds of china clay and 1½ pounds of water glass mixed to a syrup to which is added a pint of water. This coating should be applied very liberally. If the structural strength of your house will permit it, a ¾-inch layer of plaster or a 3-inch layer of sand, earth, or ordinary furnace ashes is effective. Assemble equipment to fight incendiaries. Place it where you can quickly get it on your way to the top floor or attic. You should have the following: flashlight, heavy gloves, heavy goggles, two buckets of dry sand, a light-weight, long-handled shovel, several buckets of water, and a hand-pump tank.

Always approach a bomb in a crouching or crawling position. Dump the sand far enough from the bomb to allow a full-arm swing toward the bomb. Then try to cover the bomb with dry sand to confine its action so that you can get close enough to it to scoop it up on the shovel. When the bomb is under fair control, scoop it up on the shovel, first righting the bucket and put about 3 inches of sand in the bottom. If the bomb can be dropped from a window to a place where it can burn out without harm—*get rid of it that way immediately!* If you can't dispose of it that way, put it in the bucket and cover it with sand. Then lift the bucket on the shovel and carry it out of the house.

To fight a bomb with water you will need someone to help you. You will also need special equipment, including a hand-pump tank. Have your assistant pump the tank at a rate of about 80 strokes a minute to keep a strong enough pressure to throw a jet of water 30 feet and a spray at least 15 feet. *Jet* the water on surroundings and *spray* it on the bomb itself. Remember that you will need an abundance of water to fight bombs and fires, so keep an adequate supply always on hand. In an emergency

you can use the contents of hot water tanks or heating boilers. *Never, never throw water on a bomb! It will scatter with explosive force if you do!*

If control of the bomb seems doubtful, turn in a fire alarm. In the meantime, continue fighting the fire until help arrives or your supplies are exhausted. *Prepare now for any emergency! Learn how to call for fire aid. Learn the location of the nearest fire alarm box.*

Fire Extinguishers

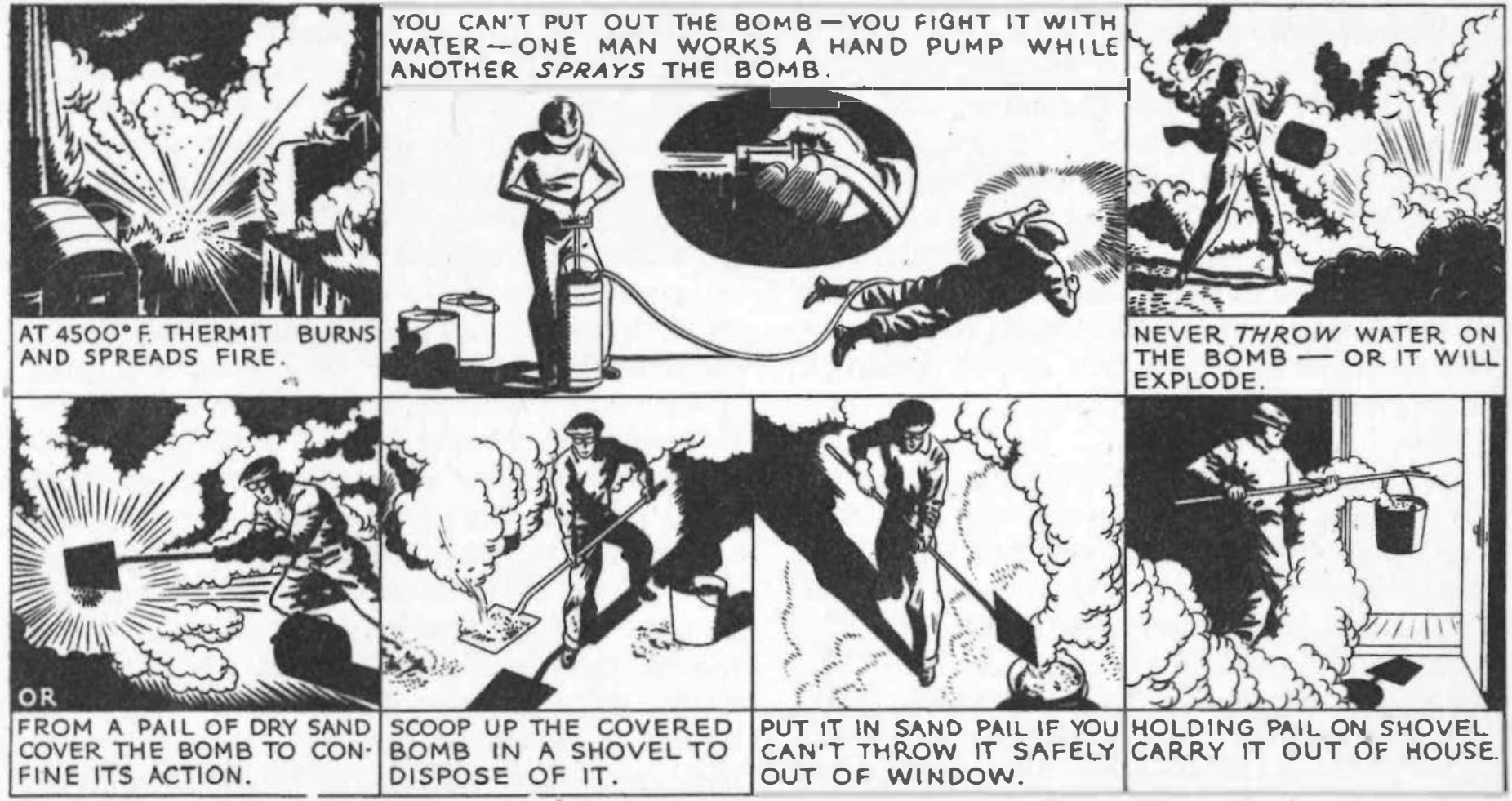
Many homes and public buildings are equipped with fire extinguishers these days. They will be quite useful in combatting fires caused by incendiary bombs. However, for putting out the bomb itself, they may *not* be suitable. Read the label on your extinguishers to see whether they are of the *carbon tetrachloride* or *soda-acid* type. A carbon-tetrachloride extinguisher cannot under any circumstances be used on magnesium bombs. It will not only be ineffective but dangerous gases may be generated. An extinguisher of the soda-acid type may be used safely and effectively on bombs. You can get a good spray effect by placing the thumb over the nozzle.

Remember that one extinguisher will not be enough to put out a magnesium bomb. It is better to fight the bombs with sand and water and to save the extinguisher for surrounding fires.

High-Explosive Bombs

High-explosive bombs are divided into two classes: *demolition* bombs and *fragmentation* bombs. Demolition bombs may weigh from 50 to 4000 pounds. Their main purpose is to reduce and destroy targets such as buildings, factories, bridges, docks, and the like. They are seldom used against civilians, but due to bad aim or poor visibiiity they may affect civilians. When a bomb strikes its objectives it penetrates any material in its way. A bomb penetrates

[*Continued on page 52.*



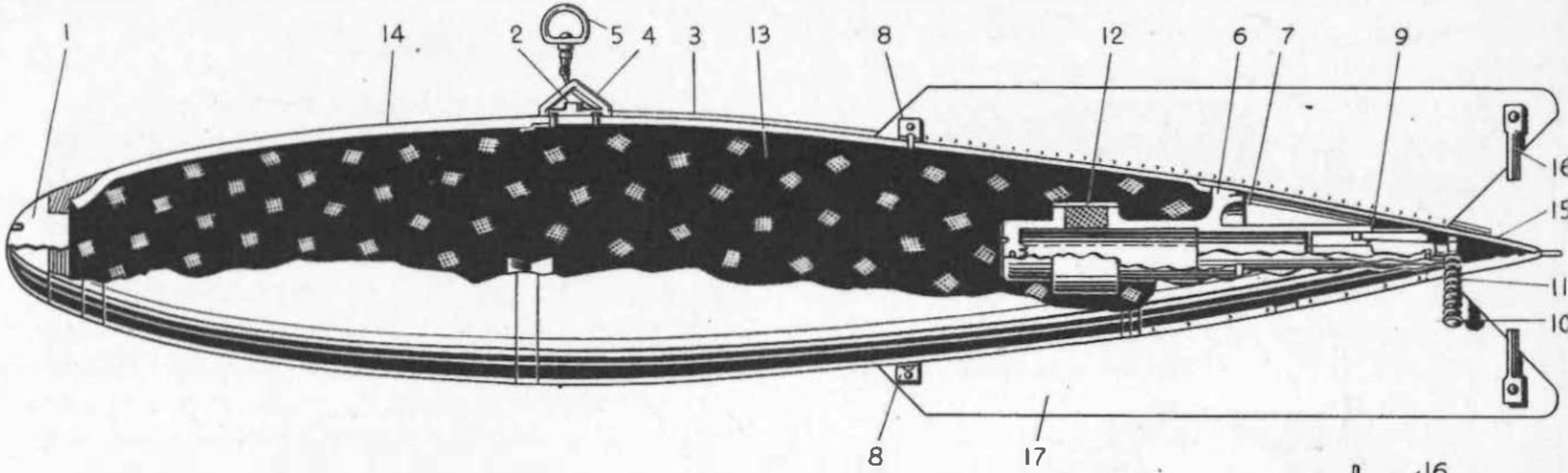
IMPORTANT STEPS IN FIGHTING AN INCENDIARY BOMB

Be sure to read full description on pages 46-50.

Continued from page 50.]
a building according to the height from which it is dropped and the construction of the building which it hits. When a bomb falls inside a building or within a confined space it produces a blast wave—a blast of compressed air—which will break windows and blast walls. When the explosive force has been expended within a given area, a suction wave of air returns to the center of the explosion. This after-wave is very dangerous.

The blast of a bomb which falls in a narrow street may kill without apparent wounds by tearing the lungs and rupturing the abdomen. These casualties will be shown only by an oozing of blood from the mouth and nose. If such bombs are constructed with delayed-action fuses, they bury themselves deep into the building or ground before exploding. On detonation they produce a violent shock wave which is dangerous to foundations and to buildings constructed of brick. These bombs are particularly dangerous to utilities buried underground. Bombs with contact fuses explode upon contact with buildings or the ground. *(See illustration on page 53.)*

Fragmentation bombs are intended primarily for use against personnel on the ground. They usually vary between 15 and 30 pounds in weight. Their blast effect is of little danger as compared to the demolition bomb, but their flying fragments are dangerous for hundreds of yards around the point of contact. These pieces of metal have an extremely high velocity—a piece the size of a pea may fracture a long bone. Fused in the nose only, these bombs are equipped with instantaneous action detonators so that an absolute minimum of fragments will be buried in the ground. To avoid danger from these bombs stay indoors as much as possible. If you are in the open when a bomb of this type strikes, throw yourself as flat as possible against the ground and protect as best you can the back of your head. *(See illus. on page 54.)*



1. Nose plug
2. Arming wire guide
3. Arming wire
4. Suspension lug
5. Arming wire swivel loop
6. Rear bushing
7. Adapter booster
8. Fin securing lugs
9. Primer detonator assembly
10. Arming pin
11. Arming spring
12. Booster charge
13. High-explosive charge
14. Bomb body
15. Tail cap
16. Fin braces
17. Fin

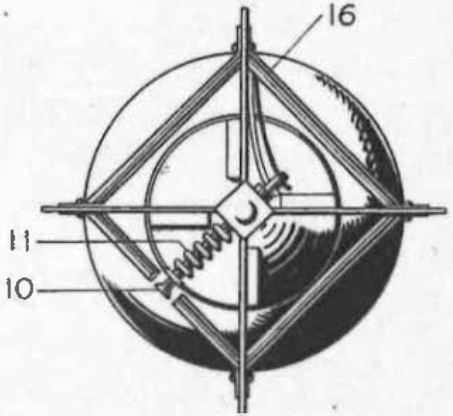
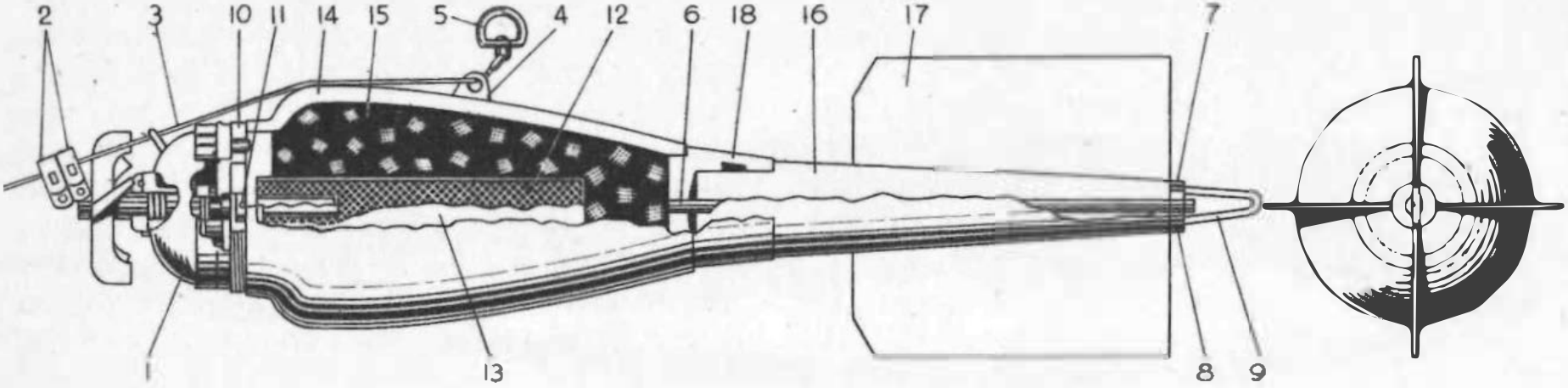
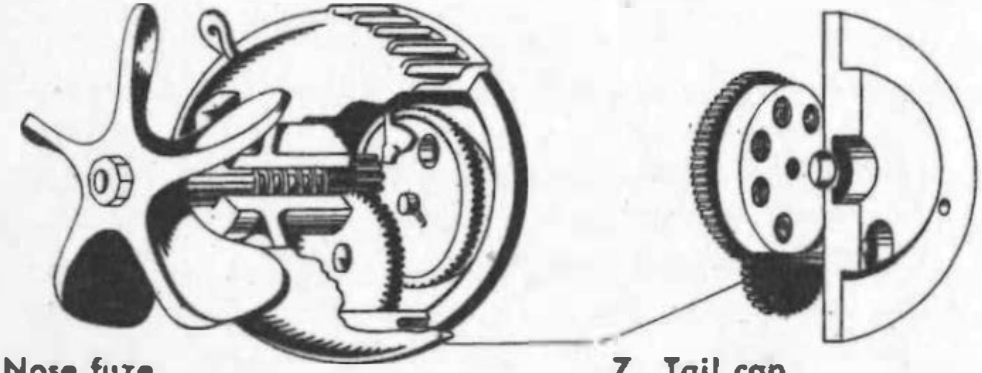
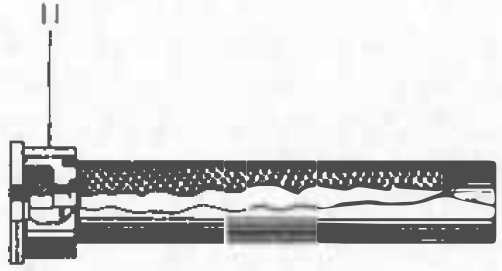


DIAGRAM OF DEMOLITION BOMB ***(end view at lower right)***







1. Nose fuze
2. Connectors
3. Arming wire
4. Suspension lug
5. Arming wire swivel loop
6. Tail bolt
7. Tail cap
8. Tail suspension lug disk
9. Tail suspension lug
10. Nose adapter
11. Prime detonator
12. Booster charge
13. Booster casing
14. Bomb body
15. High-explosive charge
16. Tail
17. Fin
18. Tail adapter

DIAGRAM OF FRAGMENTATION BOMB ***(end view at upper right)***

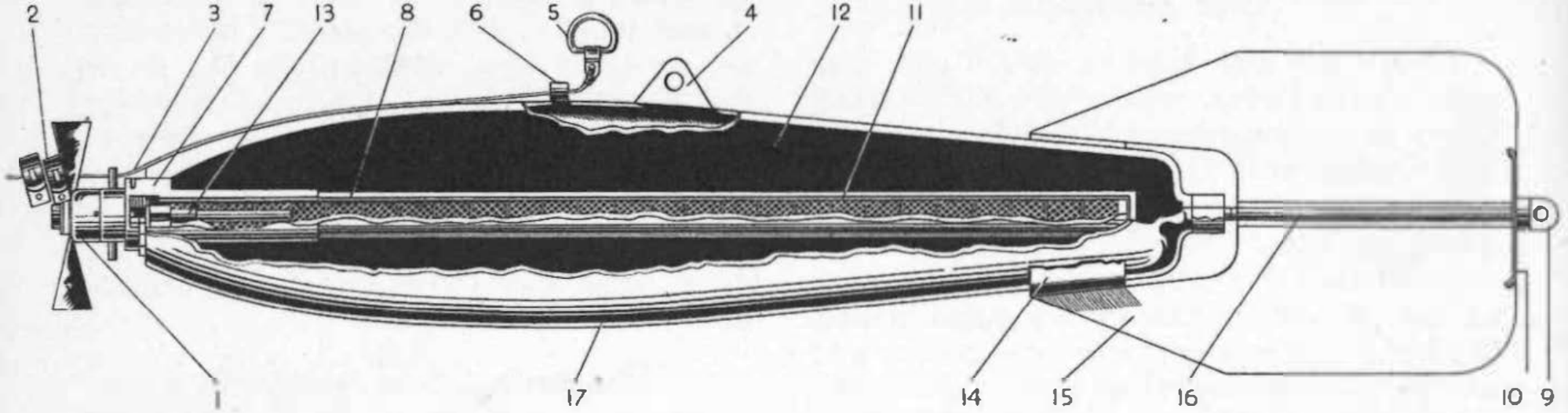
Gas Bombs

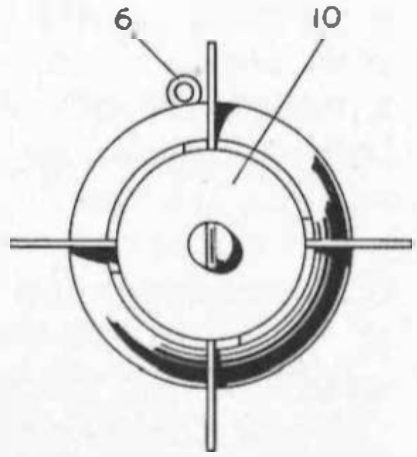
Bombs are also used to spread gas. The agents most likely to be projected by small bombs are Mustard and White Phosphorus. The explosion of the bomb throws the gas over an area approximately 20 feet in diameter. Bombs of 100 pounds or larger may be used to discharge either persistent or non-persistent gases. Any point within the burst of the gas shell is dangerous and any person within such an area will become a casualty unless proper protective measures are taken immediately. There is also a danger to persons who are down-wind from the bomb burst. Non-persistent gases, such as chlorine, upon the explosion of the bomb are borne down-wind at the speed of the wind, becoming thinned out till too weak to cause casualties. The distance down-wind that the gas cloud is effective varies.

Upon the explosion of the bomb, persistent gases, which were in liquid form in the bomb case, change immediately into a gas and a portion is so finely atomized that it, too, travels with the wind. The remainder, in liquid form, scatters over the ground and changes into gas, the rate depending upon the temperature. There is always a dangerous area down-wind immediately after the burst of a Mustard Gas bomb. Until vaporization is complete, an area down-wind will continue to have a constant flow of Mustard vapor.

Planning and Vigilance

Advance planning, with a complete understanding of the emergency to be faced, is absolutely necessary to successful defense. Simplicity of plan is all-important in every defense effort. Following an air raid there will usually be a tendency to relax on the part of the general population. Vigilance and alertness is particularly important at such times. Don't make the tragic mistake of being caught napping. You may pay for your carelessness with your life or the lives of your loved ones.





1. Nose fuze
2. Connectors
3. Arming wire
4. Suspension lug
5. Arming swivel loop
6. Arming wire guide
7. Outer booster case
8. Inner booster case
9. Tail suspension lug
10. Fin stiffening plate
11. Booster charge
12. Gas filler
13. Primer detonator
14. Fin cone
15. Fins
16. Tail bolt
17. Bomb body

DIAGRAM OF GAS BOMB *(end view at lower right)*

Wartime First Aid

MODERN warfare directly affects every person, soldier and civilian, man, woman, and child. With the use of airplanes to bombard and machine-gun civilian populations, it becomes necessary for every man, woman, and child to be ready to render first aid. Your training and ability to function as a first-aid worker will contribute not only to lessening pain and suffering but to preserving the public's morale, and so will hasten the defeat of the foes now seeking to destroy us. You must be ever alert to cooperate with your fellow-citizens in everything you can possibly do to aid the United States and her allies. Be determined always to perform your duties faithfully in giving first aid to your patients—those who are helpless and dependent on you; and to the doctors when they need you. Bear continually in mind the fact that no injury is too slight to require immediate and most careful attention to forestall complications.

The following pages, taken from the *Handbook of First Aid* published by the U.S. Office of Civilian Defense and prepared in cooperation with the American Red Cross, are not intended to furnish complete or adequate first-aid instruction, but are only for EMERGENCY REFERENCE. By all means secure the Official Handbook from your local Defense Council, or some other suitable complete work. Omissions from the Handbook in the following pages are indicated by * * *.

Definition of First Aid

First aid is the immediate temporary care given by a trained person in case of accident or sudden illness before medical aid is available. It is given in order to prevent death or further injury, to relieve pain and counteract shock. To become *expert* in first aid requires many hours of training and practice.

General Rules in All First Aid

1. Keep the victim lying down.
2. Give immediate attention to serious bleeding and asphyxia.
3. Examine for injuries not clearly seen.
4. Keep victim warm.
5. Fill out identification tag at once.
6. Make injured comfortable.
7. Keep the crowd away.
8. See that someone calls a doctor.
9. Do not give an unconscious person anything to drink.
10. Do not permit casualty to be moved unless it is necessary and until it is safe.
11. When a casualty has several injuries, treat the most serious first, especially if it involves severe bleeding.
12. Remember you are a first aid worker and not a physician.

The Care of Wounds

The chief *dangers* of wounds are severe *bleeding,* the introduction of *infection* and the development of *shock*. Bleeding should be controlled at once, for profuse bleeding may be followed by shock or result in lowered resistance to infection. Serious infections frequently develop in neglected wounds. All wounds should, therefore, be treated by a physician.

Make no attempt to clean or wash the wound. Do not apply any antiseptic, disinfectant, or any other material such as ointments, salves, oils, or chemicals. Simply cover the wound with sterile gauze, fix it in place with bandage or adhesive plaster, and take the injured person to the doctor. The gauze used must be large enough to cover the wound and a margin of skin on all sides. It must be sterile, and therefore should be from a freshly opened package. The surface of the gauze to be placed against the wound must not touch anything before it is applied. Do not lift or slide the dressing about after application.

Casualties with injuries which appear to be minor should be directed to a casualty

station. Casualties with serious injuries must be transported by stretcher to a first aid post or sent by a doctor directly to a hospital by ambulance. Because injuries may appear minor on the surface but be severe in the depth, you should not permit an injured person to go home until he has been seen by a doctor.

Treatment for shock is important, especially if hemorrhage is severe. Lacerated and crushing wounds are often accompanied by severe shock. *See page 65.*

If a limb is severely torn or crushed it should be immobilized with a traction splint before the victim is moved. Only moderate traction should be used in these cases.

Head Injuries

Head injuries are common war wounds. Severe injury may be caused by a blow on the head from falling timbers or flying debris, or the victim may be thrown against a wall or to the ground by the force of an explosion in such a way as to cause severe injury to his head. The injured person may be unconscious or dazed. Shock is usually present. He often resists efforts to help him. He may tear off bandages or clutch at the first aider as he tries to treat him.

In any case of head injury the brain may be damaged. The skull may be fractured. If this has occurred, blood-stained fluid may leak from the ears.

If a casualty is dazed or unconscious and there is no obvious injury, examine the head first. Look for bruises or bumps. Even persons with slight or doubtful head injuries must be seen by a physician as soon as possible.

Wounds of the scalp are common in warfare. Because they bleed profusely they are terrifying to the beginner in first aid.

First aid.—If there is a wound of the scalp apply a sterile compress to the wound and bandage it firmly in place. If there is bloody or watery discharge from the ears do not plug them with cotton and do not try to clean them. Simply apply a sterile dressing over the ears. Keep the victim

warm and quiet. Keep him lying down with his head slightly elevated. *Fill out identification tag promptly,* for the victim may lose consciousness. Transport to the hospital on a *stretcher.*

Internal Injury

Serious injury may occur in the abdomen or in the chest as a result of penetration by a missile or crushing. Penetrating wounds about the hip joint or buttocks often cause internal injuries. Internal injury is always accompanied by internal bleeding and shock. The casualty may tear at his clothing in an effort to get more air. He may complain of thirst. If the wound is in the chest he may cough up blood.

First aid.—Treat for shock, which is always present. Keep the victim warm. Never give anything to drink. If the injury is in the abdomen keep the victim lying down, but if it is in his chest prop up the head and shoulders. All cases of internal injury must be transported on stretchers to a hospital as soon as possible. A casualty suffering from chest injuries should be propped up on the stretcher in a semisitting position, leaning toward the injured side. A casualty suffering from an abdominal injury should be transported on his back with legs slightly bent at the knees. No attempt should be made to replace protruding organs. Call a doctor.

Injury to the Face

Probably no injury is so terrifying as an injury to the face. When facial expression is lost the casualty appears to lose his identity as a human being. Bleeding is often profuse. Blood may run into the mouth or nose and strangle the victim. The jaw may be broken, in which case the tongue tends to fall backwards and obstruct the air passages.

In treating victims with facial injuries the first aid worker would do well to remember the miracles accomplished through plastic surgery. Although facial injuries are very gruesome, they are not the most dangerous to life.

First aid.—Determine whether the tongue has fallen into the back of the throat. If it has, grasp it in the fingers and pull it forward. Turn the victim onto his abdomen so that the blood will not run into his nose or mouth. Apply a liberal number of sterile gauze dressings to the wound and bind in place with a triangle bandage as described below. If the tongue falls backward pull it forward and apply a bandage to the chin.

Dressings and Bandages

This section is greatly abridged from the OCD Handbook.

The Triangle Bandage

The triangle bandage is very useful in first aid. It may be used to keep splints or dressings in position, as a sling to support an injured part or as a tourniquet, thus:

1. As an open triangle spread out to its full extent.
2. As a narrow folded bandage (cravat). Fold the wide cravat bandage once again, long edge to long edge.
3. As a sling to support the forearm.

Slings

The large arm sling is used to support the forearm and hand. Spread out a triangle bandage on the front of the casualty with the point toward the injured arm. Pass the upper end around the back of the neck from the sound side so that it appears over the shoulder of the injured side. Carry the point behind the elbow of the injured arm; place the forearm across the middle of the bandage. Then carry the lower end up around the arm and tie to the upper end. Bring the point forward around the elbow and pin to the front of the sling.

Slings may be improvised (1) by pinning a coat sleeve to the front of the coat, (2) by turning up the lower edge of a coat and pinning it to the front of the coat, or (3) by passing the hand inside the coat and then buttoning it. * * *

Hemorrhage (Bleeding)

Hemorrhage is a bleeding condition which sounds, looks and is serious. Persons with hemorrhage must have priority treatment and transport.

Although the presence of blood requires immediate attention, it is in itself a poor indicator of the severity of the wounds. A little blood goes a long way and may make a minor injury look frightening. On the other hand a severe wound, a torn off limb for example, may bleed very little because of shock.

Many people think the only way to stop bleeding is to apply a tourniquet. They fail to consider its dangers. They would be horrified to know of the number of limbs lost or paralyzed because tourniquets have been left in place without being loosened every 15 minutes.

A pad over the wound and a firm bandage combined with elevation of the limb will almost always stop bleeding effectively.

Kinds of Bleeding

A. *Bleeding from artery*—blood *spurts* with each beat of heart unless cut artery is deep under tissues, in which case blood will well up.

B. *Bleeding from veins* will be a *steady flow.*

C. Bleeding from injury to very small vessels—*oozing.*

Control of Bleeding

A. *Bleeding from artery.*

1. *Pressure points.*—Pressure points are points where arteries lie close enough to bones to permit sufficient compression by the fingers to control bleeding. Hemorrhage may be controlled by pressure on these points until pressure dressings can be applied to the bleeding wound.

(*a*) *For bleeding from the scalp and forehead,* press with finger or thumb just in front of the opening of the ear on the side nearer the bleeding.

(*b*) *For bleeding from the face below*

the eyebrows, press against the side of the lower jaw just in front of the angle of the jawbone on the bleeding side.

(*c*) *For bleeding from the neck or cut throat,* place finger tips on the neck beside the windpipe on the bleeding side, and with thumb behind the neck, press toward backbone with ball of fingers.

(d) For bleeding from the shoulder or armpit, tip the head toward the shoulder on the injured side and press down with thumb at side of neck, just behind the collar bone.

(*e*) *For bleeding from the arm,* press with fingers on inner side of the arm just below armpit.

(*f*) *For bleeding from the leg,* put victim on his back and press downward with straight arm pressing the heel of the hand into the middle of the groin.

2. *Tourniquet for arterial bleeding:*

(*a*) *Materials.*—A cravat bandage or a strip of cloth at least two inches wide folded with enough thicknesses to prevent cutting into skin (*never use wire or any similar materials*), and a stick about 6 inches long.

(*b*) *Application.*—Wrap folded cloth twice around arm a hand's breadth below the armpit or around leg a hand's breadth below the groin and tie with single knot. Place stick on knot, secure it with square knot and twist. Make certain the tourniquet stops the bleeding. Prevent stick from untwisting by tying ends of stick to the limb with bandage or handkerchief. Record the time the tourniquet was applied by writing the hour and minute on the tourniquet with a pencil.

(*c*) *Precautions.*—i. *Loosen tourniquet at end of 15 minutes.* If dressing over wound becomes more bloody, tighten tourniquet for another fifteen minutes. If dressing does not show new bleeding, leave tourniquet loose, but in place, ready for use if bleeding starts again. Indicate time of loosening and tightening on tourniquet.

ii. Always mark large letters *"TK"* on victim's forehead with skin pencil to indi-

cate presence of tourniquet, so it may be loosened by those receiving victim.

iii. *Never apply a dressing over a tourniquet.*

iv. Never transfer responsibility to some one else (nurse, stretcher bearer, ambulance driver) until you make sure he knows a tourniquet has been applied.

(*d*) If part of a limb has been blown off, tightly apply a tourniquet close to the end of the stump and do not remove it.

B. *Bleeding from veins.*

1. Elevate a bleeding arm or leg unless it is fractured.

2. Apply sterile dressing over the wound and tie firmly in place. *Remember not to touch surface of gauze to be placed over wound.* If no sterile dressing is at hand, use cleanest cloth available, preferably inside surface of freshly laundered handkerchief or towel. If a fracture is present stop the bleeding in this manner and then give first aid for the fracture.

C. *Bleeding from small vessels.*—Treat as a simple wound. Apply a bandage compress so that it presses firmly on the wound.

Burns

Burns in warfare may be extensive and serious. They may be caused by incendiary bombs or shells, by contact with live wires, or they may occur in burning buildings.

First aid.—The first need is to reduce pain and avoid shock. If a doctor is immediately available, apply a sterile dressing over the wound without removing clothing, wrap the victim in a blanket to keep him warm and call the doctor.

If a doctor is not available, carefully cut the clothing away from the burn. Avoid tearing or pulling. Do not try to remove bits of clothing or dirt which may be stuck to the burned area. Spread tannic acid jelly on a gauze compress, cover the burn, bandage lightly, wrap the victim in blankets and transport immediately to the hospital.

Persons with burns should be treated for shock.

Ointments, salves, or greasy substances should never, under any circumstances, be put on a burn. These materials must be removed before proper treatment can be given by the doctor, and because they will not dissolve in water their removal is very difficult.

Chemical burns.—

1. Use large quantities of water to dilute and wash off the chemical, followed by usual first aid for burns.
2. Phosphorus burns.—See page 79.

Shock (Collapse)

The term "shock" must not be confused with apoplexy or stroke, which is spoken of as "shock" in some sections of the United States.

Shock is present to some extent in all injuries. It is a serious condition which frequently results in death when the injuries would not of themselves prove fatal. It is a depression of the nervous system and the functions of the body. There is a loss of body heat and a decrease in the amount of circulating blood. To compensate for this the heart beats faster. Severe shock may occur in the absence of conspicuous manifestations such as hemorrhage.

The first aid worker must not become so intent on the care of an injury that the victim develops severe shock because simple preventive measures were omitted. The first aid measures for the prevention of shock are so simple and commonplace that the inexperienced might see little harm in omitting them. But, simple as they are, shock treatment is vitally important for *every* case.

As the amount of blood in circulation diminishes the brain does not get enough blood. Keep the casualty lying down so that the blood will go to the heart by gravity and may be pumped to the brain. Apply blankets and hot water bottles to prevent loss of body heat. This does not consist merely of piling blankets on top of an in-

jured person—it is important to have as many thicknesses underneath him. Warm drinks (unless the casualty is unconscious) are beneficial. Do not remove more clothes from the victim than necessary to treat his injury. Loosen clothing at the neck, chest and waist.

Shock probably causes more fatalities than any other condition. Do not underestimate its dangers.

Symptoms—Pale (especially about the face and lips), *chilly, clammy, sweat,* nausea, mentally confused, *weak rapid pulse,* irregular breathing. May be unconscious. (In injured women, do not let make-up confuse you. Remove it.)

First aid.—

1. Lay flat with *head low* and *feet raised.*
2. Put *blankets* and *wraps under* and *over victim.*
3. *Keep warm with hot water bottles* but do not burn.
4. Give warm and sweetened drinks, but not if the person is unconscious or injured internally.
5. Do *not* give alcoholic drinks.
6. *Get a doctor* without delay.

Fractures

Definitions

Fracture—a broken bone.

Simple fracture—bone broken but skin is not.

Compound fracture—bone broken and skin broken. All fractures caused by bullets, bomb fragments or other missiles are compound.

Splint—an appliance made of wood or metal to keep in place and protect an injured part.

Fixed traction splint—a splint which protects and prevents motion of broken bones by exerting pull from the ends of the bone.

Immobilize—to make broken bone fragments immovable by use of splints.

Displacement—bone fragments out of normal position.

Overriding—overlapping of the ends of a broken bone. This is caused by contraction of muscles and results in shortening of the limb. It may take place shortly after the fracture and may be avoided by early application of a fixed traction splint.

Recognition of Fractures

1. *Pain* and tenderness.
2. Partial or complete *loss of use.*
3. *Deformity*—may be pronounced or very slight.
4. *Swelling* and discoloration—frequently not present for several hours.
5. Sense of *grating* with motion.
6. In compound fractures, bone may or may not protrude through skin wound.

The Care of Fractures

In making an examination to determine whether or not a fracture has occurred, *be very gentle.* Care must be taken not to move the broken fragments. Sometimes the first touch of an injured limb may give one the feeling of broken edges grating together.

If *fracture* is *suspected, handle* the case as if *a fracture were present.* Large nerves and blood vessels run close to bones. If these should be cut by the sharp edges of the broken bone, paralysis or bleeding will follow. *Pain* and *shock* will be increased *by* the *moving* of bone *fragments.*

It is important to keep persons with fractures *motionless* until the limb has been splinted. Moving a person with a fractured bone without splints may increase shock and result in death. Traction splints most effectively protect the victim from these dangers. Deaths from fractured thighs were halved in the World War after traction splints were applied on the battlefield.

"Splint them where they lie." If you don't know how, get someone who does. If there is a compound fracture, *get a doctor.* If none is immediately available, expose the injury by carefully *cutting* away the

clothing without moving the broken bone. Do not pull or tear away clothing. If there is bleeding it must be controlled. Apply sterile dressing, moving the injured part as little as possible while bandaging. The fracture should then be splinted.

Fracture of Spine

Broken backs and *broken necks* are so dangerous that they require special first aid measures. Improper care may result in permanent paralysis or death of a person with these injuries.

Broken neck.—The victim, if conscious, will complain of pain in the neck. Many cases will hold the head and neck stiff and motionless, but some will be completely relaxed and have no control of the head. Injury to the spine may cause paralysis. Can the injured move his hands? Try his grip (both hands). Record any paralysis or weakness on the identification tag.

Keep him lying in the position in which he was found and prevent motion of the head. Do not give him water as he may move his head to drink. Cover him with blankets or wraps. Get a doctor.

If a victim with a broken neck must be moved get a door, shutter, or wide board and place it beside him with the end at least 4 inches above the top of his head. The board should be at least 15 inches wide and 5 feet or more in length.

One person kneels at the victim's head, holding the head between his two hands and steadies the head so that the head, neck, and shoulders move as a unit with the body without bending. One or more assistants grasp the victim's clothing at the hips and shoulders and carefully slide him sideward onto the board or door so that he remains face upward, arms at his sides, head, trunk, and extremities on the board. The head must not be raised or the neck bent forward or sideways. The arms may then be folded over the chest and held together with safety pins or bandage. Several straps or triangle bandages should then be placed

around the victim and the board to hold him in place during transportation. A folded sweater or coat should be placed around his head to hold it in position, or socks filled with sand or earth may be used. The board is then picked up and the victim transported as though he were on a stretcher.

If a victim with a broken neck is found lying on his face a door or wide board should be placed beside him as described above, and the arm at that side brought above the head. The person kneeling at the head grasps it firmly at the sides covering the ear and the back end of the jaw with his hands. Assistants grasp the victim's clothing at the shoulders and hips and gently roll him onto the board, the man at the head steadying the head so that it is kept in line with the rest of the body. Moderate traction should be exerted by the hands holding the head. The head must not be allowed to tilt either forward or backward.

Broken back.—When the backbone is broken below the neck, the only symptom may be pain in the back. If the spinal cord is damaged or under pressure, the victim may be unable to move his feet, but can move his hands.

Any move which doubles the injured man forward may cause death or paralysis for life. He must, therefore, be kept motionless in the position in which he is found. Get a doctor. *Keep him warm. Reassure him. Do not let him move.* If necessary to move a victim found on his back, place a door or wide board beside him as described above. Raise the arm on the side toward the board so that it is straight above the victim's head. Several assistants kneel alongside the board opposite the victim and, grasping his clothing on the far side, they roll him slowly and gently towards them so that he lies face downward on the board. If a door is used the assistants kneel on the door, leaving enough space for the victim. In making this roll the body must

move as a unit. There should be no twisting or jerking. Then bend one forearm so that the head will rest on it.

If a casualty with a broken back is found lying on his belly the door or board should be placed beside him. Assistants grasp his clothing and slide him onto the board, one person guarding his face. He remains in a face-down position. Several straps or bandages should then be placed around the victim and the board to bind him firmly in place during transportation.

Victims with broken backs should, if possible, be moved only on a rigid support. A blanket may safely be used if no rigid support is available. If the victim is on his back he must be rolled onto a blanket. If the victim is found lying on his belly he must be slid onto the blanket. If the victim is found on his side or in a crumpled condition he must be carefully straightened out. With one person at the feet, a second at the head, and one in the middle, the victim is rolled onto his back in the case of a broken neck and onto his belly in the case of a broken back.

If both the neck and back are broken, handle as a broken neck.

In case of doubt, *handle a suspected fracture as if it were actually a fracture.*

* * * *

Moving Fracture Cases from Points of Danger

It may be necessary to move a fracture victim from a spot of great danger in order to save his life. An example might be a person in burning wreckage, close to a wall which is about to collapse, near a bomb which may explode, or in the way of traffic which must be kept moving. Under such conditions the victim should be prepared for removal from the danger zone as follows:

1. *Fracture of arm or collar bone.*— Place a sling in position, lay the forearm across the chest with the fingers toward

the other shoulder, complete the sling. Then place a broad bandage gently but firmly around the body and the arm. Move the person in a lying position on a stretcher.

2. *Fracture of leg.*—Tie the feet and the knees together with bandages, letting the good leg support the broken one. If possible, get a board the length of the leg and bind it to the side of the fractured leg with wide bands going around both legs and the board. Transport in a lying position with great care.

Remember that these procedures are not best for the injured and are to be only used in emergencies where it would be unsafe to delay long enough to apply a fixed traction splint. As soon as the victim has been moved to safety a fixed traction splint should be applied.

Dislocation.—Do not try to reduce a dislocation, but immobilize by splinting and take to a physician. Dislocated shoulder is best immobilized with a Murray-Jones traction splint.

Artificial Respiration

Common Causes of Arrested Breathing or Asphyxia

1. Electric shock.
2. Carbon monoxide poisoning (illuminating gas, exhaust gas, or coal gas).
3. Drowning.
4. Concussion from explosions, or from blows on the head or abdomen.
5. Suffocating or strangulation due to external obstruction of the air passages.
6. Foreign bodies in the throat or windpipe, which obstruct the air passages.

A person who has stopped breathing from any of these causes must be made to breathe at once or he will die. Do not waste time on unnecessary things but get to work immediately, using the prone pressure method of artificial respiration. Get the victim into fresh air, clear the mouth or throat of any obstructions, and proceed as described on the following pages.

Standard Technique of Prone Pressure Method

1. Lay victim on his belly, one arm extended directly overhead, other arm bent at elbow. Turn face toward extended arm, resting the head on hand and fingers of bent arm so that nose and mouth are free for breathing and may be seen by the operator.

2. Kneel straddling the victim's thighs, with your knees just above his knees, adjusting your position so that you can comfortably lean forward and place the palms of your hands on the lower part of his chest with the little fingers resting over the lowest ribs. Your wrists should be about four inches apart.

3. With your arms held straight, swing forward slowly, so that the weight of your body is gradually brought to bear upon the victim. Your shoulders should be directly over the heels of your hands at the end of the forward swing. This operation should take about two seconds. Do not bend your elbows.

4. Quickly swing backward so as to remove pressure completely.

5. After two seconds swing forward again. Repeat steps 3 and 4 regularly 12 to 15 times a minute.

6. Continue artificial respiration without interruption until natural breathing is restored—for hours, if necessary—or until a physician declares victim dead.

7. Have an assistant loosen tight clothing about the victim's neck, chest or waist. *Keep victim warm.* Do not give him any liquids by mouth until he is fully conscious and able to swallow safely.

8. Keep victim lying down after he revives to avoid strain on his heart. He should be given hot tea or coffee to drink after he is fully conscious.

9. Resuscitation should be carried on as near as possible to where victim received his injuries. Should it be necessary to move the victim from the point of the accident,

artificial respiration should be carried on during the time he is being moved. He should not be moved again until he is breathing normally, and then moved only in a lying position.

10. After a temporary recovery of respiration the victim may stop breathing again. He must be watched and if natural breathing stops, artificial respiration must be resumed at once.

11. In carrying out resuscitation it may be necessary to change operators. This change must be made without losing the rhythm of respiration.

The pressure exerted by the forward swing must be regulated to meet the comparative sizes of operator and victim. Too much pressure is harmful, and the tendency is always to press too hard in an effort to make the victim breathe. The pressure empties the used air from the chest. An inrush of fresh air takes place in the rest interval when no pressure is being exerted.

Pressure must be in the correct place to force air from the chest. Make sure that your hands are in the proper position and that they do not get too low.

Be sure that the nose and mouth are free of obstruction so that air can pass in and out. If frothy bubbles collect in the mouth, they should be wiped out by an assistant.

Keep the victim warm. Blankets, wraps, or even newspapers should be wrapped around him. You can continue to work through this covering without exposing the victim to the wind.

Persistence may save a life!

Only by continued practice will you be able to give artificial respiration effectively under the excitement of an emergency. Therefore you should practice regularly on any willing subject. *Never give up.* Many persons have been revived after hours of work. Alternate with other workers when you are fatigued. Stop only when the victim has revived or the case has been taken over by a physician.

Transportation of the Injured

Do not move an injured person if it is unsafe to do so. Before moving him be sure that (1) bleeding is stopped; (2) he is breathing; (3) he is warm; (4) all fractures have been splinted.

The journey to the hospital is frequently the one thing that accident victims remember. Rough, careless or unnecessary handling may cause shock and result in death. *Be gentle and go slowly.*

Stretcher Bearing

All persons trained in first aid should be thoroughly drilled in stretcher bearing. In the event of a civilian war disaster, persons trained as stretcher bearers will assist Rescue Squads by transporting casualties to the nearest First Aid Post, Casualty Station or other place of safety.

Lifting an injured person onto a stretcher is the first step in transportation. Get all the help you need. Have the stretcher ready, with blankets in place. Arrange the blankets so that there are four thicknesses underneath to two on top.

Placing blankets on a stretcher using two blankets:

Fold a blanket into thirds lengthwise. Place blanket on the stretcher and turn the upper fold back so it hangs off one side. Fold the second blanket in thirds, place it on stretcher in such a way that when the upper fold is turned back it hangs from the opposite side. Place the victim on the stretcher. Turn the hanging fold of the second blanket over him. Then turn the hanging fold of the first blanket over him. By this method the victim has four thicknesses of blanket under him and two over him. * * *

Stretchers Are of Several Types

1. Army stretcher—poles and canvas, with metal braces to spread sidepoles, and metal stirrups which serve as legs to raise it off the ground.

2. Navy stretcher—metal basket.

3. Industrial type—canvas with wide hems at sides through which poles are slid.

4. Improvised blanket stretcher, made with blanket folded in thirds over poles. Place a pole a little longer than the blanket about a foot from the center of the blanket. Fold the short side of the material over the pole toward the other side. Place the second pole on the two thicknesses about two feet from the other pole and parallel to it. Fold the remaining side of the blanket across the second pole toward the first. When the injured is placed on the blanket the folds of the blanket are locked by the friction exerted by the weight of the body.

5. Blanket, without poles, with edges rolled toward victim. Place a blanket on a flat surface (floor or street) and starting from the edge roll the blanket in a tight roll from each side toward the center until all the blanket except for a strip two feet wide down the middle has been rolled. Place the victim on the unrolled part. The rolled part forms a satisfactory grip. Six bearers are necessary. One pair supports the shoulders and head, the second the abdomen and hips, the third the lower extremities.

6. Door, shutter, ladder with boards, or chair. Any flat surface large and strong enough to support the body may be used for a stretcher. There will be considerable discomfort if the victim is carried on a hard surface for any distance and padding should therefore be provided if available.

In using a chair for a stretcher the straight-backed variety is best. Seat the victim in the chair. The chair is tipped backwards onto its back legs. Bearer number one lifts by the front legs and bearer number two by the back of the chair, the patient being in a semireclining position.

A satisfactory stretcher may be improvised by using three or four jackets or coats and two poles. The jackets may be turned inside out and two poles are passed through the sleeves. The flaps are then turned down around the poles and buttoned underneath.

Be sure to test the strength of the stretcher before loading it.

Before loading a stretcher, find out whether it will clear corners and narrow window passages. The victim should be lashed to the stretcher with several cravat bandages if it is necessary to turn the stretcher up on edge or set on end to get around difficult passages or stairways.

Trained stretcher teams will load stretchers into ambulances and trucks at First Aid Posts and Casualty Stations.

When a truck stops suddenly, everything tends to slide forward. To avoid injury to the victim's head he should ride feet first, unless he has a fractured leg. In double-deck ambulances or trucks the upper stretchers are loaded first, and then the lower ones slid under them. Lower tier stretchers are unloaded first.

For their own benefit and to help maintain public morale, injured persons should be removed promptly to a hospital or first-aid field station.

Chemical Warfare

Irritant and poisonous chemicals which can be released as gases, smokes, or liquid sprays are called *war gases.*

Those rendering first aid must be able to recognize gas cases so that they may take the necessary precautions to avoid contamination to themselves and others. Avoid inhaling the fumes. Wear a gas mask. Protective clothing and gloves must also be worn when caring for cases contaminated with persistent gases.

War gases may be—

Liberated from cylinders and carried by wind.

Liberated from exploding bombs, shells, or grenades.

Liberated from planes as sprays.

They act after—

Being inhaled by the victim.

Coming in contact with the skin, eyes, or nose.

Types of Gases

I. *Nonpersistent gases.*

Prevention of injury.—(1) Masks. (2) Walk against the wind to get out of contaminated zone.

A. *Tear gases or eye irritants—*

Odor.—Like apple blossoms, or like sour fruit.

Effects.—Burning pain in the eyes; the eyes flood with tears; victim may be unable to open his eyes.

First aid.—Generally no treatment is necessary. Do not rub eyes. Do not apply bandage to eyes. In severe lasting cases irrigate the eyes with a solution containing 2 level teaspoonfuls of baking soda in half pint of warm water.

B. *Sneeze gases or nose irritants.*

Odor.—Slightly like coal smoke. May be yellowish, grayish cloud without odor.

Effects.—Aching pain in head, face, nose, throat, chest. Sneezing and coughing. Sometimes vomiting. Mental depression—may even attempt suicide. Effects severe but temporary.

First aid.—Flush nose and throat with weak solution of baking soda (sodium bicarbonate)—(2 level teaspoonfuls to half pint of warm water), or breathe fumes of bleaching powder in a wide mouth jar. Reassure victims that symptoms are only temporary. Try to allay fear and avoid panic. Prevent suicide.

C. *Choking or lung-damaging gases.*

Odor.—May smell like new-cut hay or mouldy hay, pungent and disagreeable or may have sweetish odor.

Effects.—In low concentrations—brassy taste, headache. Effects delayed but serious. Soreness in lungs, coughing.

In higher concentrations — coughing, throat spasm, retching, tight feeling in chest, blueness of face, increased pulse and breathing rate. Victim may collapse some time later during exercise without previous warning.

First aid.—Absolute rest for 48 hours is

essential even when no symptoms appear. Keep victim lying down and transport on a stretcher. Do not permit him to walk to first aid post even though he may insist that he is able to do so. Keep him warm. Do not give artificial respiration in hope of relieving difficult breathing, as it may do serious damage. Hot coffee or tea may be given. *The victim should not be permitted to smoke.*

D. *Systemic poisons.*

Odor.—Bitter almond, rotten eggs, garlic.

Effects.—Slight headache, loss of consciousness, convulsion, may stop breathing.

First aid.—Remove to fresh air, give artificial respiration if needed, treat for shock.

II. *Persistent gases (blister gases).*—Cling to clothing, plants, implements and other objects for long periods, and injury may result from contact with such contaminated surfaces.

Prevention.—(1) Masks. (2) Gas-proof clothing. (3) Avoid contaminated surfaces. (4) Decontamination (Persons injured with persistent types of gas must be decontaminated before they are mixed with other casualties). (5) Avoid low places such as basements.

Odor.—Like geraniums, then biting (Lewisite). Like garlic or horseradish (Mustard).

Effects.—Burning of eyes with acute inflammation. Itching, burning, and blistering of skin. Severe pain in chest and brassy cough if breathed, vomiting and pain in stomach and abdomen if swallowed. Extremely powerful, persistent, and dangerous. Onset of action may be delayed as much as 24 hours but treatment must be prompt to be effective.

First aid.—Act quickly. Degree of burning depends upon promptness of First Aid given. (1) All contaminated clothing must be removed before any treatment is given. Otherwise the burning will continue. Clothing removed should be placed to one side

and sent for decontamination later. Fresh clothing should be supplied the victim. (2) Irrigate the eyes with 2 level teaspoonfuls of baking soda in half pint of warm water. (3) Daub (don't rub) skin with cloths moistened in benzene, kerosene, alcohol or ether, or with straight gasoline (not ethyl) or carbon tetrachloride (pyrene). Wash off with running water and soap. *The fumes of many of these solvents are explosive; therefore avoid sparks, cigarettes, or flames during this procedure —destroy used cloths or cleaning tissues by burying or burning in open air.* (4) Before the skin becomes red, bleaching powder (chlorinated lime) made into a cream paste with water will neutralize the gas if applied to the skin. It must be washed off in a few minutes. Bleaching powder should not be used after redness appears. (5) Great care must be used in handling the victim and his clothing to avoid injury to others. (6) Wear mask, protective clothing and gloves.

Incendiaries

Phosphorus shells or bombs.

Odor.—White smoke from phosphorus smells like matches.

Effects.—The smoke alone may give a mild prickling sensation but is harmless. However, when a phosphorus bomb explodes, particles of phosphorus may strike the skin and cause severe burns, which heal very slowly.

First aid.—The phosphorus particles must be removed before giving the usual care for burns since phosphorus continues to burn unless removed. Immerse the wound in hot water, which melts the phosphorus, so it may be wiped out with a gauze pad. Particles may be removed by squeezing as for a pimple. If cold water is used, the particles will not melt, and because phosphorus will re-ignite on exposure to air, they must be picked out under water. If available, copper sulphate solution (2 to 5 percent) may be applied; this coats the phosphorus with copper and stops

burning. The particles can then be lifted out. After either method of removal treat as for an ordinary burn. (See p. 64.)

Miscellaneous Conditions

Injury from Heat and Cold

Enemy attack may occur at any season of the year. Both victims and Civilian Defense workers may be exposed to rain, snow, or freezing temperatures for hours on end. Firemen and Rescue Squads may be subjected to intense heat in their work. The hard manual labor they must perform in clothing which tends to hold heat increases the danger of injury. It is important that the Civilian Defense first aid worker be able to recognize injuries due to heat and cold so he can administer emergency treatment.

Heat Stroke (Sun Stroke)

It is not necessary that the individual be exposed to the sun's rays to develop heat stroke. Clothing which prevents the escape of heat (gas-proof clothing or firemen's coats and boots), excessive humidity, fatigue, particularly in the absence of a current of air, increase the danger of heat stroke.

Symptoms.—Headache, dizziness, nausea. The victim may appear flushed or may have a bluish color about the face and lips. He may be unconscious. The body temperature is elevated, the skin is hot and dry.

First aid.—For mild cases wrap the victim in a wet sheet and expose to cold drafts of air, as from a fan. For more severe cases apply ice to the temples and the back of the neck. Place in a cool bath for 20 minutes, at the same time rubbing the limbs and trunk to stimulate circulation.

Heat Exhaustion (Prostration)

Heat exhaustion is a form of shock resulting from exposure to heat. It occurs more frequently when the humidity is high.

It is a serious condition requiring prompt first aid treatment.

Symptoms.—The symptoms are those of shock: face pale, cold, clammy sweat, weak and rapid pulse, slow respiration.

Treatment.—The same as the treatment for shock. (See p. 65.) *Do not confuse this condition with heat or sun stroke.* The treatment is exactly opposite.

Heat Cramps

Persons exposed to intense heat or doing manual labor lose large amounts of salt in their perspiration. As the salt is depleted, muscular cramps may develop.

Symptoms.—Spasmodic cramps of the muscles of the abdomen and limbs.

First aid.—Prevention is more important than treatment. Men at hard work in high temperatures drink large amounts of water to replace the fluid lost in perspiration. The salt lost in the perspiration should be replaced by adding a good-sized pinch of table salt to each glass of water.

After the condition has developed, treatment consists of warm baths, rest, drinks to which salt has been added. If the cramps are severe or persist, a doctor should be called.

Frostbite

Frostbite is more likely to occur in damp and windy weather.

Symptoms.—There is tingling of the skin followed by numbness. As the part becomes numb it takes on a dead whiteness. At this stage the tissues are not actually lifeless, though they may soon become so, even in warm atmosphere. The skin may then appear reddened or purplish and it may crack. Very large blisters are ordinarily formed.

First aid.—Have the victim exercise the part if he can. Do not massage it. Allow the water temperature to rise slowly. To obtain the best results the thawing process should be drawn out for several hours. Do not break any blisters. Apply a sterile dressing to the part—and see a doctor.

Carbon Monoxide Poisoning

There is serious danger of carbon monoxide poisoning in modern warfare. Bombs exploding near a building or home may cause collapse or blocking of a chimney or flue so that carbon monoxide gas escapes into the house from the furnace. Illuminating gas has a high content of carbon monoxide and its escape through disrupted gas mains is a serious hazard. When a bomb explodes a large amount of carbon monoxide gas may result from incomplete combustion of the explosive.

The gas is odorless, colorless and tasteless. It may produce death even in low concentrations if breathed for some time. In high concentrations it may produce death in a few minutes. The body stores carbon monoxide. People doing manual labor breathe faster than those at rest and tend to be overcome more rapidly.

Carbon monoxide poisoning steals upon the victim in such a way that he may be overcome by the gas without warning.

Symptoms.—The symptoms are numerous, the more pronounced being headache, yawning, giddiness, ringing in the ears, weariness and a fluttering or throbbing of the heart, which is a late symptom. If the victim gets into fresh air these symptoms usually pass off, often leaving a headache. If the victim remains in the presence of carbon monoxide gas his legs collapse under him, he may stagger and sink to the ground in a semiconscious or unconscious state.

First aid.—

1. Remove the victim to fresh air as quickly as possible.

2. If breathing has stopped, is weak and intermittent, or is present only in occasional gasps, start artificial respiration at once, using the prone pressure method. If oxygen is available it should be given while artificial respiration is administered.

3. Aid circulation by rubbing the limbs, keeping the victim warm with blankets and hot water bottles.

4. Keep the victim at rest, lying down to avoid any strain on the heart.

Inhalations of oxygen for 20 minutes, when given immediately, decrease the possibility of serious after-effects. Oxygen should be given to all victims if possible.

Unconsciousness

Anyone who is unconscious is in a serious condition and should have immediate medical attention. Before the doctor arrives there are certain things which those trained in first aid should do:

A. *Bleeding?*—If so, control the bleeding and dress the wound.

B. *Breathing?—"Blue unconsciousness."*—If not breathing, with a bluish or blotched face, start artificial respiration at once. Be sure there is no obstruction in the throat. Be careful of electric shock if the victim is found in contact with wires, plumbing or heating pipes or other conductors which may have become temporarily charged. Do not expose yourself to electric shock by careless handling of the victim. Be careful of carbon monoxide gas and do not become a victim yourself. Remember that persons not breathing become chilled very rapidly and must be kept warm during artificial respiration.

C. *"Red unconsciousness."*—Red face and strong pulse. Keep victim lying down, head slightly raised, cold applications to head, give no stimulants. Prevent chilling, and transport in lying position.

D. *"White unconsciousness."*—The same as shock. (See p. 65.)

IMPORTANT NOTE: The user of this Civilian Defense Handbook is again warned not to rely solely on this abridged section on Wartime First Aid—this is intended for reference only and should be supplemented with the Official OCD Handbook of First Aid and, if possible, a course in first aid.

Miscellaneous Wartime and Defense Information

THE sincere and willing effort of *every* person in this country is needed to win this war. *There is a place for you! You and your services are needed immediately—volunteer now!* If you desire additional information, contact your local Civilian Defense Volunteer Office. If there is no such office in your community, call your local Defense Council or Committee or your local Chamber of Commerce. Information may also be secured from the Office of Civilian Defense, Washington, D.C.

Training Courses

Courses are offered in various fields to enable volunteers to acquire the knowledge necessary to perform certain vital defense work. The following are typical:

Health—Including hospital work, occupational therapy, home nursing.

Family and Child Welfare—Covering group leadership and mass recreation.

Consumers' Programs—Covering leadership training and consumer education.

General—Training in publicity, public speaking, community needs and facilities.

Special Lectures and Instruction

From time to time, specialists in various fields will lecture to volunteer groups. If you are in a position to secure the services of such persons, it is your duty to do so. Such speakers should include doctors, nurses, chemists, army and navy officers, police officers, social service workers, educators, etc.

In order to provide for proper discipline, to give leaders proper training in commanding volunteers, to enhance the morale of the volunteer group through ceremonies, and to enable leaders to move their units quickly from one place to an-

other in an orderly manner, it is necessary that all volunteers be properly instructed in such basic drill as squad formations, marching, facing, and platoon movements. This is an excellent chance for reserve officers, national guard officers, ex-service men, retired officers, and others with a military education to do their part in advancing the cause of defense by acting as instructors and advisers. Drills are an optional subject.

Individual Study

In the various branches of the Civilian Defense Corps, volunteers can readily increase their knowledge and their worth to the country by the individual study of the various manuals issued by the Office of Civilian Defense. A handbook or manual is issued for each branch and, by obtaining handbooks in related fields, the volunteer can prepare and follow a course of study which will be of great value.

Below are listed the several branches of the Defense Corps, together with the titles of official handbooks suggested for study for each branch. It should be noted that these are *official* handbooks. Qualified individuals will be issued appropriate publications by their local Civilian Defense Council.

Staff Corps—Members should be familiar with all handbooks listed here. Of particular value are the *Staff Manual, The Control Systems of the Citizens Defense Corps,* and *Training Courses for Civilian Protection.*

Drivers Corps—*Blackouts, Handbook for Emergency Drivers, Handbook of First Aid.*

Messengers—*Handbook for Messengers, Handbook of First Aid.*

Rescue Squads—*A Handbook for Rescue Squads, Fire Protection, Protection Against Gas, Handbook of First Aid.*

Auxiliary Police—*Blackouts, Protection*

Against Gas, Fire Protection, Handbook for Auxiliary Police.

Air Raid Wardens—*Blackouts, Protection Against Gas, Fire Protection, Handbook for Air Raid Wardens.*

Auxiliary Firemen—*Fire Series No. 1, Fire Protection, Handbook for Auxiliary Firemen.*

Fire Watchers—*Fire Protection, Handbook for Fire Watchers, Blackouts.*

Demolition and Clearance Crews—*Fire Protection, Handbook for Demolition and Clearance Crews.*

Road Repair Crews—*Handbook for Road Repair Crews.*

Decontamination Squads — *Protection Against Gas, Handbook for Decontamination Squads.*

Emergency Food and Housing Corps—*Red Cross Canteen Course.*

The Medical Corps—*Protection Against Gas, Handbook of First Aid, Textbook of First Aid.*

Nurses' Aides Corps—*Protection Against Gas, A Training Guide for Nurses' Aides, Handbook of First Aid, Textbook of First Aid* (American Red Cross), also special pamphlets from the American Red Cross.

Other Information

Information concerning the use of manufacturing facilities may be had from the Office for Emergency Management, Washington, D.C., while information on salvage may be obtained from the Central Salvage Section, Bureau of Industrial Conservation, Office of Production Management, Washington, D.C.

Information on U.S. War Stamps and Bonds may be obtained from all United States Post Offices, at banks and savings and loan associations, or from the United States Treasury, Washington, D.C.

For information and study concerning defense procedures, the official publications of the Office of Civilian Defense are invaluable. They may be obtained for a small sum each from the Superintendent of Docu-

ments, United States Government Printing Office, Washington, D.C. The following are official publications:

Training Courses for Civilian Protection.

A Guide for the Training of Volunteer Nurses' Aides.

Handbooks (containing valuable information for the individual volunteer)—

1. *Handbook for Air Raid Wardens*
2. *Handbook for Auxiliary Firemen*
3. *Handbook for Auxiliary Policemen*
4. *Handbook of First Aid*
5. *Handbook for Rescue Squads*
7. *Handbook for Messengers*
8. *Handbook for Drivers*
9. *Handbook for Fire Watchers*
10. *Citizens' Defense Corps Staff Manual*

Training Courses for Civilian Protection (of particular aid to staff executives and appropriate committees)—

1. *How to Organize Civilian Protection in Your Community*
2. *Protection of Industrial Plants and Public Buildings*
3. *Blackouts*
4. *Air Raid Warning System*
5. *The Volunteer Office* (How to organize it)
6. *War Traffic Control*
7. *Protection of Hospitals*
8. *Protective Concealment*
9. *Civil Air Patrol*
10. *Glass and Glass Substitutes*
11. *The Control System of the Citizens Defense Corps*
12. *The United States Citizens Defense Corps*

Manpower Registration

By the *Selective Training and Service Act,* as amended, it is required that every male citizen of the United States, and every other male person residing in the United States, who is between the ages of 18 and 65 shall register for service. Those between the ages of 20 and 45 shall be

liable for service in the land and naval forces of the United States. It is required that all such men report themselves to the proper registration place on specified dates. Provision is made for relief from liability to service for certain definite and specified reasons.

If you are between the ages of 18 and 65 and have not already done so, by all means report to your Selective Service Board immediately. Your local Postmaster will tell you where this board is located.

The Meaning of Common Words and Phrases in Civilian Defense

ARP—Air Raid Protection.

Bucket pump—A small individually operated pump operating on and from a cylindrical reservoir. Pump and reservoir are attached together for easy transportation.

CAP—Civil Air Patrol.

Casualty—A person injured or killed by an accident.

Casualty Station—A site designated in advance for occupancy by medical personnel in the event of a disaster in that given vicinity.

CD—Civilian Defense, Civilian Defense Corps.

Civilian—A person not officially in the armed services.

Decontamination—The ridding of a given area of gases and chemical agents.

Decontamination Squad—A group of defense workers trained and equipped to decontaminate localities and structures in order to rid them of chemical agents.

Decontamination Station—A station for the decontamination of both injured and uninjured persons contaminated with persistent war gases.

Demolition—Destruction or demolishing of structures that have been damaged by bombs and that are a danger to the populace.

First Aid Post—A site close to a scene of disaster which is temporarily occupied to administer emergency first aid, classify the casualties, and expedite their transfer to a hospital or Casualty Station.

H.C.—A screening smoke.

H.E.—High explosive bombs and artillery.

H.S.—Mustard gas.

Incident—Devastation or destruction of a given building or area by explosive or incendiary bombs.

Irritants—Types of war gases which irritate the nose, throat, and lungs.

Magnesium—A metal which readily burns in air with a very intense heat.

OCD—Office of Civilian Defense.

OEM—Office of Emergency Management.

Persistent Gas—A war gas which retains its toxic properties for a considerable length of time.

Rescue Squad—A specially trained volunteer group equipped with tools for the extrication of casualties from wrecked buildings.

Sternutators—Irritants.

Stretcher Team—A group of volunteers trained in first aid and stretcher bearing, who assist in transporting casualties from the scene of disaster to a first aid post.

Tourniquet—A device for arresting bleeding.

Vesicants—War gases which have a blistering effect.

WPB—War Production Board.

These standard map symbols are used on all Civilian Defense Sector maps. They are intended to make clear the things you will have to know in a hurry.

 WARDEN'S POST	 CASUALTY STATION	 SECTOR LIMITS
 FIRE WATCHER'S STATION	 DECONTAMINATING FIRST AID STATION	 ZONE LIMITS
 FIRE ALARM	 BOMB SQUAD STATION	 SITE OF GAS BOMB
 TELEPHONE	 LOCATION OF INCIDENT (Show number in center)	 CONTAMINATED AREA (Large area, blue crosshatch)
 AIR RAID SHELTER	 DEMOLISHED BUILDING	 STREET LAMP
 GAS-PROOF AIR RAID SHELTER	 BOMB CRATER	 FIRE HYDRANT
 ENTRANCE TO SHELTER	 ROPED-OFF AREA	 SEWER GRATINGS
 FIRE STATION	 STREET CAR TRACKS	 MANHOLE
 DECONTAMINATION SQUAD DEPOT	 DOUBLE TRACKS	 TREE
 REPAIR SQUAD	 CISTERNS OR WATER RESERVES	 SANDBAGS

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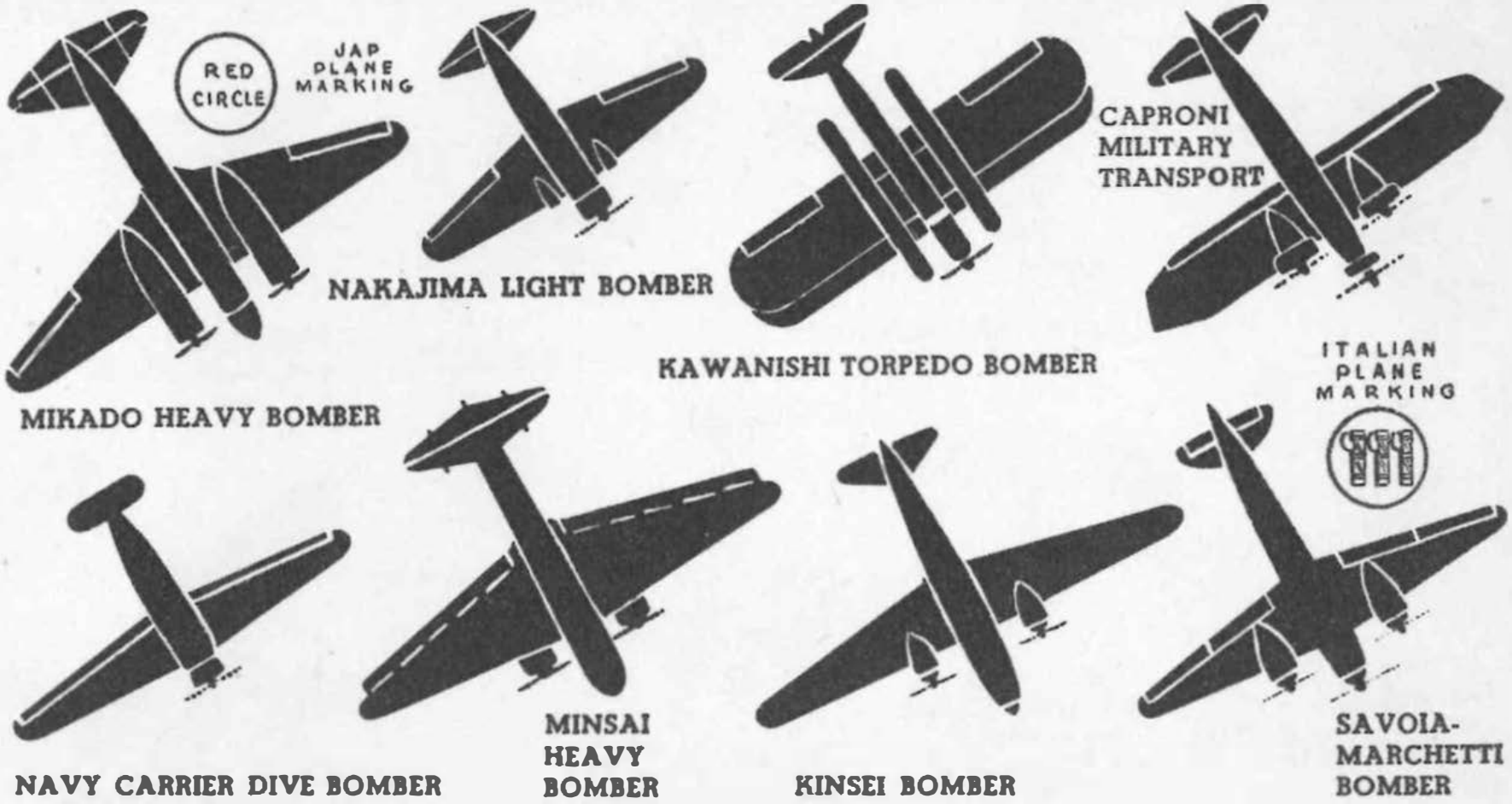


SILHOUETTES OF ENEMY WARPLANES

(See others on page 94.)

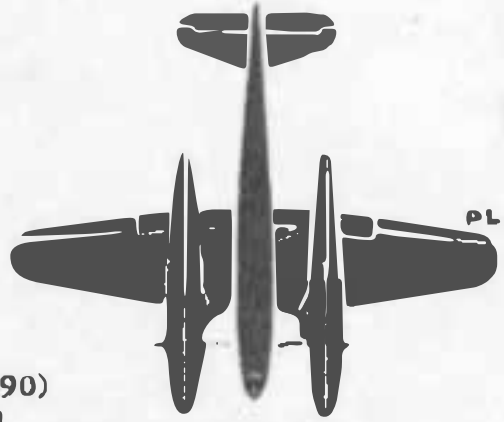
JUNKERS 87
(THE FAMOUS "STUKA"
OR DIVE BOMBER)

MESSERSCHMITT
(THE MOST FAMOUS
PURSUIT)

JUNKERS 88
DIVE AND
MEDIUM-RANGE BOMBER

JUNKERS 52
PARATROOP PLANE

JUNKERS (JU-90)
Communication
and Troop
Transport



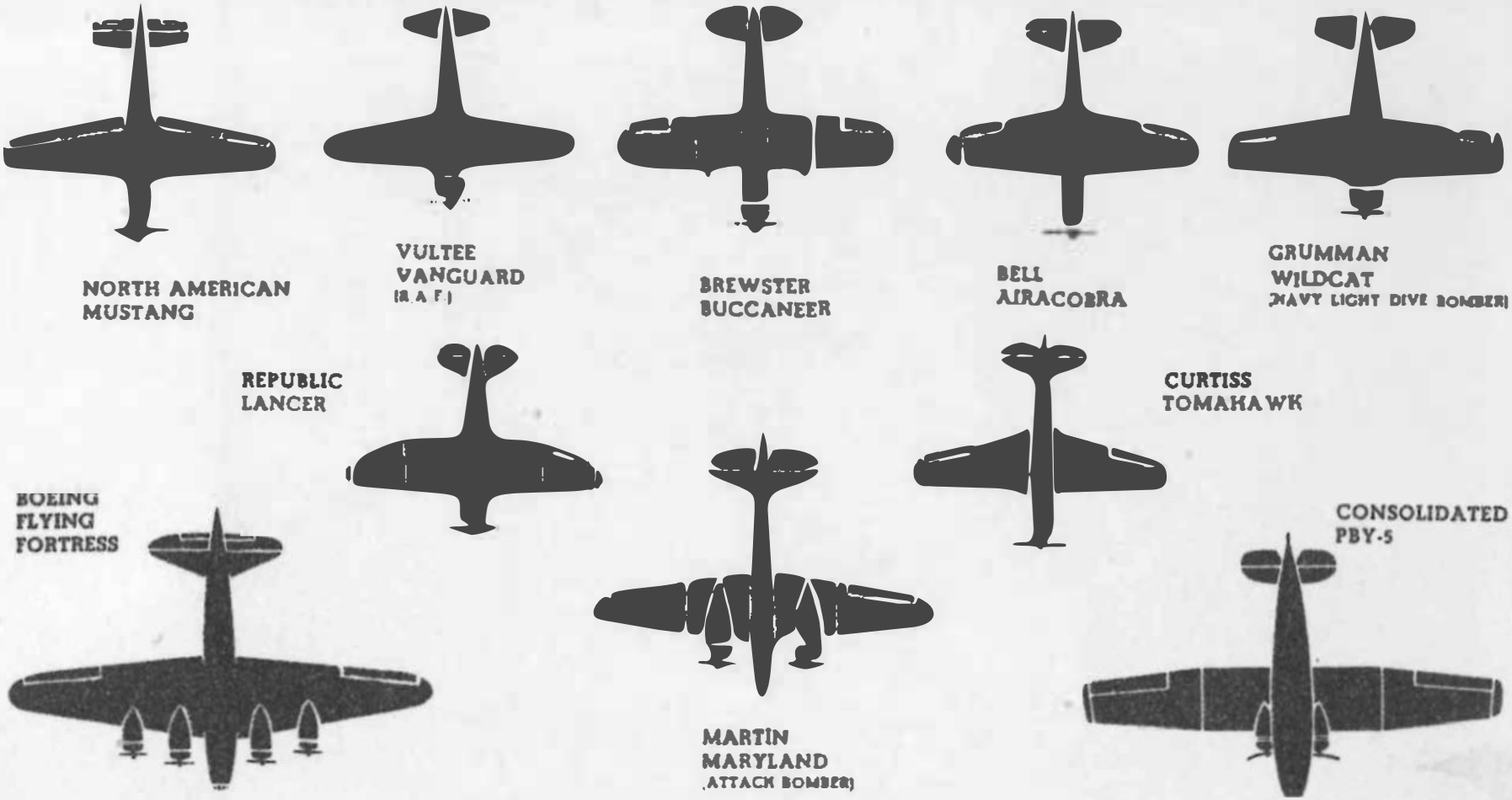
HEINKEL
TORPEDO BOMBER

NAZI
PLANE MARKING

DORNIER
LONG-RANGE BOMBER

SILHOUETTES OF ENEMY WARPLANES

(See others on page 93.)



SILHOUETTES OF U.S. WARPLANES

(See others on inside front cover.)


FOR VICTORY BUY U. S. SAVINGS BONDS AND STAMP