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Civil defense for
national security

Civil Defense for National Security

Report to

THE SECRETARY OF DEFENSE

by the

OFFICE OF CIVIL DEFENSE PLANNING

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As Prepared and Recommended

by the

OFFICE OF CIVIL DEFENSE PLANNING

RUSSELL J. HOPLEY, *Director*

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OFFICE OF THE SECRETARY OF DEFENSE

WASHINGTON

October 1, 1948

Honorable JAMES FORRESTAL
Secretary of Defense
Washington, D. C.

DEAR MR. FORRESTAL:

In accordance with the terms of your Directive creating the Office of Civil Defense Planning, dated March 27, 1948, I submit to you herewith a National, Regional, State and Community plan for civil defense for national security.

It is the purpose of this report to recommend for adoption a permanent peacetime system of civil defense which will round out our defense structure and which, in the event of an emergency, can be quickly and easily expanded to meet the exigencies of a given situation. Such an organization can also be of great value in support of existing agencies in meeting devastating peacetime disasters such as fires, floods, earthquakes, tornadoes, hurricanes, explosions and similar catastrophies.

In the event of a future war, which might come to our shores, all of the people, all of the facilities and all of the skills and energies of the nation must be utilized to the fullest extent. To successfully carry out this program will require the cooperation of every man, woman and child in this nation. It is on such principles that civil defense must be erected and it must be with such a requirement that its organization be perfected.

We hope that the Civil Defense Organization will never need to operate for war, but we dare not gamble on that hope. We who have studied the problem feel a great need for prompt action in establishing such an organization. To be without it leaves us in a most vulnerable position.

I believe that this plan is sound and logical in all of its aspects and that with the full assistance and cooperation of Federal, State and Community officials, it will afford a strong and effective civil defense program for the United States, its territories, and possessions.

The plan as presented herewith was developed following a thorough examination of civil defense operations in this country and in other countries during World War II and after consultation with representatives of the various agencies of the Federal, State and local governments, the National Military Establishment and a large number of private and public agencies and organizations of all types. In addition, the advice, counsel, assistance and experience of many of the foremost specialists of the country in such fields as medical, radiological,

chemical, engineering, fire, police, disaster relief, transportation, communication and many others was sought and utilized. Their participation was most helpful in the development of this plan.

It is a pleasure for me to record here my personal thanks and the thanks and appreciation of our entire civil defense planning group to each individual and organization with whom we have had contact.

I strongly recommend and urge the adoption of the plan presented in this report. It has been a genuine pleasure to be associated with you in this activity and my thanks go to you, Mr. Secretary, for your fine support and inspiring leadership. With kindest personal regards and cordial well wishes, I am

Respectfully,

Russell J. Hopley

Russell J. Hopley, Director
Civil Defense Planning

INTRODUCTION

THE NEED FOR CIVIL DEFENSE

America definitely has a "missing link" in its defense structure. Our country has, and is developing, various elements of our defenses to insure national security, but it has no national civil defense.

The Army, the Navy and the Air Force are being strengthened with the manpower and equipment needed for security. The National Military Establishment has been created under one head. A National Security Council has been provided for determination of policies. A National Security Resources Board has been set up to coordinate mobilization problems, both of manpower and matériel. A Munitions Board functions to assure production for the National Military Establishment. A Research and Development Board is taking the leadership in scientific research. Selective Service has been enacted and other measures taken which may prevent aggression.

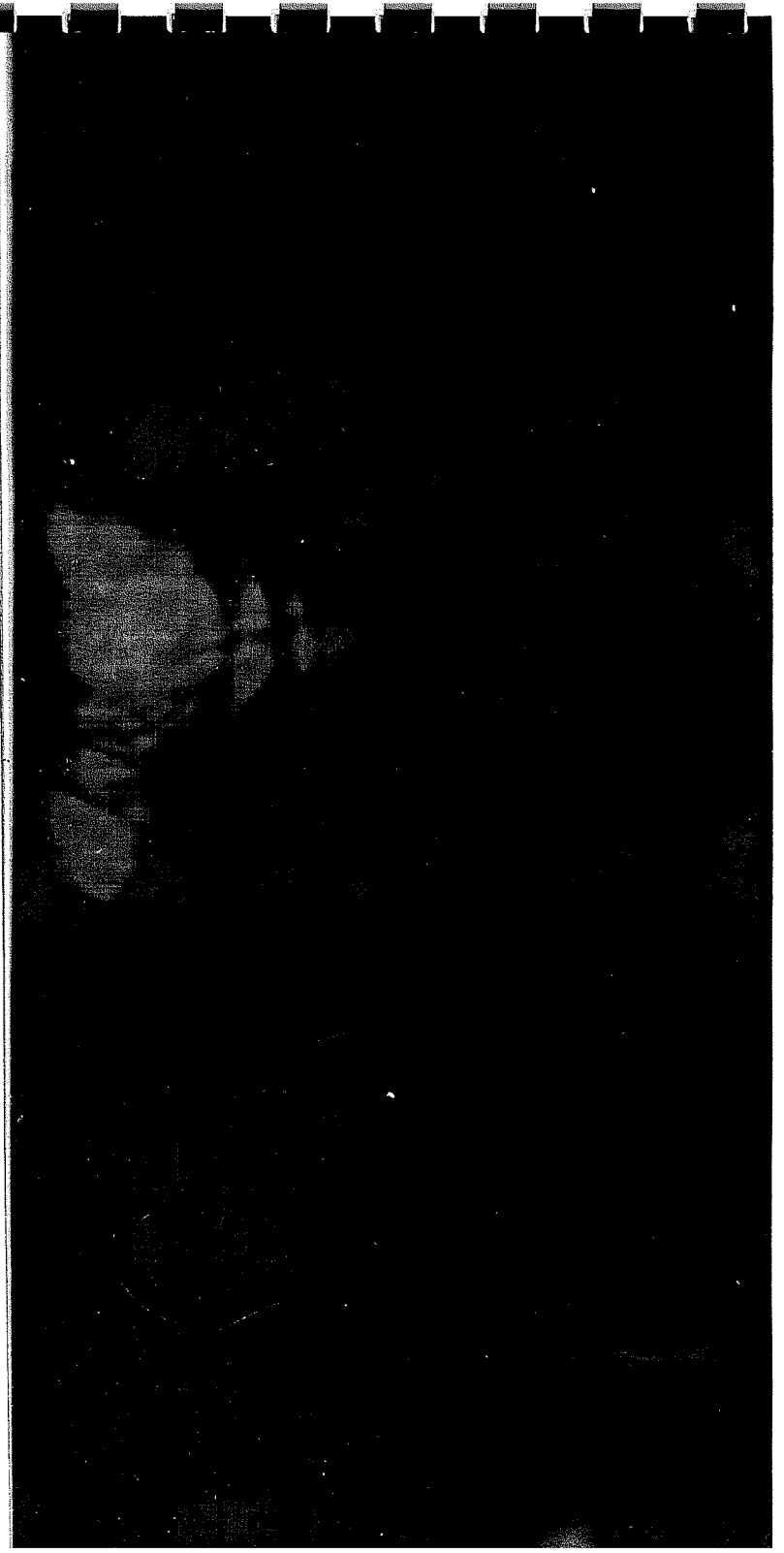
But the missing element—the "missing link"—in the defense structure is civil defense. Without a sound and effective system of civil defense, the people and the productive facilities of the country are unprepared to deal effectively with the results of an enemy attack on our country.

This report is presented by authority of your directive of March 27, 1937 (see page 291), establishing the Office of Civil Defense Planning (chart 1) which was instructed, among other things:

> "To prepare, and to submit to the Secretary of Defense a program of civil defense for the United States, including a plan for a permanent federal civil defense agency which, in conjunction with the several states and their subdivisions, can undertake those peacetime preparations which are necessary to assure an adequate civil defense system in the event of war."

Civil Defense is the organization of the people to minimize the effects of enemy action. More specifically it is the mobilization, organization and direction of the civilian populace and necessary supporting agencies to minimize the effects of enemy action directed against people, communities, industrial plants, facilities and other installations—and to maintain or restore those facilities essential to civil life and to preserve the maximum civilian support of the war effort.

With that as the guiding principle, the Office of Civil Defense Planning enlisted the skills and experience of many people and organizations in all parts of the country, including various agencies of government. It made use of the findings of the United States Strategic



Bombing Survey which examined the experiences in England, Germany and Japan in World War II. It utilized the Provost Marshal General's report on civil defense operations in this country and in other nations; and the report of the War Department Civil Defense Board.

The result is a plan which will provide a sound and effective peacetime system of civil defense that can be quickly and easily expanded in the event of an emergency—a program that will bridge the gap by providing the link that is missing in our defense structure.

The program proposes:

A National Office of Civil Defense, with a small but capable staff to furnish leadership and guidance in organizing and training the people for civil defense tasks.

Basic operational responsibility to be placed in States and communities, but with mutual assistance plans and mobile supporting facilities for aid in emergencies.

Maximum utilization of loyal volunteers, existing agencies and organizations, and all available skills and experiences.

Well organized and trained units in communities throughout the United States, its territories and possessions, prepared and equipped to meet the problems of enemy attack, and to be ready against any weapon that an enemy may use.

Intensive planning to meet the particular hazards of atomic or any other modern weapons of warfare.

A peacetime organization which should be used in natural disasters even though it may never have to be used for war.

These are the broad purposes of this program, presented in the hope that international agreements and organizations for the maintenance of peace will succeed in their objective, and in the conviction that this nation does not want war; yet realistically facing the fact that as long as armies are maintained and war remains even a remote possibility, this country must be prepared for any eventuality.

If attack should come, it might be by bomber squadrons dropping atomic bombs, incendiaries or gas bombs, or super-explosives, on one or a score of our major centers. It might come via guided missiles from distant points, or from submarines off the American shores. Or it might come from within the borders of the United States, through saboteurs and fifth columnists.

However it came, it could mean devastation and death at many points on such a scale that the tasks of rescue and restoration would be far beyond the present capabilities of the people and the communities attacked.

It is sometimes stated that there is no defense against the atomic bomb, or against some of the other modern weapons which might be used. The people of this nation may be certain that the Armed Forces will exert every possible measure to prevent enemy attack from succeeding, but the possibility of successful attack must be included in all defense planning; certainly organizing to minimize the effects of atomic bombs and other weapons is feasible.

When and if an American city is attacked, Civil Defense must be ready. Civil Defense, well organized and trained, will be ready to rescue and care for the victims, save lives, reduce suffering, put out the fires, and restore the facilities.

Civil Defense would tell survivors of an atomic bomb attack to avoid contaminated areas until danger is passed—and Civil Defense would know the areas. It would tell them to dispose of contaminated clothing, to be careful what they touch or eat and to take other preventive measures. If they were ill from radiation, it would furnish blood to restore their health. And it would move about in stricken areas restoring calm, reassuring the frightened, removing the ill or the homeless.

The specialists who examined Hiroshima and Nagasaki report that thousands of people died who might have been saved had organized assistance, thoroughly trained and well equipped, been ready for action.

The City of Cologne, after heavy air attack in 1943, evacuated 230,000 civilians with much confusion and difficulty. Despite American ingenuity, evacuation of an American city on such a scale would be well handled only if there were careful organization and planning in advance. Civil Defense is designed to do such planning, in the knowledge that it could happen to American cities.

Hamburg suffered 60,000 killed and 37,000 wounded in a ten day period. Hurricanes of fire swept beyond possibility of control and burned for months afterward. If an American city were similarly attacked, a well organized system of mutual aid and mobile reserves, as well as fire-fighting, rescue, medical and other services, thoroughly organized in anticipation of disaster, would greatly reduce the hazards of such saturation raids.

England might have gone down to defeat had she not prepared and trained her people in advance so that they knew what to do and how to do it, when the enemy planes and buzz-bombs came over. Her air raid warning facilities, her organized civilian services for prompt action in fighting the results of raids and restoring facilities afterward, were potent factors in successfully carrying on the war.

Civil Defense encompasses the entire field of passive defense—as distinguished from active defense which is the function of the Armed Forces—in saving lives and restoring communities, industrial plants and facilities of all kinds. That this is a fundamental and all-important function is self-evident simply by recalling the production achievements of the United States in the last war. If production were stopped, the war would be lost.

It readily becomes apparent that the United States now must plan and operate its defenses on an all-inclusive concept. It no longer is difficult to visualize an attack on American cities which would require earnest planning by serious-minded men and women with their nation's welfare and their own lives at stake—planning and organization which cannot wait for the attack to occur.

Prior to World War II, England planned and organized her civil defense four years before it was used, and the people were conditioned for it and organized accordingly. Japan could not believe that attacks would reach her shores and accordingly was ill-prepared in Civil Defense procedures and facilities. Germany had only a partial conception of the needs and was hampered by administrative muddles.

It should be said that while civilian defense in this country in World War II was not called upon for action against enemy attack, it served many useful purposes. It is not forgotten that when air raid wardens patrolled the streets during blackouts, there were fewer crimes. It is worthy of remembrance that auxiliary firemen and policemen who served ably without pay probably saved the taxpayers millions of dollars. It is still of record that forest fire fighters trained by Civilian Defense continue to function in useful activities. It is a record to be remembered that ten million people enrolled in Civilian Defense were mobilized for action and performed many useful tasks.

ESSENTIAL FUNCTIONS OF CIVIL DEFENSE

A well organized Civil Defense program will make maximum use of existing facilities and services, such as the police and fire departments of cities and towns. But, in achieving a state of readiness for any eventuality, it will have many new activities for which there is not normally an organization or plan. In addition, every phase of a sound Civil Defense program would be geared to the possible need—in all respects a different conception than exists in peacetime activities in any field.

This report presents in detail what the Civil Defense organization should be. But first a brief description of what its functions and operations should be, may be indicated as a guide to the need for organization. They range from technical services requiring specialists in various fields, to operating and organizational services, to training and information and research. All are essential to a thorough-going Civil Defense operation.

The simple narration of the functions of various services and units of a competent Civil Defense organization demonstrates the interrelation of all its parts, and the size of the task it may have to perform.

If a community suffered a major attack, whatever its nature—atomic, chemical, incendiary, high explosives or other special weapons—the organized parts of civil defense would go into action. Warnings would be flashed to the people and workers and crews would be ready for action.

The Civil Defense Director and his staff would take their posts in the control center and assign an incident officer for direct supervision of operations at the scene of attack. Trained crews would move in with their special equipment to check for evidences of contamination; it could be one or more of several kinds of contamination, and areas and extent would have to be carefully determined before workers could begin operations. Police would patrol the areas, firemen would put out the fires, doctors, nurses and helpers would aid the casualties.

The Wardens would go to work in their blocks, with first aid, advice, instructions, and the collection of information required for organized aid. Skilled rescue squads would hasten in to clear debris, remove hazardous structures, and rescue victims. Meanwhile aid might be summoned from other communities if the attack were severe and that would bring in mobile reserves to supplement or replace the community's own forces.

Quickly other steps would follow. With homes destroyed or threats of other attacks, the people might be evacuated; that operation would move fairly smoothly only if it had been organized and planned for, with adequate transportation, preparations for food and housing and medical care. Then, the skilled engineers would check facilities—water, sewer, food supply—to be sure they were safe and sufficient.

All this could be a most difficult operation. It would work well when properly organized and the workers trained, and communications well set up to hold the parts of the operation together.

In further detail, here is Civil Defense in action.

Medical and Health Services and Special Weapons Defense

The "special weapons" field is the one which adds new emphasis to the possible magnitude of the Civil Defense operation. The radiological, chemical and other special weapons create major problems of defense, and lend added significance to the importance of medical and health services in civil defense. These then form a closely related group; in broad terms their functions would be:

Radiological Defense. Because a single atomic bomb dropped on a large city could cause 100,000 casualties—40,000 of them either instantly killed or dead within a few weeks—preparing for such an attack will require special skills and most efficient operation.

Many of those injured could be saved; countless others could be protected from further suffering by the measures promptly taken after an attack. Prime purpose of radiological defense would be to detect the continuing hazards and see that they are avoided, both by the civil defense workers and the public. Hence survey and technical units, with equipment to measure the radiation hazards, would move care-

fully into an area as the first task after an attack. Areas would be posted for the guidance of all the services. So insidious is the nature of the contamination that extreme care would have to be taken over a considerable period.

Radioactivity effects can be minimized by such measures and by thorough understanding on everyone's part of the nature of the dangers, where they exist, how they are to avoid them—by frequent washing, by being careful as to food which may be contaminated, and by elimination of contaminated clothing.

This field is so difficult that prompt organization for radiological defense is indicated, not only in the national organization but in communities which face the possibility of attack.

Chemical Defense. War gases, if used in enemy attack, could mean agonizing suffering and death to entire populations. In preparing its civil defenses this nation must include every possible means of protecting against such a possibility.

This field presents complex problems because of the variety and deadliness of the chemicals which might be used, the speed with which they would take effect on people, the hazardous contamination of areas, buildings and objects which might persist after attack, and the training requirements in detection, first aid and treatment.

The difficulties, however, only emphasize the importance of action. Civil Defense, the Armed Forces and the scientists must work together on techniques, procedures and equipment.

Only as techniques and equipment are further developed and made available, however, is organization and training for chemical defense on a large scale advisable. When that point arrives, there must be key people sufficiently well equipped and trained to be the nucleus of the organization in danger areas. These would be the workers prepared to move in on the heels of an attack to check on war gases used, to treat its victims, and to perform the decontamination tasks which will be necessary before the areas and the people are safe from further effects.

Continued research will be a major essential. The problem of gas masks for civilians is typical of many factors which must be studied.

By organization and training the people may be prepared for the possibility of war gas attack and means for dealing with it without fear.

Other Special Weapons Defense. There are other known unconventional weapons of modern warfare, and the future will undoubtedly see still others developed. They have been and will continue to be studied since they will create special problems of defense. As plans develop and crystallize they will be made available from time to time as supplements to this report.

Medical and Health Services. To care for the civilian sick and injured in a war which reached into American cities would require mobilization, through Civil Defense, of all the facilities and manpower in medical and health fields.

The last war demonstrated the difficulties of maintaining medical care for civilian populations. If the problem is aggravated by attacks on major centers, the organization and planning would have to be thorough to be ready for emergency.

Wherever attack might occur there would need to be units of professional personnel trained and equipped for the unusual tasks of caring for the injured where the numbers might run into hundreds of thousands. They would have to be prepared for treatment of victims of war gas or of radioactivity as well as normal injuries.

Organized staffs should be in readiness to move into an attacked area—or into other cities—equipped for mass handling of difficult and varied medical and surgical problems. These units must be planned for and set for instant action under the most adverse conditions. And that means every kind of skill from the surgeon to the druggist's aide.

Paralleling this medical care need, would be problems of public health: The measures to protect against disease; against contaminated water, milk and food; against the diseases of animals. Here the public health agencies of the nation, of the state and of the community should be the spearhead.

It will be a major organizational operation to put the wheels in motion for a successful, quick-moving plan to meet the situations which might have to be faced. Civil Defense should do the planning, the organizing, and the training, utilizing the agencies, organizations and the people qualified to implement the program.

Technical Services

Civil Defense must make heavy demand on many existing services and agencies, utilizing their established manpower and experience and adapting them to the special civil defense tasks. They include:

Communications. The best defense system that could be devised would fail if its communications system did not function, and particularly if it suffered major failures in time of extreme emergency. Facilities to warn the people that an attack was imminent; to summon workers to man their posts; to assure quick interchange of information and instructions, would be essential to action.

Fortunately, in the United States, there is a communications system of top efficiency and adaptability. Through normal communications facilities would be the mechanisms for air raid warning networks and for control centers required for receiving and spreading alarms. The means would be there for prompt transmittal of orders, down to every block and virtually every home. The facilities would lend themselves to quieting fears as well as warning against dangers.

Whether it be telephone, telegraph, radio in all its forms, or special systems of all kinds, Civil Defense would utilize all of them. It will be necessary to assure adequate flexibility in the facilities installed for Civil Defense so they can be adapted to any situation; and to plan properly for alternative equipment so that emergency situations would leave no loop-holes.

The Communications operations of the Civil Defense organization, in the state and local phases as well as the national office, should be so planned as to make full use of all the skills and techniques of the business. All the varied segments of the American communications system are available and are willing to assist.

Engineering Services. A city bombed could be more than a city laid waste, with death to inhabitants and destruction to buildings. If its water supply were cut off or contaminated, it would make living difficult for the survivors. If its power facilities were destroyed or its sewage system damaged, it would vastly hamper existence and recovery.

Engineers might have many difficult tasks to perform. There could be great masses of debris to move, to get at the buried victims of assault. There could be bridges to rebuild, roads to clear, utilities to restore.

Civil Defense from the engineering standpoint involves organization of the skilled manpower to be ready for any emergency; training of rescuers for major clearance tasks; speedy reconstruction of facilities; supplying, if need be, of new sources of water; repairs to sanitary systems.

Civil Defense engineering involves too the planning of construction measures for protecting people and facilities; of camouflage or other means of disguise for protection of industry; the planning of techniques to achieve successful blackout and dim-out if they are to be required; the city planning required to encourage distribution and construction of industries, buildings and homes to make them less susceptible to attack.

Capable leadership and guidance through all the channels of Civil Defense can do much to assure meeting of the engineering problems which war might bring to American cities.

Fire Services. Fires started by incendiary bombs caused as much damage and as many casualties on some cities in World War II as did the atomic bomb. Measures to prevent such disasters in this country must be a vital part of Civil Defense.

American fire departments are well equipped and trained to meet the usual fire hazards, and would inevitably be the foundation of fire services in a civil defense program. But it will require careful planning and organization to meet the kind of emergency which a major enemy attack would bring on a community.

If a large-scale attack were delivered, it might mean loss of fire fighting facilities, thus requiring most effective handling of remaining facilities and possible summoning of aid from other areas. Hence the need for improving effectiveness of the fire fighting forces, supplementing them with auxiliary firemen and well-planned operations in readiness for action.

The fire services would furnish important units to mobile supporting forces as a part of the plan for mutual aid between communities and states.

Police Services. The police of this country are trained, equipped and skilled in the manifold tasks of protecting people and property. Their tasks, like those of others, would be aggravated by enemy attack, and theirs would be an important function in Civil Defense.

If an American city were attacked by enemy bombs, there would be responsibility placed on the police to protect the area and the people in it from vandals and looters, to keep the area clear so that rescue and other services may promptly be performed, to regulate traffic, to aid with missing persons, to prevent and investigate crime.

Police too would take a hand in assistance to neighboring communities which might be attacked, operating under mutual aid agreements.

Police units of Civil Defense organizations should be composed of regular police forces, augmented by trained auxiliaries.

Warden Service. The warden who serves his block, his district or his city is in many respects the key man in civil defense operations. Properly selected and trained, he represents civil defense to his neighbors; helps them, instructs them in the ways of self-help, informs them of problems, gathers information for use in the event of disaster of any kind.

The wardens—men and women alike—will serve as first aiders, will see that their people are warned and cared for, will aid the special services and teams in their particular functions—in sum, will be the local leader through whom civil defense becomes a living force, both in getting ready for possible emergency and in operating if the emergency comes.

Transportation. Operating a Civil Defense program will require transportation of many kinds and under varying conditions. Because regular facilities, both public and private, are adequate and competent for all normal uses, major attention needs to be given only to emergency situations, particularly evacuation.

Should it be necessary to move an entire population, or a considerable part of a city's residents, it would involve a carefully-developed plan and all the transportation facilities that could be mustered. The conditions under which such an evacuation would occur would create problems not easily solved save by thorough preparation.

All the transportation facilities, whether rail, air, water or highway, would have to be analyzed and inventoried in terms of requirements for a possible mass movement of people, many of whom might be injured or ill. Fuel supplies would have to be determined, centers chosen to which vehicles and people would be sent, routes selected for their movement to destinations, and traffic controls provided to assure smooth operations.

Authority as well as procedures would have to be provided so there would be no difficulty in acquiring needed facilities.

To be ready for such eventualities, it will be necessary to organize, to lay out the plans in every possible detail, and to have the operation ready against the day when it may suddenly be needed.

Plans and Operations

All Civil Defense goes into operation in emergency situations, and particularly in the event of war. Important in a sound civil defense program is the careful coordination of all plans and operations. In addition to this responsibility, the following specific activities are a direct responsibility:

Mutual Aid and Mobile Reserves. The devastating attack which a modern war would bring to American shores might be such that no individual, no family, no community or state could count entirely on its own resources to recover or survive.

Under Civil Defense, therefore, should be organized the means for mutual assistance whereby neighborhoods, communities or states would come to each other's aid on an organized, planned basis.

First should be arrangements whereby one city, for example, would be ready on short notice to send trained forces to another city in the event of enemy attack. Such a mutual aid agreement would assure skilled crews of firemen, police, engineers, doctors, nurses, rescue workers and others, equipped to help restore an attacked city.

In addition trained forces should be organized in advance into Mobile Reserve Battalions. They would include parts of the regular protective services of a city, augmented by volunteers who were trained in the specialties required to make each battalion a self-contained unit.

Key battalions should be organized by the states. They should be well organized under federal assistance and supervision but under state control for any disaster requiring organized aid. The federal government should set standards and share in their equipment costs.

In addition, other Mobile Reserve Battalions should be organized by states or cities in a far flung program to assure readiness in emergency. Activation would be the direct responsibility of state and local Civil Defense organizations, with national and regional offices assisting in policy, training and supervision—and participating in operation in emergencies across state lines.

These state-sponsored Mobile Reserves would furnish an essential basis for Mutual Assistance, on a plan which could readily be transformed into an expanded system of Federal Mobile Reserves should they be required.

Plant Protection. A great area of responsibility rests on Civil Defense within the field of plant protection. Plants of all kinds would need to be carefully organized and the employees trained for speedy action in the event of attack.

Plant management itself, of course, would have the primary responsibility. Government agencies with a special interest in a plant because of war contracts or for other reasons, would have a responsibility and a concern equalling that of management. To develop proper plans, adapted to each situation is a Civil Defense function in cooperation with the facilities and the agencies involved.

Each plant, with its own peculiar facilities, is a problem in itself in planning its defenses, yet there can be basic policies established which can be adapted to each situation. One individual should be given leadership responsibility as part of his duties in the plant organization. Utilizing the services and abilities of all the employees, he would assign duties designed to prepare everyone for his role in the event of attack. There would be persons trained in fire fighting, in radiological defense, in rescue, in evacuation, in manning the communications. There would be a staff to conduct the training, men to see that transportation facilities are ready, men and women to conduct first aid. In other words, within the walls of a single plant a Civil Defense organization equipped, trained and ready for emergency.

These procedures do not come into being on the spur of the moment. They involve planning, preparation, organization and training, and can best be effected by participation in the benefits of the Civil Defense organization in all its aspects.

Evacuation Service. The time may come, if this nation is attacked, when large numbers of civilians will have to be moved from their homes to other areas, either in anticipation of attack or after an enemy attack has occurred. Evacuations, to be successful, do not take place by chance; they must be the result of thorough organization and well-conceived planning—essential functions of Civil Defense.

It involves the selection and training of leaders and staff to direct the evacuation process; the registration of every individual who may be involved; the selection of routes and means of transportation; the provision of essential services, such as medical and food; the arrangement for gathering points, assembly areas, and reception areas—these and other phases of an intricate maneuver which can be most difficult even under the best of conditions.

The problems of dealing with men, women and children, with the aged and infirm, will require thoughtful preparation and instruction.

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The problems of feeding, shelter and traffic are so involved that the organization for evacuation must be carefully developed and trained.

Though evacuation on a large scale may never be a problem in many areas, that cannot be the criterion for planning. Therefore, in Civil Defense, there should be capable leadership in the national organization, assisting leaders in states and cities in developing their procedures against the possibility that it might happen.

Civilian War Aid. Throughout the country the many welfare services are well established, in the hands of trained workers who are equipped for the normal activities in the welfare field. That fact makes it relatively easy to plan civilian war aid for a war emergency, but it does not lessen the need for a carefully developed plan and organization for an emergency.

In the event of enemy attack on a community or area, prompt action in feeding, clothing and sheltering the victims of attack would be necessary for the aid of hundreds of thousands of men, women and children.

Experienced workers in the welfare field in states and communities as well as in the nation, should be the nucleus for the civilian war aid program in Civil Defense. In advance of the possible needs they should have plans perfected, organization established and facilities ready.

They must be prepared with procedures for registration, as a means of identification and helping unite families. They should be ready with full information on feeding facilities and food supplies if homes are wiped out. They should have established sources for clothing needs and means for acquisition and distribution in an emergency.

They should have the means and organization to speedily find shelter accommodations for disaster victims. And, as efforts at normal life proceed, they must aid in the rehabilitation of people.

Air Raid Warning and Aircraft Observer Systems. The United States Air Force, responsible for the air defense of the United States, is establishing air defense control areas with control centers, in various parts of the country. These facilities, with the use of radar and other devices, will form the base for getting prompt information in the event of approaching enemy planes from whatever direction.

Civil Defense should have the responsibility to see that air raid warnings are passed on to Civil Defense organizations so as to be ready for action; and to the public for their guidance and action. Therefore, in those air defense control centers should be Civil Defense personnel, with adequate communications systems, ready to perform as situations develop.

To assure every protection against surprise attacks, civilian observation posts would be established to supplement the Air Force

operation. These too, as a civil defense responsibility, would be geared to the control centers of the air defense control areas.

The air raid warning system provides for passing the word of impending attack, alerting communities and their people. Local Civil Defense organizations would tie in, either directly or through quick-acting channels. Communities, in readiness, would have control centers of their own, serving not only to receive the news of possible attack but as the command center for the operating Civil Defense units and services. From the local control center would go the orders to carry on rescue or survey or fire-fighting; to it would come reports from wardens, from incident officers, from special teams as they operate on the scene of attack.

Throughout all these runs responsibility for the measures designed to minimize the effect of attack, restore the facilities, remove the dangers and create as quickly as possible a sense of danger passed and a readiness to resume normal life.

Training

These functions of civil defense cannot be made to work effectively unless there is thorough and adequate training—training of the fifteen million men and women who would make up the Civil Defense organization; training of all the people in the things they must know in preparation for emergency.

Selecting and training the civil defense workers will require a variety of skills and materials; all but a small nucleus will be volunteers, patriotically giving their time. The functions described in this report indicate the endless variety of problems involved, both in selecting the right persons and in giving them the essential knowledge for performing their specific assignment.

The entire population will need to know the problems which may confront them, and what each can do in any of a hundred different situations.

The newness and strangeness of some of the possible weapons of attack emphasize the difficulties and point up the need for an immediate training program.

Public Information

Related to training is the means of informing the public. How to allay fears and control the panic that could come with attacks by modern weapons, and yet to keep the public informed on the dangers and the means of protecting against them—these are basic functions requiring attention in Civil Defense organizations not only in the national office but in state and local organizations.

Research and Development

While Civil Defense is organizing and training to prepare for possible enemy attack, it faces countless problems which will require constant study and the best research talents of the nation's scientists. Protection against new weapons and new methods of warfare, and means of minimizing their effectiveness, will be just as important as the creation of such weapons for offensive war.

Answers to many questions will have to be explored. What to do about bomb shelters, whether civilian gas masks are feasible or necessary, how to make blackout successful, how to reduce the hazards of great fires, how best develop techniques for problems of rescue, evacuation, medical care—these and many other problems will require constant study in the light of new information.

Fortunately this nation is well equipped with the skills for research, and has already established the mechanism of harnessing these skills through the Research and Development Board. Cooperative efforts with this Board and with the Armed Forces, as well as independent research in special fields peculiar to Civil Defense should be the means of getting answers.

This calls for no great new staff in Civil Defense, but the utilization of available talent wherever it may be found.

BASIC PRINCIPLES OF THE CIVIL DEFENSE PLAN

A number of fundamental principles have been followed in developing the program for Civil Defense, and for the organization proposals to make the program effective.

Basic Tenets of Civil Defense. The individual, given such training as can be provided, does everything possible to help himself in an emergency. The family seeking self-preservation, operates as a unit in handling its own problems as far as it can do so. The community, organized and equipped, puts its Civil Defense organization to work to meet the crisis. If these facilities and efforts are inadequate, mutual aid and mobile reserves from other communities come to the rescue. When these means have been utilized to their limit, military aid comes to the assistance of civil authority. And in the final stage, other steps proving inadequate, martial rule comes into play.

Leadership and Responsibility. Organizing and operating Civil Defense must be the joint responsibility of the federal government, the states and the communities. There must be strong and able leadership on a firm foundation, to make Civil Defense effective.

An Office of Civil Defense, capably manned under established authority, should provide the leadership which civil defense requires. It would provide leadership and guidance, set patterns and lay down principles, with the assurance that it would have complete cooperation

of states and municipalities in making the program effective. The basic principle should be that the primary operating responsibility for Civil Defense must rest with state and local governments, that they must be the directing force in the protection of their own citizens. As the Governors' Conference said in a resolution at its annual meeting at Portsmouth, New Hampshire, June 13–16, 1948:

> "The Governors' Conference pledges its support of a properly conceived civil defense plan. The Conference wishes to emphasize—and experience with civil defense during the last war has amply demonstrated—that efficient operation cannot be achieved unless the Federal Government will work with and through the State Governments."

It may be added that Civil Defense plans have been reviewed in general with the executive committee of the Governor's Conference, representatives of the American Municipal Association, representatives of the United States Conference of Mayors, and other similar groups, all of whom concur in the principal of state and local responsibility under federal leadership.

A model state act for civil defense has been prepared in that spirit and in accordance with the overall concept of the general plan—that the channel of administration and operation shall be from the Federal Government to the state governments, and from the states to their political subdivisions.

Flexibility. The Civil Defense program has been developed with these considerations as fundamental:

First, that a peacetime operation can be launched in such a way that it can readily be adapted to war conditions. The base, properly established, would easily be expanded without undue delay or difficulty if emergency should require.

Second, that patterns are laid down for state and local organizations as typical model plans, designed to fit maximum requirements; that every state and every community would be expected to modify and adapt them to their own requirements. The essential elements are there for a sound Civil Defense program, subject to adjustments to meet particular situations.

It is to be expected that plans, operation and organization may have to be revised in the light of developments, and it has been in that spirit that the program has been developed. Major changes involving principles would be made only by the Director of Civil Defense supported by legislative action should it be required.

It should perhaps also be pointed out that while this report provides in some detail a broad plan for Civil Defense, it would be supplemented by manuals, instructions and materials which will be issued after the plan is implemented, to aid in organizing and training activities.

Use of Existing Agencies. While the Office of Civil Defense would be a new agency, the entire Civil Defense program should be built

on the principle of utmost utilization of existing agencies and facilities. That rule applies whether in the federal government, the state or the locality. Newly employed personnel should be held to a minimum, and the services of every possible agency be sought—both in the interest of conserving manpower, and in applying the skills and responsibilities of people and organizations to the Civil Defense tasks.

Similarly, the obligation—and the value—of Civil Defense would be in assuring coordination of agencies in the common task. Throughout government are departments or agencies whose activities should be meshed with Civil Defense, particularly the Armed Forces and the other agencies in the National Military Establishment.

Personnel Essentials. First principle in Civil Defense must be organization of volunteers for major activities. This is inevitable because, except in rarest of instances, it would be a part-time, spare-time activity. Also, because it involves the defense of home and community.

In a wartime operation, some fifteen million people might be involved in all phases of Civil Defense. And, despite the supreme importance of their operations, they must perform without creating a drain on manpower or on production. It is conceivable that the country could be so severely engaged that virtually every man, woman and child would have to be assigned to tasks in a Civil Defense organization fighting for the nation's life.

While it is extremely important that highly qualified men and women serve in key positions throughout the Civil Defense Organization, the time-consuming tasks must not be given to men needed in the Armed Forces, or to people performing essential duties elsewhere except as their Civil Defense activities may fit into other functions.

Full use should, of course, be made of civic, social, fraternal, veterans and other community organizations, including women's groups, organizations of boys and girls, business, labor, agricultural and professional associations and the like.

Despite its magnitude, the Civil Defense program must be assured of loyal workers, unswayed by anything except the national interest. An oath of office and loyalty is indicated, and certainly the Civil Defense Organization, wherever found, must have no taint of political interest, or of diversion from its primary tasks.

Peacetime Uses. While Civil Defense is designed basically for use in a possible war, it should serve useful functions apart from that ultimate need. In the period of peace, the organization should be perfecting its course, training and testing its operations and plans. Test drills should be staged as trial runs, to be certain that the pieces fit into a master-scheme for an emergency. The training of units and individuals should be pursued without delay and with the best of direction.

Any community struck by fire, flood, explosion or storm may find, as some communities have in the past, that their normal protective services were inadequate for the need. There have been instances when reinforcements quickly provided could have saved lives and reduced damage. Here is a field in which Civil Defense would demonstrate its usefulness; and Civil Defense, organizing in a state or community, should not fail to take that into account in the plan. There should clearly be a basic purpose of disaster action in organizing for Civil Defense, for many parts of such an organization would be automatically adaptable to the handling of emergency situations in times of peace as in war.

The Organization. The Office of Civil Defense should be formally established, by act of Congress, to give it the necessary authority and the funds required. Similarly in states and communities, where authorization now is lacking, legislation is essential.

The Office of Civil Defense should be represented on the Research and Development Board and the Munitions Board, and it must have close and constant contact with all branches of the Armed Forces, both for its own intelligent planning and for the purpose of coordinating the support of those services where it is necessary.

* * *

This report was prepared by a small but able staff with the assistance of advisory panels composed of outstanding representatives from various specialized fields. (See page 295.)

Details of the proposed plan for Civil Defense follow.

FEDERAL ORGANIZATION FOR CIVIL DEFENSE

It is essential that there be established a central agency to give leadership and direction to the development and carrying out of the civil defense program and to coordinate all civil plans with the military plans for the defense of the country.

It is proposed that there be established within the Executive Branch of the Federal Government an Office of Civil Defense, headed by a Director who should be a civilian of outstanding ability and qualifications. There are but a few places within the Executive Branch where this office could be properly placed. The two most appropriate of these would be: one, reporting directly to the President; the other, reporting directly to the Secretary of Defense. Since a very large part of the civil defense program will require continuous coordination with all agencies responsible to the Secretary of Defense, it seems reasonable that the latter would be preferable.

The Office of Civil Defense should have representation on the Munitions Board and the Research and Development Board. This representation would expedite the integration of the civil defense plans with those of the Armed Forces.

The Office of Civil Defense would be the agency to give authoritative leadership, coordination, and direction to the planning and development of the civil defenses of the Nation; but, since the States and localities should be primarily responsible for carrying out the operating aspects of the program, the Federal staff would not need to be large. It should, however, be so organized that it could be quickly expanded to meet wartime or other emergency demands. This means that, even though the staff is kept small, the peacetime organization must reflect all the functions and activities essential to a complete wartime program. This is highly important in that if there is a "next war," it may start, as did the last, with a surprise attack; except that this time it might start with an attack in force upon this continent.

Major Functions. The Office of Civil Defense should be charged with the following responsibilities:

Establishing and administering, as an integrated part of the overall strategic plan for the defense of the United States, the national program for civil defense and estimating the total civil defense manpower and material requirements for carrying out the program.

Coordinating and directing all civil defense matters affecting the National Military Establishment and other governmental agencies, developing the most effective means of accomplishing the mission of civil defense and allocating responsibilities, manpower, and equipment among the participating agencies and political subdivisions.

Developing a coordinated program of research into problems pertaining to the civil defense of the Nation.

Providing effective liaison between other governmental and private agencies and the National Military Establishment through serving as a central source of authoritative information on questions concerning civil defense.

Developing and supervising a program for training the participants in civil defense.

Guiding and assisting the several states, territories, and possessions in working out operating procedures and arrangements for mutual assistance and directing civil defense operations in the event of a national emergency.

THE NATIONAL OFFICE

Organization. (Chart 2.) In order to carry out its responsibilities the Office of Civil Defense should consist of a Director and his staff, such consultants and advisory panels as may be required, and four major organizational units: Plans and Operations; Medical and Health Services and Special Weapons Defense; Technical Services; and Training—each headed by a Deputy Director.

The Director would have an immediate staff which would consist of: an Executive Assistant, Legal Counsel, a Public Information Officer, a Coordinator for Research and Development, a Special Assistant for Administrative and Fiscal Services, and such other assistants as would be necessary. The Director would be charged with general direction and supervision of the national and regional offices. His principal assistants should be career staff members of outstanding ability and qualifications; their general functions would be:

The Deputy Director for Plans and Operations who would have supervision over the Organization and Methods, Mutual Aid and Mobile Reserve, Plant Protection, Air Raid Warning and Aircraft Observers, Manpower and Matériel, Evacuation, and Civilian War Aid Divisions. These divisions would be concerned with the preparation of plans for and the coordination of the operations that involve virtually all of the activities that constitute the civil defense program.

The Deputy Director for Medical and Health Services and Special Weapons Defense who would have supervision over the Medical and

Health Services, Radiological Defense, Chemical Defense, and Other Special Weapons Defense Divisions. These divisions would be concerned with the preparation of plans for and the carrying out of operations that involve highly specialized professional knowledge or new techniques and whose operations are closely allied in the civil defense programs.

The Deputy Director for Technical Services who would have supervision over the Communications, Engineering, Fire Services, Police Services, Warden Services, and Transportation Divisions. The divisions grouped within this office would each be concerned with an activity that would constitute a specialized part of the entire civil defense program. These are specialized services which would provide technical knowledge and advice for the civil defense program.

The Deputy Director for Training who would have supervision over the Methods and Materials, Leadership Training, School and College, General Education, and Field Service Divisions. These divisions would be concerned with the formulation of training plans, the preparation of instructional materials, and the coordination of all civil defense training activities, including the general education of the public, that would be needed to prepare civil defense workers for their specific tasks. They would organize and conduct training programs for key civil defense personnel. They would guide and assist the States and localities in their training programs and inform the general public of the hazards of modern warfare and the measures to be taken in alleviating suffering, minimizing damage, and recovering from the effects of enemy attack.

In general, the allocation of duties and responsibilities would be as follows:

The Director would formulate policies and issue directives governing the carrying out of the civil defense program; develop and maintain working relationships with Federal and State governmental departments and other public and private agencies; and give general direction to the internal operation of the Office of Civil Defense. In the absence of the Director a designated Deputy Director would act in his behalf. The immediate staff of the Director would be comprised of the following principal personnel:

Executive Assistant who would be appointed by the Director and would exercise in behalf of the Director general supervision over the activities of the Office of Civil Defense.

Legal Counsel who would advise on all legal and legislative matters.

Public Information Officer who would supervise the preparation of appropriate material for informing the public as to the status and objectives of the civil defense program.

Coordinator for Research and Development who would coordinate, develop, and supervise an integrated research and development program covering all aspects of civil defense; advise on scientific trends; and take steps to ensure constant progress in the field of civil defense.

Special Assistant for Administrative and Fiscal Services who would be responsible for the operation of the central administrative and fiscal services of the Office of Civil Defense. These would include budget, personnel, finances and accounts, and office services.

The Deputy Director for Plans and Operations would be responsible for advising the Director on matters of operating policy and reviewing and coordinating the operating plans of all civil defense divisions and regional offices, and, in addition, would have direct supervision over the following divisions:

Organization and Methods Division which would review plans and organizational proposals and methods of operation, and develop sound organizational patterns and operating procedures for civil defense.

Mutual Aid and Mobile Reserve Division which would develop standard operating plans for organizing, equipping, and training state mobile reserve units, and assist in formulating both intrastate and interstate mutual aid arrangements.

Plant Protection Division which would develop and establish the civil defense program for plant protection in manufacturing, and non-manufacturing facilities, utilities, institutions, and private enterprise. It would also collaborate with other agencies of responsibility in directing and carrying out the over-all program for plant protection.

Air Raid Warning and Aircraft Observers Division which would, with the assistance of the United States Air Force, develop plans for selecting and training personnel and would organize and operate effective air raid warning and aircraft observer services.

Manpower and Matériel Division which would determine the total manpower and matériel requirements for civil defense and allocate the available supplies and equipment.

Evacuation Division which would develop plans for evacuation of the population made necessary by actual or threatened enemy action.

Civilian War Aid Division which would develop plans for mobilizing the civilian war aid services for civil defense, including the provisions of emergency food, clothing, and shelter.

The Deputy Director for Medical and Health Services and Special Weapons Defense would be responsible for the development of those phases of the civil defense program which relate to the medical and allied services represented in the Medical and Health services,

the Radiological Defense, the Chemical Defense, and the Other Special Weapons Defense Divisions. He should be an outstanding member of the medical profession, licensed to practice medicine and surgery, and have had broad medical and administrative experience.

He would advise the Director with respect to all matters relating to these Divisions and, in particular, as they relate to the over-all civil defense program.

He would advise the Director with respect to those matters of public information and of public relations which relate to these Divisions.

He would be responsible for the supervision of the:

Medical and Health Services Division which would develop plans for and organize the medical and public health aspects of the civil defense program.

Radiological Defense Division which would develop plans and techniques for and supervise the defense of the civilian population against the hazards of radiological attack.

Chemical Defense Division which would develop plans and techniques for the defense of the civilian population against the hazards of chemical attack.

Other Special Weapons Defense Division which would develop plans and techniques for the defense of the civilian population against the hazards of special unconventional types of attack.

The Deputy Director for Technical Services would be responsible for the supervision of the technical aspects and the development of techniques of operation of the civil defense program as it pertains to the Communications, Engineering, Fire Services, Police Services, Warden Services, and Transportation Divisions; their functions would be as follows:

Communications Division would determine the communications requirements and techniques involved in the civil defense program, including those for the air raid warning and aircraft observer networks.

Engineering Division would develop plans, specifications, methods, and techniques applicable to the engineering aspects of civil defense, including rescue methods.

Fire Services Division would plan and coordinate all fire services for civil defense.

Police Services Division would plan and coordinate all law enforcement services for civil defense.

Warden Services Division would develop plans and procedures for organizing, training, and operating the civil defense warden services.

Transportation Division would develop plans for mobilizing and utilizing emergency transportation for civil defense.

The Deputy Director for Training would be responsible for the supervision of the following divisions:

Methods and Materials Division which would develop, in collaboration with the other divisions, training methods and instructional materials for state and community training programs. This division would also develop methods and procedures for use by State and local organizations for selecting and assigning personnel.

Leadership Training Division which would in cooperation with the States and localities plan, organize, and direct national programs for training key civil defense personnel.

School and College Division which would develop plans for furthering civil defense training through utilizing facilities and personnel in universities, colleges, and similar institutions.

General Education Division which would develop programs and instructional material for the education of the public, including such factors as self-protection, self-help, and family mutual aid; and investigate problems relating to panic prevention.

Field Service Division which would advise and assist State and local officials in regard to training methods, materials, and assignment of personnel; and review the effectiveness of the training program in the field.

THE REGIONAL OFFICES

Organization. (Chart 2.) The Director of Civil Defense should be authorized to establish regional offices, headed by Regional Coordinators, as and when he determines them to be necessary. In view of the need for close coordination with the Armed Forces, this would most readily be accomplished by establishing the regional offices on a geographical basis that would parallel the Army Area Commands in the United States and its territories and possessions. In the peacetime period, such regional offices as would be created would require but a small number of personnel.

In general the duties and responsibilities would be as follows:

The Regional Coordinator would be responsible for coordinating civil defense plans with those of the military commands, state and territorial governments, and metropolitan areas, particularly where these areas involve two or more States. In addition, and recognizing that the effects of enemy attack cannot be dealt with by adherence to State boundaries, he would be responsible for coordinating plans to ensure effective employment of mobile reserves and to render assistance to States and localities in accordance with mutual aid arrangements.

In view of their geographic location and exposure to attack, the planning and directing of civil defense operations in the territories and possessions would have to be accomplished in very close coopera-

tion with the Armed Forces. For this reason, the over-all planning should be undertaken by the Office of Civil Defense in cooperation with the appropriate military agencies, as exemplified by the Plans and Operations Division of the Department of the Army. On the other hand, the preparation of the detailed plans for civil defense operations should be the responsibility of the local civil authorities in conjunction with the local military commanders. The assistance of the staff of the Office of Civil Defense would be made available to the appropriate agencies of the Armed Forces and to the local civil authorities of territories and possessions. Such assistance would also be available, through channels, to military commanders in the occupied areas.

STATE ORGANIZATION IN THE CIVIL DEFENSE PROGRAM

The control of Civil Defense organization and activities and the responsibility for the operation of Civil Defense within the state should rest with the Governor of the state. However, the mission and functions of a state Civil Defense headquarters are primarily of staff supervisory and technical advisory nature, inasmuch as many of the actual field operations will take place in the local organization.

The State Civil Defense headquarters should direct and coordinate all civil defense activities within the state, promulgate methods and techniques in accordance with established policies, and evaluate all civil defense needs within the state in relation to each other.

A State Civil Defense organization should be established, which contemplates the full utilization of existing state governmental agencies, such as Office of State Police, Adjutant General's Department or State Guard, Department of Health, Department of Public Welfare, Office of State Fire Marshal, Department of Highways, Department of Public Works and Buildings, Department of Agriculture, Department of Education, and Office of the Attorney General, insofar as they relate to civil defense operations, supplemented by such additionally created agencies as Communications, Transportation, Administration, Planning, Radiological Defense, Chemical Defense, Other Special Weapons Defense, Evacuation, Mutual Aid and Mobile Reserve, Public Information, Training, Warden Services, Fire Services, Police Services, Medical and Health Services, Civilian War Aid, Air Raid Warning and Aircraft Observer, Engineering, and Plant Protection Divisions, as are necessary to carry out effectively the total civil defense mission.

ORGANIZATION (Chart 3)

Governor. The Governor, as the duly elected head of the state government, responsible to the people of the state as such, should be charged with the responsibility for civil defense within his state.

State Director of Civil Defense. The State Director of Civil Defense should be an official of cabinet rank on the Governor's staff, and should head the State Civil Defense organization as an executive department of state government. He should, subject to the orders of

the Governor, and responsible to the Governor, direct state civil defense operations under his jurisdiction and should coordinate the civil defense activities of existing departments of state government. In addition, he should coordinate all of the civil defense activities of the state with those of other states and with the National Office and appropriate Regional Office of Civil Defense.

It is recommended that the State Director of Civil Defense be assisted in carrying out his mission by five Deputy Directors, each to direct a major function of civil defense.

Great care should be exercised in selecting a State Director of Civil Defense and his deputies. They must be men possessing experience in dealing with emergencies and directing large scale activities, and men who, by reason of such experience and by training and temperament, can maintain their ability to direct operations under the most trying circumstances. In this connection, there are in every state men of mature years and judgment who served in the recent war as officers or non-commissioned officers of the armed forces in overseas operations. Such men learned by actual experience how to cope with disaster and emergency conditions during hostilities, and know how to deal with situations such as have never arisen inside the confines of America. Such men constitute a valuable reservoir of personnel from which capable Directors of Civil Defense may be selected.

Advisory Council. It is considered desirable that an Advisory Council consisting of representative citizens of the state and representatives of the state legislative and judicial departments of government be constituted to counsel and advise the Governor on civil defense matters. The council should function in a purely advisory capacity.

State Civil Defense Organization and Functions. The State Civil Defense organization should be headed by the State Director of Civil Defense, assisted by five Deputy Directors, with the following responsibilities:

1. A Deputy Director exercising administrative supervision over the Communications, Air Raid Warning and Aircraft Observer, Transportation and Engineering Divisions. He would also be charged with coordinating and integrating with these Divisions, the normal functions of such existing state agencies as Public Works and Buildings and Highway Departments, and Department of Health, insofar as they relate to civil defense operations. A summary of functions is:

Communications. Should arrange for the establishment and maintenance of command and air raid warning communications to assure control between state headquarters and the subdivisions of the state.

Air Raid Warning and Aircraft Observers. Should have the responsibility for relaying air raid warning information received at key point warning centers to cities and communities within the state; and, under the supervision of the Office of Civil Defense, for organizing aircraft observation posts and necessary volunteers to serve as aircraft observers.

Transportation. Should coordinate plans for emergency transportation to effectuate evacuation and meet other transportation requirements.

Engineering. Should evolve techniques and furnish advice and assistance relating to demolition, restoration and repair of buildings, and restoration of public works services. Should promulgate methods and techniques with respect to rescue procedures.

Department of Public Works and Buildings. Should assist Civil Defense agencies by making available state buildings, equipment and facilities for emergency purposes.

Department of Highways. Should prepare plans for emergency road nets and be prepared to implement such plans to expedite inter-city emergency traffic.

Department of Health. Should be concerned with policies pertaining to problems of water purification and sewage disposal.

2. A Deputy Director exercising administrative supervision over the Plant Protection, Warden Services, Police Services, Fire Services and Mutual Aid and Mobile Reserve Divisions. He would also be charged with coordinating and integrating with these Divisions, the normal functions of such existing state agencies as State Police, Adjutant General's Department or State Guard, and State Fire Marshal, in so far as they relate to civil defense operations. A summary of functions is:

Plant Protection. Should assist local Civil Defense organizations in the establishment of adequate plans for the protection of plants falling within the scope of civil defense responsibility, including enterprises, institutions, large office and apartment buildings, public buildings, places of public assembly, and the like.

Warden Services. Should promulgate policies and evolve methods and techniques respecting the Warden Service and the duties of the individual wardens; should coordinate and assist local organizations in the establishment of an effective warden system.

Police Services. Should promulgate policies and evolve methods and techniques for the guidance of local police, and should coordinate the activities of such local police when necessary. Should act in concert with the Office of State Police in performing these functions.

Fire Services. Should promulgate policies and evolve methods and techniques for the guidance of local fire-fighting organizations, and should coordinate their activities when necessary. Should act

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in concert with the Office of the State Fire Marshal in performing these functions.

Mutual Aid and Mobile Reserve. Should coordinate mutual assistance plans between local and other subdivisions of the state; should form and implement plans for mobile reserves consisting of the essential services in support of municipalities and other subdivisions of the state; should coordinate with other states and with the Office of Civil Defense in effecting appropriate arrangements for plans for interstate mutual assistance.

Office of State Police. Should be used as needed in aid of civil defense throughout the state, by order of the Governor upon recommendation of the State Director of Civil Defense.

Adjutant General's Department (or State Guard). Should be utilized if and as needed throughout the state to support civil defense action in time of emergency. Through this agency arrangements may also be made for the use of certain needed armory facilities in time of emergency.

Office of State Fire Marshal. Should effect coordination of all matters pertaining to fire-fighting, fire prevention and inspection.

3. A Deputy Director exercising administrative supervision over the Medical and Health Services, Radiological Defense, Chemical Defense, and Other Special Weapons Defense Divisions. He would also be charged with coordinating and integrating with these Divisions, the normal functions of such existing state agencies as Public Health and Agriculture Departments, insofar as they relate to the civil defense operations just mentioned. A summary of functions is:

Medical and Health Services. Should act in an advisory and coordinating capacity in all civil defense matters pertaining to public health and to methods and techniques of treatment and disease control; should work in concert with the Department of Health in performing these functions.

Radiological Defense. Should establish and implement plans for radiological defense as developed by the Federal plan.

Chemical Defense. Should establish and implement plans for chemical defense as developed by the Federal plan.

Other Special Weapons Defense. Should establish and implement plans for other special weapons defense as developed by the Federal plan.

Department of Health. Should make state-controlled laboratory and institutional facilities available for civil defense use, as needed in time of emergency.

Department of Agriculture. Should be responsible for participation in those aspects of civil defense connected with protection of food and agricultural products and live stock.

4. A Deputy Director exercising administrative supervision over the Evacuation and Civilian War Aid Divisions. He would also be charged with coordinating and integrating with these Divisions, the normal functions of such existing state agencies as Public Welfare and Agriculture Departments, which relate to these civil defense operations. A summary of functions is:

Evacuation. Should establish and supervise adequate plans for the relocation of people rendered homeless in periods of emergency.

Civilian War Aid. Should be responsible for civil defense policies and techniques respecting emergency food, clothing and shelter. Should work in concert with the Department of Public Welfare in performing these functions.

Department of Public Welfare. Should make available state facilities and equipment necessary for carrying out civilian war aid.

Department of Agriculture. Should be responsible for participation in those aspects of civil defense connected with procurement of stocks of agricultural foodstuffs for emergency use.

5. A Deputy Director exercising administrative supervision over the Administration, Planning, Public Information, and Training Divisions. He would also be charged with coordinating and integrating with these Divisions the normal functions of such existing state agencies as Department of Education and Office of Attorney General, in so far as they relate to civil defense operations. A summary of functions is:

Administration. Should perform general administrative functions pertaining specifically to Civil Defense organization, including administration of fiscal matters, procurement and distribution of supplies and maintenance of records. Should promulgate policies and exercise supervision over the recruitment, selection (from the standpoint of fitness and from the standpoint of loyalty), classification, and assignment of personnel for civil defense purposes and for the uniform handling of personnel matters.

Planning. Should establish civil defense plans of the state organization; should coordinate plans of the subdivisions of the state, and coordinate local and state plans with Federal plans for civil defense.

Public Information. Should prepare and implement plans for dissemination of information concerning civil defense to the public. Should assist the Training Division in the dissemination of information required for the general education of the public.

Training. Should establish, coordinate, and implement an effective training program for Civil Defense personnel, and for the general education of the public in problems and techniques of civil defense. Should act as the coordinating agency for all technical training programs offered by the various technical services requiring

special technical training. Should utilize state educational facilities as media in furtherance of its mission, acting in cooperation with the Department of Education for this purpose.

Department of Education. Should be responsible for coordination of public training facilities in connection with the training and educational program of civil defense.

Office of Attorney General. Should be responsible for legal advice and legislative planning concerning civil defense.

LOCAL ORGANIZATION IN THE CIVIL DEFENSE PROGRAM

Civil defense planning has as its ultimate objective the meeting of emergencies and the solving of problems which will arise in actual operations in the local community. The importance of proper organization in the community must be recognized, inasmuch as the real test of all civil defense planning occurs in the emergency conditions encountered during actual operations.

In establishing a pattern for local civil defense organization, it is necessary to keep in view at all time the desirability of making use of existing agencies of local government in order to accomplish the mission of civil defense, adding to such existing organizations only such additional Civil Defense agencies as are not ordinarily found in the normal peacetime local government. It is also necessary to keep in view the necessity for evolving a standard, uniform type of Civil Defense organization adaptable to all localities, bearing in mind the fact that there are certain variations in the detailed organizations of local governmental entities depending to a degree upon the customs of the general locality, the laws of the state, and the charter of the municipality concerned.

The conditions with which civil defense is designed to cope create certain basic problems which are common to cities of every size from the smallest on up through the great metropolitan centers. It is felt, therefore, that in evolving a type of Civil Defense organization for use locally it is highly desirable to perfect one general type of organization which will be adaptable, with appropriate modifications and adjustments, alike for the small as well as the medium and the large city. It is recognized, of course, that the problems arising in a large city or metropolitan area may be more difficult than those arising in a small or medium sized city, but those difficulties spring from matters of degree rather than of basic difference.

The mission of civil defense planning is to evolve a type of local organizational relationship which will be effective for handling of the basic problems encountered. The details of solving the problems as they actually arise in each community must be worked out by the local Civil Defense authorities within the framework of the general organizational pattern. The pattern, however, must not be so inflexible as to exclude the possibility of local authorities putting it into

effect in accordance with their own particular needs, taking into consideration such factors as geographical location, proximity of major target areas, density of population, and availability of facilities.

Actually, when the organization takes shape in any given community, these factors must be taken into consideration in local planning. For example, a large amount of population crowded into a relatively small area poses a more difficult evacuation problem than does a smaller populace in a large area. However, this fact does not preclude the possibility of evacuation problems arising in a small city.

Within the limitations of the principles discussed there is set forth a proposed plan of Civil Defense organization for local use. Its purpose is to serve as a uniform guide for localities in the perfecting of Civil Defense organization.

ORGANIZATION (Chart 4)

The Mayor or comparable responsible official is responsible to the people within the framework of the constitution and laws of the state and the charter and ordinances of the city. He is the chief executive and, in discharging his responsibilities to the people, must see that orderly governmental processes operate within the city.

Since this is true in normal times, it is equally true in time of stress and emergency when the will of the people, as expressed by the Mayor, must make for orderliness and return to normalcy as rapidly as possible. Therefore, the Mayor should be the responsible head of Civil Defense.

Advisory Council. It is recommended that an Advisory Council be organized by the Mayor, consisting of representative citizens of the community and representative types of organizations, whose suggestions and recommendations may be taken into consideration by the Mayor, and utilized as he sees fit in aid of civil defense.

The Director of Civil Defense. Just as the Chief Executive of the nation is the Commander-in-Chief of the Army, but exercises that command ordinarily through a man professionally trained to advise him in matters of arms, namely, the Chief of Staff, it is deemed advisable to have an individual trained in the technique of civil defense operations immediately under the Mayor to advise him, assist him, and act on his behalf, to carry out the civil defense mission in time of emergency. The local Director of Civil Defense should be a member of the Mayor's staff, provided for by law. He should organize, train, and keep in a state of readiness those purely Civil Defense agencies which do not function in municipal government in normal times, and should coordinate from a civil defense standpoint the extra training programs and preparedness required for the assumption of additional civil defense duties in emergency by existing municipal agencies.

In time of peace he should be responsible for the planning and preparation for civil defense operations which take place in time of emergency. He should advise the Mayor on all pertinent matters and be prepared to appear before the Council on all matters concerning civil defense.

In time of emergency, properly declared and proclaimed, and under the direction of the Mayor and responsible to the Mayor and the people, he should assume actual direction of all civil defense operations.

One of the responsibilities of the Director of Civil Defense should be to select a control center, which will be the command post for civil defense operations in time of emergency. It should be the focal point of all civil defense communications and orders. It should likewise be the point to which all air raid warnings should come and from which air warning information would be disseminated as indicated by the needs of civil defense.

In time of emergency the Director should direct the operations of the Civil Defense organization from the Control Center. It is suggested that he be assisted by five Deputy Directors. During operations the operational Division Chiefs, or their representatives, should be at the Control Center with the Director of Civil Defense.

The use of all Mutual Aid and Mobile Reserve Battalions furnished the city from without should be directed by the Director of Civil Defense from the Control Center. Likewise the matter of the furnishing of such groups from the city to be dispatched elsewhere at the request, or direction, of responsible State authorities, should be handled in the Control Center by the local Director of Civil Defense.

Great care should be exercised in selecting a local Director of Civil Defense and his deputies. They should have the complete confidence of the community. They must be men possessing experience in dealing with emergencies and men who, by reason of such experience, and by training and temperament, can maintain their ability to direct operations under the most trying circumstances. In this connection, there are in every American community today men of mature years and judgment who served in the recent war as officers or noncommissioned officers of the armed forces in overseas operations. Such men learned by actual experience how to cope with disaster and emergency conditions during hostilities.

Deputy Directors of Civil Defense. The local Director of Civil Defense should be assisted during operations by five Deputy Directors in such manner as would be prescribed by him. For example, designated Deputy Directors would relieve the Director and act in his stead during periods when he is absent from the Control Center. Moreover,

periods of emergency may arise for days, or even weeks, at a time, which will necessitate the relief of the Director from time to time in order that he might have necessary periods of rest. Furthermore, it may be expedient for the Director to designate certain Deputy Directors to go to the scene of extremely large incidents and exercise coordination over all activities in the name of and for the Director. Such Deputy would not direct the technical services in a manner to supplant their normal commanders.

In addition to these duties, each Deputy Director would have administrative supervision over certain divisions of civil defense in the local organization, the activities of which are generally allied or similar in nature. A suggested grouping of the divisions under the five Deputy Directors follows:

1. A Deputy Director exercising administrative supervision over the Communications, Engineering and Public Works, Rescue, Transportation, and Air Raid Warning and Aircraft Observer Divisions. A description of the missions of these divisions is set forth below:

Communications. Should embrace all forms of communication, namely, telephone, telegraph, radio, emergency messenger service, and all other emergency means. Existing telephone, telegraph and radio facilities and services should be used insofar as is possible, but provision should be made for emergency communication services as alternate means of transmitting messages when regular facilities are put out of working order. Such emergency means would include mobile radio-telephones, the use of amateur radio services, and any other possible means that could be developed. All existing communication facilities should be maintained by their owners. Such expanded facilities and services as might be required should be provided by the owners under coordination of the Chief of the Communications Division. Repair work and restoration of services should likewise be done by the companies themselves, using their own staffs and technical personnel for this purpose, supplemented if need be by such assistance as they may require in the form of workers to be supplied them by Civil Defense.

Engineering and Public Works. Should be charged with the responsibility of coordinating existing engineering and utilities services, expanded or adapted to meet emergency conditions. It would also have the responsibility for sanitary engineering measures affecting water, milk and food supplies, housing, sewage and wastes disposal, and for passive defense measures, including protective construction, blackout methods and camouflage, as the requirements of war indicate the necessity for such measures.

This division may be divided into five branches, namely, Water Supply, Wastes Disposal, Power, Protective Construction, and Buildings and Roads, as follows:

a. Water Supply. The normal source of water for a city should, of course, be used to the fullest extent under emergency conditions. Likewise, the normal purification operations should continue. However, several factors must be recognized in connection with the procurement and distribution of water. The system may be heavily taxed by the demands of fire-fighting. Moreover, the probability of loss of the waterworks, by reason of its being a prime enemy target, must be taken into consideration. Emergency sources of water should be explored and made available to the fullest extent, both for fire-fighting purposes, and for drinking and sanitary purposes. This would include bodies of static water—lakes and ponds, and wells. It should be noted that there are many industrial installations and buildings which have their own privately owned and operated wells. Inasmuch as water from emergency sources will not in most instances be potable, emergency steps must be taken for its purification. This could be done by the use of emergency purification methods and units.

b. Wastes Disposal. Existing city facilities for the disposal of sewage, garbage and other waste should be used insofar as is possible. If these services are not impaired, there is no reason why they cannot operate with their normal staffs or with but slight augmentation of labor personnel. However, if such normal services are put out of working order, it is vital to have workable methods available for the disposal of sewage and garbage which can be put into effect immediately. This may involve burial of such wastes or it may involve chemical disposal of sewage.

c. Power. Existing electric and gas facilities and services should be used insofar as is possible. However, all sources of emergency power should be explored and put to use to supplement or replace normal gas and electric facilities as occasion demands. Such sources of power would be found in the privately owned steam, gasoline or Diesel operated stand-by power production facilities found in connection with hospitals, business houses, and industrial concerns. Consideration should be given to the possibility of using immobilized locomotives, motor trucks, or steamships, as emergency sources of power. Repair work and restoration of gas and electric facilities should be done by the utilities companies, using their own staffs and technical personnel for this purpose, supplemented as necessary by such assistance as they may require in the form of workers to be supplied them by Civil Defense.

d. Protective Construction. It will be a function of the Office of Civil Defense to furnish technical guidance and advice on shelter construction policy. Nevertheless, local authorities should promptly initiate surveys of existing facilities suitable for conversion into community protection facilities, and when appropriate, prepare

plans for the construction and maintenance of shelters, both public and private.

e. Buildings and Roads. This Branch should have the responsibility of making rapid preliminary inspections of structures left standing to determine their fitness for further use. It should have the responsibility of temporary or preliminary restoration of such damaged structures as have utilization value in order that they may be put back into use promptly. It should also have responsibilities pertaining to restoration of roads and bridges. In this connection it should be noted, however, that the long range program of rebuilding a damaged city is not within the purview of civil defense activities. The activity contemplated here is of emergency nature designed to fill immediate existing needs.

Rescue. Rescue of persons entrapped in wreckage is an egineering operation, requiring personnel with a high degree of skill and experience in the handling of heavy rigging and machinery and shoring equipment. Such highly trained and experienced personnel should be supplemented with large numbers of common laboring type personnel. The best sources of the skilled engineering personnel lie in organized wrecking companies and in civil engineering and construction firms to be found within the city, and such type personnel should be enrolled for the operations required. Because of the equipment and experience required, this Division should also be concerned with the removal of rubble from the streets, and for the repairing of installations which must be reopened as soon as possible, and with the demolition and removal of standing structures rendered dangerous because of fire or bomb blasts.

Transportation. It is recognized that no transportation office or bureau is normally found within the average city organization (except for those cities which have municipally owned public transportation lines), and it is therefore necessary to provide an organization for the handling of Civil Defense emergency transportation from sources not within the governmental structure.

One of the most important factors to consider in the matter of transportation is control and proper dispatching to insure that maximum use is made of all vehicles and that the distribution and allocation of vehicles to using agencies is properly made. This function should be centered in the Transportation Division to insure that overall properly coordinated control is exercised over all transportation facilities. Street railway service and organized bus service should be maintained insofar as existing conditions permit. This holds true also for every other form of transportation. However, as required by existing conditions, improvisation should be made from whatever vehicles of whatever types are available to the Chief of Transportation. If the situation does not permit the operation of existing bus lines on an organized

basis, the buses should be used individually to supplement whatever emergency systems are available.

The Transportation Division might be sub-divided into branches as follows:

a. Plans and Training. Should implement the program of training as laid down and, in conjunction with the Training Division, insure maximum coverage of the local population. This Branch should also be responsible for transportation planning and, in addition, maintain an inspection section to see that the transportation aspects of the training program are properly carried out.

b. Operations. Should comprise four sections, namely, Dispatching, Traffic, Mass Evacuation, and Service. This Branch should generally be concerned with the emergency movement of essential passengers and freight of all types by all available means. It would handle and transport all intra-city movements of passengers and freight and be concerned with the mobilization of all transportation locally available. It would also be responsible for all long distance and inter-city movements of freight and passengers and the handling of traffic management responsibilities of the Division.

c. Carrier. Should be responsible for seeing that the Transportation Division operates in a manner consistent with the capabilities of the various forms of transportation, and would act as technical advisor in all forms of transportation.

Air Raid Warning and Aircraft Observers. Should have the responsibility for the dissemination of air raid warning information and of observing, detecting, and reporting enemy aircraft.

2. A Deputy Director exercising administrative supervision over the Plant Protection, Warden Services, Fire Services, Police Services, and Mutual Aid and Mobile Reserve Divisions. A description of the missions of these divisions is set forth below:

Plant Protection. The operation of special measures of techniques required for the civil defense protection of manufacturing and non-manufacturing facilities, utilities, institutions, and private enterprise in the areas which are assigned to civil defense; and coordination with management of plants assigned to other agencies for protection.

Warden Services. The Wardens should act as the bond between the neighborhood and the local Civil Defense headquarters. They should lend their assistance whenever and wherever needed to other divisions in the Civil Defense organization, principally in the matter of furnishing their detailed personal knowledge of the physical layout of the neighborhood and the characteristics of its inhabitants.

By means of their training and leadership, they should be in a position to bring the principles of civil defense home to every householder, and, in this connection, they should be of invaluable

assistance to the Training Division in the implementation of its programs.

Moreover, they would compile and record detailed information and data on the neighborhood and its inhabitants, and make it available to higher authority. They should be responsible for carrying out in the neighborhood all approved civil defense programs and policies.

Fire Services. The exsiting fire department should form the nucleus around which the Fire Services Division should be organized. This division should be responsible for the combating and extinguishing of fires and for all activities and operations in connection therewith. It might be sub-divided into five branches, consisting of Fire Fighting, Fire Alarm, Maintenance and Repair, Fire Prevention, and Training, as follows:

a. Fire Fighting. Should be concerned with the combating and extinguishing of fires of all kinds. It should be schooled in fighting fires which may result from nonconventional causes brought about by the use of new types of incendiary weapons, as well as those arising from ordinary causes.

b. Fire Alarm. The fire alarm system must be kept in workable operating condition insofar as possible under emergency conditions. In addition, a system of emergency transmission of fire signals should be set up in event the normal fire signal system is put out of commission.

c. Maintenance and Repair. Should keep all apparatus and equipment in workable state and should be charged with the procurement of new equipment and apparatus and the supplies necessary for their operation. It should also be responsible, in conjunction with the Water Supply Branch of the Engineering and Public Works Division, for keeping available static water supplies and emergency sources of water for fire-fighting purposes.

d. Fire Prevention. Should have charge of inspection and investigation of potential sources of fire hazards and the remedying in rectification thereof.

e. Training. Should provide special courses of instruction for regularly enrolled firemen and fire officers in the techniques required for the fighting of fires caused by nonconventional means, and for the basic and special fire fighting training of such emergency personnel as may be necessary to supplement the regular forces of the Fire Department. This branch should also provide the techniques for self-help training.

Police Services. The existing Police Department should form the nucleus around which the Police Services Division should be organized. This Division is concerned with the restoration and preservation of the public order and with the detection of crime and the con-

trol of traffic and all activities and operations in connection therewith. The special civil defense functions should be integrated into the following functions more or less common to all police departments:

a. Patrol. Should be responsible for the protection of life and property and the preservation of the public peace and order. This function is a duty of all police, but the number and distribution of patrol personnel make this operation the basic element for this general service. They apprehend violators of every type. They should also assist in unexploded bomb reconnaissance and related duties; should stand guard and compose anti-looting patrols; should conduct preliminary criminal investigations, should transmit and enforce evacuation orders, and should perform traffic control and regulation functions, as required.

b. Traffic. Should be concerned with the control and regulation on the streets and highways of vehicular and pedestrian traffic. Its function is to minimize delays, congestion and conflicts, to achieve orderly, efficient traffic movements. Its personnel might also transmit evacuation orders, executing the above functions in connection with evacuation and other Civil Defense operations, and establish and enforce highway traffic control through priority and dispatch systems, performing patrol functions as required.

c. Criminal Investigation. Should be responsible for conducting major crime investigations and coordination with military and other federal authorities in matters concerning espionage, sabotage and subversive activities.

d. Detention. The problem of detention is one of considerable magnitude during emergency conditions. It should be met by providing suitable safe and secure places where persons may be detained for the public good until such time as conditions permit their release or circumstances warrant their trial. Places of detention should be provided to accommodate such persons temporarily deprived of their liberty.

e. Records and Identification. Should maintain departmental records, including those concerned with the property placed in the custody of the police. It should afford means through which bombing casualties and persons and property are identified and the latter returned to their homes and owners respectively. It would also administer identification procedures, including issuance of passes and permits.

f. Personnel and Training. Should procure regular and auxiliary police personnel and provide necessary training with respect to those functions and duties peculiar to Civil Defense.

g. Communications. Should utilize all available commercial and inherent police communications systems in the transmitting of orders to operating personnel.

h. Vice Control. Should be concerned with control over alcoholic liquors and narcotics. Under conditions occasioned by enemy attack, it would participate primarily in assuring that stocks of drugs, and of alcoholic liquors, are kept secure in the interest of maintaining the public peace and order.

i. Juvenile Aid. Should be concerned with crime prevention in coordination with welfare, services, looking after women and children whose personal situations have been affected by war disaster. It might also be utilized by other Civil Defense groups in post-raid periods in connection with evacuations and in locating members of families who have become separated.

j. Auxiliary Police. Should supervise the auxiliary police program. It should arrange training classes and exercises for auxiliary personnel. It should also develop a program to maintain morale, and should supervise disciplinary procedures. It should arrange for uniforming and equipping, and maintaining a pool from which auxiliary police may be assigned as their services are required.

k. Procurement and Supply. Should be charged with custody of property in the safekeeping of police pending return to owners, custody of property held as evidence, and with procurement and storage of equipment used in police operations, including police civil defense equipment.

l. Transportation. Should be responsible for provision and maintenance of police vehicular transportation.

m. Administration. Should be responsible for supervision of all Police Department business and provision of guidance in all matters not assigned elsewhere in the Department. This would include administrative matters relating to civil defense.

n. Public Information. Should be responsible for supervision of all matters involving the press and public relations of the Department; and the provision of guidance to personnel in their relationships with the public (similar services would be required, internally, in all civil defense police matters).

Mutual Aid and Mobile Reserve. Should prepare plans and evolve methods for the organization, activation, training and employment of Mobile Reserve Units from among existing local facilities, and be prepared to make recommendations to the Director of Civil Defense as to all matters concerning their general operations. It should also make plans and be prepared to make recommendations to the Director of Civil Defense concerning the use of such units from other areas. It should work in close cooperation with the State Civil Defense headquarters in the formulation and implementation of statewide plans of mutual assistance.

3. A Deputy Director exercising administrative supervision over the Radiological Defense, Chemical Defense, Other Special Weapons

Defense, and Medical and Health Services Divisions. A description of the missions of these divisions is set forth below:

Radiological Defense. Radiological Defense is primarily concerned with the prevention and mitigation of those personnel injuries resulting from exposure to ionizing radiations. This is accomplished through the detection and avoidance of the radiological hazards resulting from atomic attack, and through the protection of personnel whose civil defense activities require their entry into radiologically hazardous areas. Local radiological defense operations are centered around the activities of two types of units composed of personnel trained in the special techniques of radiation detection and measurement.

The training of personnel in the techniques of radiological defense operations should be conducted by the Radiological Defense Division. The supply and maintenance of radiological defense equipment and material, particularly as it applies to radiation detection and measurement devices, is also a function to be conducted by this Division.

Chemical Defense. Chemical Defense is based on the application of chemical protective measures for and by the individual, and the organized activities of chemical detection and decontamination teams. Every person, in the event of a war gas attack, should have had training in the basic chemical defense measures for the individual, such as the wearing of the gas mask and personnel decontamination. Personnel in the chemical detection teams and the decontamination teams will require intensive training in their specialty. Persons in the related services of Civil Defense, such as the Firefighting, Police, and Engineering and Public Works Services, will require a certain amount of technical training in anti-chemical measures to a lesser degree than that given to the chemical defense units, in order to assist the Chemical Defense Division in nullifying the effects of war gas contamination. Detection of toxic gas and decontamination of the areas, installations, and physical equipment covered by the liquid chemical agents are two operational steps in offsetting or minimizing the effectiveness of the enemy use of war gas. Training of persons in the related services, and of persons unaffiliated with activities of civil defense, are training problems for this division, in collaboration with the Training Division.

Storage, issue, requisitioning of supplies and equipment, and the maintenance and repair of equipment used for chemical defense are supply activities which should be performed by this division to insure that these items are available in sufficient quantity and in serviceable condition when needed for chemical defense operations.

Other Special Weapons Defense. As new and more unconventional means of warfare are developed and defenses are perfected to

offset the insidious nature of such new types of warfare, provisions should be made for planning and training in connection with the measures to be taken to minimize the effectiveness of the new means of attack. This Division should be set up to carry out the training and operational activities and coordination required to assure such protection to the community.

Medical and Health Services. Should be charged with the responsibility for the health of the populace and for its protection against the effects of injury and disease. In discharging this responsibility, it may be sub-divided into three branches, namely, Public Health, Medical Care Services, and Administrative.

The principal missions and functions of the first two of these branches should be accomplished by professionally trained, technical personnel in the main, assisted by lay personnel who have been given sufficient technical training to be of assistance to the professional people. In addition to such lay personnel, there are also certain skilled and semi-skilled assistants who may render services.

The professional personnel consists of physicians, veterinarians, dentists, nurses, pharmacists, laboratory technicians, and morticians. Members of these professions are found in every community. The nature of the problems confronting the Medical and Health Services Division is such that mobilization of all members of these professions must be effected speedily and efficiently in time of emergency.

a. Public Health. Should be concerned with the control of the health of the public in general, as distinguished from administering to the needs of any one individual. Insofar as possible, the Civil Defense Public Health organization should parallel that of the customary municipal pattern, supplemented by such additional services as become necessary by reason of emergency conditions. The Public Health Branch might be further sub-divided into the following sections, consisting of Communicable Disease Control, General Sanitation, Vital Statistics and Mortuary Service, Maternal and Child Health, Laboratory, Veterinary Medical, Industrial Medical and Hygiene, Mental Hygiene, Public Health Nursing, and Nutrition.

Communicable Disease Control. Should be responsible for the prevention and control of communicable diseases. This involves the detection and isolation of cases of infectious diseases, the elimination of their cause, and their prevention by immunization, mass dosage measures, disinfection and delousing.

General Sanitation. Should inspect existing and emergency sources of food and milk to determine their cleanliness and purity and to insure that they are not carriers of disease.

Vital Statistics and Mortuary Service. Should be responsible for the keeping of records in the nature of vital statistics, including both births and deaths, occurring during the emergency. In addition, it should be responsible for the collection and identification of the dead; the preservation of the effects and records of the dead; and the preparation for disposal, and actual disposal, of the bodies.

Maternal and Child Health. Should be concerned with the special problems of obstetrics and pediatrics arising in connection with emergency conditions.

Laboratory. Should be responsible for all laboratory procedures, including the blood program.

Veterinary Medical. Should be responsible for animal health and for the prevention and control of communicable diseases of animals.

Industrial Medical and Hygiene. Should be responsible for control of the special problems and conditions arising in connection with industrial health during emergency conditions.

Mental Hygiene. Should be responsible for the care of mental cases arising out of conditions in general emergency.

Public Health Nursing. Should be responsible for administering the public health nursing program as applied to emergency conditions.

Nutrition. Should be concerned with the nutritional problems of emergency diet.

b. Medical Care Services. Should address itself to the problem of actual treatment and cure of the sick and injured, both from the standpoint of immediate aid and from the standpoint of such long term professional care as is required until normalcy is restored, to insure that lives will be saved and bodies made whole to the greatest possible extent. This Branch might be further sub-divided into the following sections, consisting of Casualty Medical Services, Nursing, Pharmacy, Medical Practice, Dental, and Physical Medicine.

Casualty Medical Services. Should be responsible for the professional medical skill required to repair bodily damage done by injury. This should include first aid and emergency care and treatment.

Nursing Section. Should be responsible for the maintenance of nursing services, bedside and clinical, and first aid nursing.

Pharmacy. Should be responsible for the rendering of pharmaceutical services in medical installations.

Medical Practice. Should be responsible for administering professional care and treatment to existing and chronic cases of illness during emergency.

Dental. Should be responsible for the treatment of injuries to the mouth and surrounding tissues, and to the teeth, and should be responsible for oral hygiene during emergency.

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Physical Medicine. Should be responsible for the providing of physical medicine and medical rehabilitation services to persons who become casualties.

c. Administrative. Should be responsible for personnel and unit organization, for medical aspects of evacuation, for hospitalization, for medical supply requirements, for plans, and for technical training.

4. A Deputy Director exercising administrative supervision over the Evacuation and Civilian War Aid Divisions. A description of the missions of these divisions is set forth below:

Evacuation. Should have the responsibility for planning and execution of mass movements of people (as distinguished from local intra-city clearance of a small area). In discharging this responsibility it is necessary to select in advance assembly areas and to organize and train groups in evacuation procedures. As evacuation becomes necessary, detailed plans concerning routes, rest stops, and feeding and care en route should be brought into action. The very closest coordination between the Medical and Health Services, the Transportation, the Police Services, the Civilian War Aid, and the Warden Services Divisions should be maintained and, to this end, it is deemed advisable to have one key member of each of those divisions act as a member of an evacuation board, over which the Chief of the Evacuation Division should preside as Chairman.

Civilian War Aid. Should deal with the problem of providing food, clothing, shelter, and other necessary community aid under emergency conditions. It should also be prepared to furnish similar services to evacuees who might be moved in from another stricken area in accordance with prearranged plans. Provision should be made for stocks of food and for the preparation and dispensing of the food in an orderly, equitable manner. Likewise, provision should be made for the procurement, stocking, and distribution of clothing in accordance with the needs of the populace. Included within the problem of providing shelter, which in turn involves the problem of procurement of housing space to protect persons from the elements, is the further problem of the procurement, insofar as is possible, of bedding to provide for the rest and protection of persons temporarily housed.

5. A Deputy Director exercising administrative supervision over the Legal, Public Information, Administration, and Training Divisions. A description of the missions of these divisions is set forth below:

Legal. The Legal Division, which would in all probability be staffed principally with members of the regularly constituted law department of the city, should act as the legal advising agency to the Director of Civil Defense. This would include advance, long-range legal and legislative planning in the main, but it might also involve,

in many instances during the emergency, the rendering of immediate opinions on the legality of certain actions not previously covered by legislation.

Public Information. Should be responsible for the dissemination of timely advance information concerning civil defense and the solution of the problems with which the civil defense is concerned on the one hand, while acting as the medium for the gathering of information from the public on matters of importance to civil defense on the other hand. This division should act in collaboration with the Training Division in the education and training of the public in civil defense matters.

Administration. The Administration Division should be charged with the problems of Civil Defense supply, personnel and records. It might be sub-divided into Personnel, Supplies and Records Branches.

a. Personnel. Should be concerned with the recruitment, classification and assignment of persons engaged in civil defense work and with the administration of all personnel records pertaining to them.

b. Supplies. Should be responsible for the procurement and distribution of civil defense supplies.

c. Records. Should be responsible for the administrative work and keeping of the records of those extra Civil Defense agencies which have no existing counterpart in ordinary municipal government. It should also act as the coordinating agency for civil defense purposes of all such files of existing municipal activities as pertain to civil defense. It should, in addition, be responsible for the collection and preparation of statistics in connection with civil defense and all reports to be rendered by the Mayor or Director of Civil Defense.

Training. The Training Division should address itself to the mission of carrying on programs of training of the public in general, and of individuals in certain categories. In executing this mission, it might be sub-divided into four branches with functions as described below:

a. General Education of the Public. Should be responsible for inculcating in individuals the general principles and objectives of Civil Defense and basic principles of self-help in fire prevention and protection, general precautionary measures, and allied subjects.

b. Civil Defense Personnel Training. Should be responsible for the orientation of all Civil Defense personnel as to how they fit into the civil defense operations, and their relationship to their fellow workers engaged in other aspects of civil defense. It would also include detailed information as to the areas of responsibility of civil defense and as to the general means of fulfilling such responsibilities. In addition, specific job training would be given by this branch to all civil defense workers, except those required in tech-

nical services—such as fire, police, radiological, and medical, or any others where technical rather than general lay training is required.

c. First Aid. First aid training should be given the entire populace to teach them the principles of self-help in first aid and the steps which they should take to ameliorate their own injuries or illness until professional assistance can be rendered them. This type of training is appropriate for the Red Cross to undertake. It should be noted that this first aid training is not the type of professional training to be accorded the technical or semi-technical assistants to professional workers in the Medical and Health Services Division. Such assistants should be given a more thorough course of purely technical training.

d. Technical Training Coordination. Should be charged with the responsibility for coordination of the technical training necessary for certain special types of civil defense personnel who require such specialized or skilled training. The actual training would be given by and within the pertinent technical specialty branch itself.

METROPOLITAN AREA ORGANIZATION IN THE CIVIL DEFENSE PROGRAM

There are in this country many metropolitan areas composed of one dominant city with a number of smaller cities contiguous thereto. Some of these metropolitan areas are located entirely within one state, while others occupy portions of two or more states.

The outstanding characteristic of the usual metropolitan area is the fact that the component municipalities are generally united into one community by commercial, geographical, and cultural interests. Beyond this, however, there are variations in the makeup of the various metropolitan areas, in that some have public utilities systems in common, while others are served by separate systems; some render municipal services, such as fire protection and water supply for each other or for the group as a whole, while others operate such services separately.

These differences serve to emphasize the fact that in time of emergency there should be strong central civil defense operational control in the metropolitan area. Emergency conditions will not permit of delays in crossing municipal, county, or state lines because of difference of governmental entity in an area where municipalities are contiguous, boundary lines artificial, and the populace united in concert of purpose and needs.

It is considered that a uniform guide should be provided for metropolitan areas in the interest of solving the basic civil defense needs of the community as a whole and of surmounting the administrative obstacles involved in the crossing of city, county, and, in some instances, state boundary lines by various civil defense forces.

Organization. It is believed that, in a metropolitan area, combined resources and facilities of all municipalities involved should be pooled and civil defense operations for the entire area should be carried out as in one municipality. This does not, however, preclude each component city from having its own local Civil Defense organization.

In many such areas it may be practicable for the municipalities involved to establish a Civil Defense coordinating and policy making Central Council. Such councils should provide equal representation for all the municipalities, irrespective of size. They might well consist of the mayors of the municipalities, sitting as one council. In

order to have effective coordination with the state civil defense program, it might be advisable for a representative of the Governor to be an advisory member of such a council. A Director or Coordinator of Civil Defense for the metropolitan area could be appointed by, responsible to, and under the direction of the Central Council.

In the case of a given state, it may be entirely practicable for metropolitan area directors to be appointed by the Governor, in cooperation with local authorities, and an optional provision relating to this feature is included in the Model State Civil Defense Act.

The establishment of the Central Council Plan would offset any implication that the largest city would dominate the organization at the expense of the smaller cities, and yet at the same time the natural role of influence and leadership normally exercised by the principal city in an area by reason of its greater facilities and size, and the dependency of the smaller cities, would serve to insure that the principal city would play the chief role in civil defense, subject to the over-all direction of the council.

In metropolitan areas which include communities of more than one state it would be practicable for the communities of each individual state to form their own metropolitan area organization under a central council. When this has been accomplished, an effective administrative and operational arrangement for the combined areas could be developed by mutual-aid agreements between the respective councils.

It is recognized that there are many legal problems, such as compensation for injured personnel and damaged equipment, varying provisions of applicable municipal and state law, and provisions of contracts of insurance. These problems can be anticipated and solved by proper legislation at all levels of government, and by plans, arrangements, and agreements made in advance. However rigid may be political boundary lines in normal times, they become simply artificial and invisible lines in time of emergency. Civil defense can operate throughout a metropolitan area with the same facility as in one individual municipality, if organized as suggested.

MEDICAL AND HEALTH SERVICES IN THE CIVIL DEFENSE PROGRAM

During the last one hundred years there has occurred an amazing expansion of medical and health services to the armed forces. This expansion reached a peak in World War II when the extent and effectiveness of these services to the Armed Forces of the United States were without a parallel in the history of warfare. In many past wars disease has produced more casualties and more deaths, among the armed forces, than have occurred as a direct result of actual combat. Improved methods of medical and surgical treatment have made it possible greatly to reduce the number of deaths or the period of disability resulting from battle wounds and disease. Not only are human lives and manpower conserved—the effect on morale is equally important.

In modern total warfare the civilian frequently is subjected to enemy attack to an extent comparable to that experienced by the soldier. An attacked civilian population demands the same treatment of casualties and the sick, and protection against communicable diseases, that is required by the military forces. In crowded urban areas, deaths, disability and suffering resulting from enemy action can easily exceed any which has ever been experienced by armies. In such instances, unless there is adequate provision for the preservation of the health and lives of the civilian population, the consequent reduction in civilian manpower, working effectiveness and morale will so cripple our industries as to make defeat more than a possibility. There can be no satisfactory civil defense without adequate provision for medical and health defense.

Plan for Medical and Health Defense. It is thus imperative that medical and health facilities and personnel be organized to provide prompt and effective treatment of the sick and injured, to maintain or restore public health functions, and to supply effective emergency medical care for the sick. These indispensable services can be assured only by efficient organization, intelligent and thorough planning, adequate training, and an unselfish spirit of team work in which the medical, nursing, dental, veterinary, sanitary engineering, pharmaceutical and all other allied professions fully participate.

It is necessary that plans be made during peacetime for the wartime organization, mobilization and complete utilization of these pro-

fessional groups. Only in this way can this nation cope with civilian catastrophes which may occur on a scale never before approached in this country. The enormity of this problem is further increased by the likelihood that, because of their usual central location in urban areas, professional groups will suffer relatively more casualties than the remainder of the urban civilian population. The same factor will also affect the physical facilities, such as hospitals, in which the medical and allied professions usually concentrate their activities.

Therefore, this plan of action is proposed:

a. Immediate establishment of a Medical and Health Services Division in the Office of Civil Defense, to plan and organize effective emergency measures for medical care and public health protection for the civilian population of the United States.

b. Maximum utilization in wartime emergencies of all existing health and medical agencies, organizations and skilled personnel.

c. Training, for professional and auxiliary personnel, in the most effective methods of supplying such services in the event of major civil catastrophes.

d. A program of education to advise the public how it can cooperate with, and minimize the demands on, a medical and health organization which would be severely overtaxed during enemy attack; to teach large numbers of persons in order that they can become useful auxiliaries for first aid, care of the sick and related services; and to reassure the public that the emergency medical and health needs of our country are recognized and will be met.

e. Survey of current research projects and, when needed, recommendations and requests that established research agencies initiate and conduct projects related to medical and public health aspects of Civil Defense.

ORGANIZATION FOR MEDICAL AND HEALTH SERVICES

National Organization. (Chart 5.) The chief functions of the Medical and Health Services Division will be: formulation of general policies; building of a national organization; surveys of requirements in terms of human physical resources; planning of means of recruiting and mobilizing human resources; utilizing plant facilities such as hospitals; stockpiling essential materials; preparation of technical training material; and the coordination of regional activities.

A small, well qualified staff, which can be rapidly expanded in the event of a threatened national emergency, is the first requisite to the operation of the Medical and Health Services Division of the Office of Civil Defense. All appointments would be made by the Director of Civil Defense.

The Chief of the Medical and Health Services Division would be responsible for policies, plans, training and other activities in the Medical and Health Services Division. Directly, or through his assistants, he would work in close cooperation with other divisions of the Office of Civil Defense, the National Military Establishment, other Federal Agencies, and national professional organizations. This should be a full time position. He should be a physician with experience in clinical medicine or public health or both, and in administration.

In the Medical and Health Services Division should be three branches—Medical Care Services, Public Health, and Administration. In addition there should be two committees, Inter-departmental, and Medical and Health Advisory.

Medical Care Services Branch. The Chief of the Branch would serve under the Chief of the Medical and Health Services Division and would supervise plans and activities of the Medical Care Services Branch. During peacetime, his functions would be limited to plans, organization and training. During a national emergency, he would plan, initiate and supervise all activities of his branch and its sections. He should be a physician with clinical training and extensive experience in internal medicine or surgery. Previous military and administrative experience would be desirable. This should be a full-time position but it may prove to be advantageous to divide his time between the Office of Civil Defense and one or more national medical agencies or organizations which could make contributions to nation-wide emergency medical care. Under him would be:

Chief, Casualty Medical Services Section, would serve full time in a national emergency. During peacetime, his functions would be planning, organization and training. He must have extensive surgical training and experience and should be a diplomate of the American Board of Surgery. Previous military experience would be desirable. It is probable that initially these duties could be assumed by the Chief of the Medical Care Services Branch.

Heads of the Units of the Casualty Medical Service—General Surgical, Orthopedic Surgery, Thoracic Surgery, Neurosurgery, Plastic Surgery, Anesthesia, Obstetrics, Radiology, Ophthalmology and Otolaryngology—would serve full-time during a national emergency. During peacetime, they would act only as consultants to be called when their advice on questions of broad policy was needed. They should have extensive clinical training and experience and should be diplomates of the American specialty boards, for their respective specialties.

Chief, Medical Practice Section. In time of emergency, he would supervise all services required to provide adequate medical care and treatment of the sick, exclusive of casualties. The person selected for this position should be a diplomate of the American Board of Internal Medicine. During peacetime, his functions would be plan-

ning, organizing and training and it is probable that these duties could be assumed either by the Chief of the Medical Care Services Branch or a part-time medical consultant. In time of national emergency, it would become a full-time position.

The Heads of the Units in General Practice, Internal Medicine, Neuropsychiatry, Pediatrics, Dermatology, Syphilology and Urology should serve full-time only during a national emergency. During peacetime, these positions would be filled by consultants, who would be called upon only when their advice on questions of broad policy was needed. They should have extensive clinical training and experience and, with the exception of the Head of the Unit on General Practice, should be diplomates of American Specialty Boards.

Chief, Nursing Section. She would supervise all functions of the Nursing Section. She should be a member of the American Nurses Association and approved by the Advisory Panel of the Medical and Health Services Division.

Chief, Pharmacy Section. He would supervise all functions of the Pharmacy Section. He should be a member of the American Pharmaceutical Association and approved by the Advisory Panel of the Medical and Health Services Division.

Chief, Dental Section. He would supervise all functions of the Dental Section. He should be a member of the American Dental Association and approved by the Advisory Panel of the Medical and Health Services Division.

Chief, Physical Medicine Section. He would supervise all functions of the Physical Medicine Section. He should be a member of the American Congress of Physical Medicine and approved by the Advisory Panel of the Medical and Health Services Division.

Public Health Branch. The Chief of the Branch would serve under the Chief of the Medical and Health Services Division. He would initiate, plan, coordinate and supervise all training and activities of the Public Health Branch. To effectuate proper coordination and avoid duplication he should be a medical officer of the Federal Security Agency Public Health Service and should be assigned by the Federal Security Agency Administrator and the Surgeon General of the Public Health Service. In his Civil Defense capacity he would be under the direction of the Chief Medical Officer of the Office of Civil Defense.

During peace this would be a part-time assignment, with sufficient time to develop and coordinate the various services essential to Civil Defense which are within the operating program of the United States Public Health Service. In time of war, he would be detailed full-time from the Public Health Service.

Section Chiefs of the Public Health Branch would serve directly under the Chief Medical Officer of that branch. Eight of them

should be Public Health Service officers, assigned by the Surgeon General of the Public Health Service. During peacetime these Section Chiefs would serve as consultants to the Chief of the Public Health Branch. During a national emergency, Public Health Service officers would be assigned full-time to the Office of Civil Defense to direct the operations of these eight sections and to coordinate activities with corresponding functions within the United States Public Health Service. These are: Communicable Disease Control, General Sanitation, Vital Statistics and Mortuary Services, Industrial Medicine and Hygiene, Public Health Nursing, Mental Hygiene, Nutrition, and Laboratory.

The Veterinary Medical Section should be headed in the same manner, by a veterinarian designated by the Bureau of Animal Industry, United States Department of Agriculture. He should be assigned part-time to the Office of Civil Defense and spend the remainder of his time with related plans and activities within the Bureau of Animal Industry. In the event of a national emergency, the assignment would immediately become full-time.

The Maternal and Child Health Section should be headed by a physician assigned by the Federal Security Agency Administrator and the Chief of the Children's Bureau, Federal Security Agency. This assignment would be part-time during peace and full-time during a national emergency.

Administrative Branch. The Chief of the Branch would supervise all administrative functions. He should be a physician with extensive experience in handling problems of general administration, as well as of details of supplies, equipment and fiscal matters. He should be assigned from the Department of the Army by the Surgeon General of that Force. This would be a full-time assignment.

The Section Chiefs of the Administrative Branch should be detailed full-time from the Department of the Army. All should be officers with previous administrative experience related to the duties of their respective Sections.

Interdepartmental Committee. This committee would assist the Chief Medical Officer of the Office of Civil Defense in developing cooperation with Federal agencies which have responsibilities or functions in public health or medical care services for man or animals. It should consist of ten members, officially appointed by, and representing the heads of, the following departments and agencies: Department of the Army; Department of the Navy; Department of the Air Force; Committee for Medical Research, Research and Development Board; Veterans Administration; Federal Security Agency Public Health Service; Federal Security Agency Children's Bureau; Medical Component, National Security Resources Board; Bureau of Indian Affairs,

Department of Interior; and the Bureau of Animal Industry, Department of Agriculture.

In addition, the Interdepartmental Committee would form, with the Medical and Health Advisory Committee, an Advisory Panel to assist the Chief Medical Officer of the Office of Civil Defense in the formulation of broad policies of the Medical and Health Services Division; and to review the plans for organization, training and wartime operations.

Medical and Health Advisory Committee. Members of this committee should be nominated by, and represent, the following groups: American National Red Cross; National Research Council; American Medical Association; American Dental Association; American Association of Industrial Physicians and Surgeons; American Public Health Association; Association of State and Territorial Health Officers; American Veterinary Medical Association; American Nurses Association; American Hospital Association, American Catholic Hospital Association and American Protestant Hospital Association; and the American Pharmaceutical Association. As civil defense plans develop, it may become necessary to add to the Advisory Committee or establish Advisory Sub-committees to individual Medical and Health Services Division branches or sections.

Regional Organization. During peace-time, only a small civil defense staff is contemplated for regional offices, when established. Their chief function would be the interpretation of National Office policies to Civil Defense organizations in the States; to assist State officers in their civil defense plans; and to act in a liaison capacity between the Office of Civil Defense and the States. During peace-time, it is recommended that the Medical and Health Services Division be represented in each of the regional offices by one medical officer, to be assigned part-time by the United States Public Health Service. Their civil defense activities would be under the supervision of the Regional Civil Defense Coordinators and the Chief Medical Officer of the National Office.

State Organization (Chart 3). A Medical and Health Services Division should be established in each State Civil Defense organization. In line with the general policy of utilizing established governmental departments, it is suggested that each Governor may wish to appoint his State Health Commissioner, or equivalent, to the position of Chief Officer of the Medical and Health Services Division of the State Civil Defense organization. It is recommended that in each State the Chief of the Medical Care Services Branch be a member of the State Medical Association; and that all Section Chiefs be approved by the State Medical and Health Advisory Committee which would be appointed by the Governor. This Committee should consist of:

a. Representatives nominated by the state equivalents of the national organizations represented on the Advisory Committee to the Medical and Health Services Division of the National Office.

b. Official representatives designated by the following State agencies: the Military Services, appointed through their ranking State officers; the Veterans Administration appointed through the ranking State officer of the Veterans Administration; State Department of Public Health, State Department of Agriculture, and the State Children's Bureau.

Local Organization (Chart 4). In time of national emergency, actual civil defense operations will become almost entirely a function of local Civil Defense organizations. Small cities may find the national and State medical and health organizations recommended herein too elaborate for their purposes. Large metropolitan areas may find expansion of these recommended organizations necessary. It is therefore recommended that local Civil Defense organizations adapt the national and State medical and health organization plans to their own specific needs. State Civil Defense organizations can assist in these plans. It is, however, urgently recommended that every American city organize complete, adequate medical and health components within the local Civil Defense organizations.

MEDICAL AND HEALTH OPERATIONS IN CIVIL DEFENSE

In planning its program for Civil Defense, medical and health divisions will have to think in terms of preparing for major emergencies. Thoroughly equipped as the professional services are for normal events, they would have to be ready to deal with great calamities should an enemy attack strike American cities.

The functions and operations outlined here, therefore, are on the basis of possible great need. Whether in the planning activities of the Office of Civil Defense, or in the actual operations of a local organization, the needs may include any or all of these services:

Medical Care Services Branch

Casualty Medical Service. This will be a complex planning job with enormous administrative difficulties. Thousands of physicians will be required in the nation-wide program. Many of these men will need to possess special surgical or related skills. They also will need a reasonable amount of physical ruggedness, yet many of the younger physicians will be required by the Armed Forces. Furthermore, they may be needed not only for service in their own communities but for duty with mobile medical casualty units which can be sent to the assistance of other stricken cities. There is a large group of physicians in this country who have had military experience and thus have had

training and, frequently, extensive actual experience with the management of large numbers of casualties. These men will form the nucleus for this operation.

In order to be assured of adequate supplies and equipment, uniformity of methods for the management of various types of wounds and injuries will be necessary. This, in turn, will require a continuing study of all potential types of injuries incident to modern warfare. This study should be made by consultant and advisory groups in conjunction with representatives of the Armed Forces, in order that proper estimates of equipment, supplies and personnel may be made for transmission to the proper administrative authorities. It is likely that constant revisions of such estimates will be needed as more information is obtained concerning the effects of weapons. Finally, it must be assured that such information is distributed to all interested physicians who are participating in the Civil Defense Program.

The organization of medical casualty services must be carefully studied in order to insure the maximum utilization of personnel, supplies and equipment for the prompt care and treatment of casualties resulting from any catastrophic event. In planning such services, coodination must be made with other sections of the medical division to assure the availability of equipment, supplies, professional personnel, priorities, and the like. It is also important that all activities of the medical division be coordinated with all other divisions in any Civil Defense organization.

A complete Casualty Medical Service Section should include consultants in the following specialties whose duties are as follows:

a. General Surgical Consultant, who directs the general surgical care and treatment of casualties. He should be responsible for the procurement, assignment and transfer of general surgical specialists, and should originate professional policies having to do with the general surgical care of the injured and the technical training and use of all general surgical units and personnel.

b. Orthopedic Consultant, who directs and supervises the surgical care of all patients suffering from disorders of bones and joints, and recommends policy with respect to the use of all orthopedic prostheses and devices. He is responsible for the procurement and assignment of orthopedic surgeons and for originating policy regarding orthopedic procedures and for the training and instruction of all orthopedic personnel. It should be his duty to see that orthopedic teams and personnel are properly utilized in surgical installations.

c. Thoracic Surgical Consultant, who directs and supervises the surgical care of all patients suffering from injuries of the thorax. He advises on the procurement and assignment of thoracic surgeons and is responsible for originating policy concerning thoracic surgical procedures and for the training and instruction of thoracic surgical personnel. He should see that thoracic surgical personnel are properly utilized in surgical installations.

d. Neurosurgical Consultant, who directs and supervises the surgical care of all patients having injuries of the nervous system. He should be responsible for the procurement and assignment of neurosurgeons and for originating policy respecting neurosurgical procedures and for the training of neurosurgical personnel. He should see that neurosurgical personnel are properly used in surgical installations.

e. Plastic Surgical Consultant, who directs and supervises the surgical care of patients requiring plastic surgical procedures. He should be responsible for the procurement and assignment of specialists in plastic surgery, for originating policy respecting plastic surgical procedure and for the training of plastic surgical personnel. He should see that plastic surgeons are properly utilized in surgical installations.

f. Ophthalmological Consultant, who directs and supervises the surgical care of all patients suffering from injuries to the eyes, diseases of the eye or refractive errors. He should be responsible for the procurement and assignment of ophthalmologists and optometrists, for originating policy concerning the treatment of diseases or injury of the eye, and for the training of ophthalmological personnel. He should be responsible for the procurement of all ophthalmological prostheses.

g. Otolaryngological Consultant, who directs and supervises all surgical care of patients suffering from diseases or injury of the nose, throat or ears. He should be responsible for the procurement and assignment of otolaryngological personnel, for policy concerning practices, and for training. In all problems concerning fractures of the jaw, he should coordinate his policy and activities with the orthopedic and dental consultants. He is the advisor on all problems of aural rehabilitation and hearing aids.

h. Consultant in Anesthesiology, who directs and supervises all work with anesthetics of all types. He should be responsible for the procurement and assignment of all anesthetists—either physician or nurse—for originating policy concerning anesthesia, and for the training of anesthetists. He is the advisor on all aspects for equipment for anesthesia.

i. Obstetrical Consultant, who should be responsible for professional supervision of all aspects of maternal services for women, and in fulfillment of these duties, he should maintain close liaison and coordination with the Maternal and Child Health section of the Public Health Branch. He should be responsible for the procurement and assignment of obstetrical personnel, for originating pro-

fessional policy concerning obstetrical practices, and for training of obstetrical personnel.

j. Radiological Consultant, who directs and supervises all X-ray and fluoroscopic work on the sick and injured. He should be responsible for the procurement and assignment of medical radiological personnel, for originating policy concerning radiological procedures, and for the training of medical radiological personnel. He is the advisor on all aspects of medical radiological equipment.

All of these consultants should be diplomates of the American boards for their respective specialties, and their activities should be carefully coordinated by the Chief of the Casualty Medical Service Section who should be a general surgeon and a diplomate of the American Board of General Surgery.

Emergency Treatment of Casualties. In preparing for possible enemy attack, it is important to organize thoroughly in advance so as to be ready for emergencies. The possibility of heavy casualties must be planned for. Each step in the procedure should be worked out carefully from the elementary first aid activities to the final discharge from hospitals.

First aid and litter squads and other medical groups should not enter a doubtful area until its relative safety has been assured by Radiological and Chemical Defense reconnaissance personnel. While awaiting such approval the medical groups would assemble with their equipment. If indicated, gas casualty and decontamination units also will be assembled. All of these units furnish the primary first aid and rescue services. They administer first aid services where urgently demanded and are responsible for removal of injured persons to casualty collecting points.

Duties of personnel at collecting points is to treat shock, arrest hemorrhage, apply dressings and splints and treat serious eye injuries. As quickly as possible after this emergency treatment, patients would be evacuated to casualty clearing stations.

Clearing stations should be established five or more miles outside the involved area and will each serve several Casualty Collecting points. Here patients will be classified and transferred to appropriate points. Only minor injuries will receive complete treatment at these stations.

Portable surgical hospitals with shock treatment teams should be established within 50 to 100 yards of the Casualty Clearing Stations. Here there must be surgical personnel and equipment sufficient to provide surgical treatment of any urgent cases, as well as non-transportable cases. In this same area there should be an acute neuropsychiatric treatment center and a gas casualty treatment and decontamination unit.

Evacuation hospitals should be located within reasonable distance,

where roads, railroads or an air strip will allow efficient transportation to the rear. These are mobile hospitals, equipped to provide surgical and, when urgently needed, medical treatment.

General medical and surgical hospitals in outlying areas or in near-by communities would receive transportable cases, in need of further treatment, from evacuation and portable surgical hospitals.

Physical rehabilitation centers would be set up to receive, from evacuation and general hospitals, patients who do not need further medical or surgical treatment but who require rehabilitation under medical supervision.

Special teams of professional personnel should be organized to be assigned where needed in order to augment any of these stations. These would include shock treatment, surgical, orthopedic, ophthalmological surgical, thoracic surgical and neurosurgical teams.

A high degree of organization for these casualty services will be necessary. Detailed tables of organization and extensive information concerning their utilization will be published in bulletins of the Medical and Health Services Division of the National Office.

Medical Practice Services. There are many people who, at any given time are seriously ill and who must be provided with adequate medical and nursing care, drugs and other essential medical supplies despite the occurrence of enemy action on a community. If such an emergency occurred, it is likely that the diversion of medical personnel to the treatment of casualties would limit medical practice services to those essential to the saving of life or the relief of pain. However, this less dramatic phase of medical civil defense activity must not be neglected. The problems of the Medical Practice Section would be greatly magnified if, as is entirely possible, wholesale evacuation of all sick persons to other areas is necessary. Even among ambulatory patients provisions must be made for the distribution of essential medical supplies as, for example, insulin for diabetics. The Medical Practice Section should have consultants in the following specialties:

a. Consultant in Internal Medicine, who directs and supervises those activities concerned with the practice of internal medicine. He should be responsible for the procurement and assignment of internists, for coordinating policy with respect to the practice of internal medicine, and for the training of internists.

b. Consultant in Neuropsychiatry, who should supervise all professional activities which have to do with the prevention and treatment of mental disease in the time of an emergency. This consultant will also have to function with respect to neuropsychiatric casualties. He should be responsible for the procurement and assignment of psychiatrists, for originating policy for the prevention and treatment of mental illness, and for the training of psychiatric

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personnel. He should carefully coordinate all of his activities with the Chief, Mental Hygiene Section, Public Health Branch, to whom he also acts as consultant in all problems dealing with the preservation of mental health.

c. Consultant in Pediatrics, who supervises the medical services having to do with the care of individuals under 14 years of age. He should be responsible for the procurement and assignment of pediatricians, for originating policy in the field of pediatrics, and for the training of pediatric personnel. He should coordinate all of his activities with the Chief, Maternal and Child Health Section, and the Chief, Communicable Disease Control Section, Public Health Branch.

d. Consultant in Dermatology and Syphilology, who directs and supervises the care of patients suffering from skin diseases. He should be responsible for the procurement and assignment of dermatologists, for originating professional policy in the field of dermatology, and for the training of dermatological personnel. He should act as consultant to the Chief, Communicable Disease Control Section, Public Health Branch, with respect to contagious skin diseases, and the treatment of syphilis.

e. Urological Consultant, who should direct and supervise the surgical care of patients having injuries or diseases of the urinary tract. He should be responsible for the procurement and assignment of urologists, for originating policy regarding urological procedures, and for the training of urological personnel.

f. Consultant in General Practice, who should direct and supervise medical activities pertaining to the general practice of medicine in emergency situations. He should be responsible for the procurement and assignment of general practitioners, for formulating policy regarding the general practice of medicine, and for the training of general practitioners. This is a very important consultant position, and its incumbent should have had a wide experience in the general practice of medicine, including obstetrics and minor surgery.

All of the consultants in the Medical Practice Section, with the exception of the consultant in general practice, should be diplomates of the American Boards of their respective specialties. The Consultant in General Practice should be a member of the American Medical Association.

It is proposed that in the National Office all professional consultants would be responsible for planning, training and general organization. In State and local Civil Defense organizations, however, plans and organization should be on a more definitive basis and include personnel rosters, in order that these facilities could be immediately activated on a functioning basis.

For the time being, it is believed that consultant services should

not be established at either state or municipal levels, and that matters respecting professional policy and professional training should be decided at the national level.

Nursing. The essential functions are those of graduate nurses, practical nurses and nurses aides—all nurse categories except public health nurses. The potential number which might be involved on a nation-wide basis reaches a huge total.

The traditional services of nurses in hospitals and casualty stations will, without doubt, represent only a part of their contribution in a national emergency. Their services are so valuable and indispensable, and the numbers of persons to be mobilized and assigned is so great, that this service must be carefully organized.

Pharmacy. This large group of trained persons would have a multitude of functions during an emergency brought on by enemy action. A few of them may be described briefly: pharmaceutical services in emergency medical installations, as well as maintenance of similar services in existing hospitals; cooperation with other technical divisions—for example, they would cooperate with the Chemical Defense Division to furnish personnel for gas casualty treatment teams; and furnishing of skilled personnel to act as assistants and auxiliaries in a large number of medical activities.

Dental. Although assistance from dental personnel will be required by many components of the Medical and Health Services Division, dental functions are so specialized and the number of dentists is so large that a separate unit is suggested, including dental hygienists and technicians, as well as qualified dentists. An important function of dentists during war-time emergencies would be the treatment of maxillo-facial injuries, or surgical procedures for injuries to the mouth and surrounding tissues.

Routine dental care would probably have to be postponed during the period following enemy attack on a city. Some of these conditions, however, are of a more urgent nature and adequate provision should be made for their care.

Physical Medicine. Here would be responsibility for the provision of physical medicine and medical rehabilitation services to civilians who, as a result of enemy action, had become casualties. The extent to which these services would become a function of the Office of Civil Defense, rather than of the civilian medical profession, probably would depend on the duration of enemy attack against this country.

Public Health Branch

Public health phases of the Civil Defense problem, in the event of enemy attack, would be of major importance, because only through public health specialists would it be possible to assure safe water and

food, control of communicable diseases, and prompt action on all the many problems affecting the health of the people in an emergency.

The nature of the functions in this field requires that specialized agencies carry the responsibility. For example, the Public Health Service, Federal Security Agency, should be asked to assign officers to the Office of Civil Defense for national planning and direction. Similarly in States and communities public health agencies and personnel would be utilized in close cooperation with other units of Civil Defense. Their functions in civil defense would come under the following categories:

Food Inspection. During national emergencies, food inspection would be required to determine that food is safe for human or animal consumption.

Water Inspection. Determination of the safety of water supplies during national emergencies is of primary importance. Plans should be concentrated on the inspection of water supplies in areas where water mains have been damaged, where new sources of water have been opened or where conventional or unconventional methods of warfare may have resulted in contamination of the water supply. A community cannot function—or even live—without an adequate water supply. An urgent need to open a new source of water may develop as a result of enemy action against a city. Failure to provide for the safety of the water supply, either at the source or at the point of consumption, easily can result in disaster equal to that resulting from complete deprivation of water. Therefore, sound policies for reliable tests of water purity and for prompt emergency treatment of water supplies must be established.

Milk Inspection. Contamination of the milk supply also is a potent source of wide-spread epidemics of disease. Frequently, enemy action will result in destruction of the usual safeguards for the milk supply and such facilities as pasteurization and sanitary bottling will become non-existent. Policies must be developed for emergency treatment of milk and augmentation of safety measures at the source of the milk supply which, in many metropolitan areas, may be at a considerable distance.

Sewerage and Waste Disposal Inspection. Actual operation and maintenance of a sewerage system, and of safe disposal of excreta and other wastes, usually are not functions of health departments. They are, however, functions of extreme importance to the health department and consequently this department usually conducts inspections of these facilities to be assured of their effectiveness and safety. In time of war, the entire sewerage system may become dangerous or entirely functionless because of breaks in the sewer lines, failure of water supply and similar factors. Plans must be developed, therefore, for emergency treatment and disposal of excreta and other solid

wastes; the installation of emergency privies and latrines; the collection of garbage, dead animals and similar putrescent material; and related operations.

Public Eating Places Inspection. In addition to the hazards induced by unsafe water, food and milk supply, the food served by public eating places may be further endangered by a breakdown in hand and dishwashing facilities and similar requisites to modern restaurant sanitation. This area of potential dissemination of disease is greatly magnified by the probable necessity of establishing emergency kitchens, staffed by untrained and poorly supervised help. These dangers to large numbers of civilians can be minimized by extensive peacetime planning for emergency sanitation in the preparation and serving of food.

Insect and Rodent Control. Certain insects and rodents always are potential sources of rapid spread of serious communicable diseases. The constant application of eradication or control measures has, in most of this country, eliminated or at least minimized dissemination of disease by these media. After enemy action, however, the normal protective services of a community may be completely disrupted and, in addition, conditions for breeding and harboring these vectors of disease may become highly favorable. The disaster which could result can be prevented only by thorough planning, during peacetime, for effective preventive measures. There are powerful insecticides and rodenticides but there must be the means for their mass application. As an example, city-wide application of DDT would be impossible, after enemy attack, without spraying equipment, airplanes from which to use them—and, indeed, a sufficient amount of necessary chemicals.

The United States Public Health Service should be asked to assist the Office of Civil Defense in plans and operations related to all the above general sanitation activities which are essential to civil defense. Similarly, State and local health departments should be asked to assist their respective civil defense organizations.

Communicable Disease Control. During enemy attack, loss of some of the sanitary facilities normally present in homes and communities, and the disruption of public facilities easily can occur. Even when these conditions are of a temporary nature, a possible result is the establishment of a fertile area for the development of communicable diseases. Many such diseases which at one time were serious menaces to the life and health of Americans are now of relatively minor importance. But these diseases are not non-existent—they still are present but kept under control through the efforts of the medical and related professions and constant vigilance by health departments. To avoid the possibility of wide-spread recrudescence of these afflictions, thorough plans must be made to keep them under control under any conditions.

Communicable disease control would include the following fields:

a. Epidemiology, including careful, wartime analysis of the reports of communicable diseases, to discover possible foci of abnormal increase of communicable diseases. Such reports are now sent weekly, from all over the United States, to the Surgeon General of the Public Health Service. During wartime, trained epidemiologists would be made available for special studies wherever indicated. During peacetime, the same group would be responsible for investigations to determine potential wartime dangers and to make plans for wartime control measures.

b. Disease Prevention. Three general lines of attack against spread of communicable disease are necessary: (1) Responsibility for removal of vectors and other media of spread of disease should be delegated largely to the General Sanitation Section and to the Engineering Division, to which the Communicable Disease Control Section would make its recommendations; (2) Quarantine and isolation measures would include plans for prompt control measures in damaged cities or in evacuation lines; (3) Specific preventive measures would depend on renewed research for effective vaccines or sera for use against diseases for which there now is no such method; on plans for rapid immunization of huge numbers of people; on survey and recommendations for necessary adjustment of the capacity of biological manufacturing companies; and on ample stockpiling of vaccines and sera which might be needed in huge amounts.

c. Control of tuberculosis and venereal disease. Plans should be made to maintain, or increase, tuberculosis and venereal disease control programs during wartime.

The United States Public Health Service should be asked to assist the Office of Civil Defense in plans and operations related to all communicable disease control activities which are essential to civil defense. State civil defense organizations should request similar assistance from State health departments. In municipalities, in addition to local health departments, physicians in private practice also are experienced in certain aspects of this program. It is recommended, however, that plans for such activities as mass immunizations of a population which has been subjected to extensive enemy action be made the responsibility of officials of the local health departments working with the local civil defense organization.

Industrial Medicine and Hygiene. Protection of the health of industrial workers is of paramount importance to any modern war effort. The program should include the following functions:

a. Provision of needed medical and surgical care to industrial workers. In most cases, this is now a function of industrial physicians or physicians in private practice. The former usually confine

their services to pre-employment examinations, emergency care, and, frequently, the treatment of injuries sustained during work. Usually, these functions could be maintained on the same basis during wartime. In the event of enemy attack on an industrial plant, or even on the city in which the plant is located, it is probable that all medical and surgical care of the employees of the plant would become the responsibility of the industrial physician. Furthermore, industrial plants constitute points of congregation of large numbers of people within a small area and civil defense plans should be based on these possibilities.

b. Health Maintenance. The dependence of modern warfare on industrial output cannot be overestimated. Industrial output cannot be maintained without effective manpower which, in turn, is largely determined by the physical and mental health of employees. Today, most large industrial plants in this country are concerned with the health of their employees and they employ full or part-time industrial physicians—and ancillary personnel such as engineers, toxicologists and chemists—to supervise the health aspects of the working environment and to provide preventive medicine programs within the plant. These are peacetime functions which do not come within the purview of civil defense but they are so important to civil defense that the Office of Civil Defense should be represented in this field. Furthermore, State and local Civil Defense Organizations may be called upon to assist in plants which have been severely damaged by enemy action and, consequently, either present new health hazards or favor development of psychological disturbances among the employees.

c. Industrial hazards to communities. Each new industrial project presents possible hazards, not only to the employees, but to other persons living in the environs of the plant. Investigation of such hazards and provision of preventive steps are not civil defense functions but are so closely related to civil defense that the Office of Civil Defense should be represented in this field. Enemy attack on plants could result in destruction or breakdown of devices which normally protect the community from dangerous products within the plant. The plant protection personnel and facilities would possibly be so overburdened with other duties that civil defense would be called upon for help.

The Industrial Hygiene Division of the United States Public Health Service should be asked to assist the Office of Civil Defense in plans and operations related to all industrial medicine and hygiene activities which are essential to civil defense. Many States also have competent Industrial Hygiene Divisions, usually within the State Health Department. It is recommended that, where such organizations exist, their assistance be requested by the State Civil Defense

Organization. The same is true of metropolitan areas. Where such an industrial hygiene department is under-developed or does not exist, it is recommended that assistance be requested from an appropriate group of industrial physicians.

Maternal and Child Health. In the event of enemy action against this country, it will be imperative to organize a nation-wide program to assure adequate maternal and child health services. Problems of maternal and child health will reach huge dimensions in the event of severe local disasters or mass evacuation of cities. Babies will be born irrespective of availability of convenience to mother or attendant; and children traveling under adverse circumstances will be subject to an abnormal number and variety of illnesses. Without doubt, one of the great needs in the mass evacuation of a population is for adequate maternal and child health services.

The Children's Bureau of the Federal Security Agency should be asked to assist the Office of Civil Defense in plans and operations relating to all maternal and child health activities which are essential to civil defense. In all States, and in many metropolitan areas, there are functioning Divisions of Maternal and Child Health, and other children's services. The assistance of these organizations should be obtained by the Civil Defense organization. There should be close cooperation between such official groups and State and local professional groups and hospitals in order to arrange effective operating units which can be called into immediate action in a national emergency. The professional groups would include physicians, dentists, nurses, nutritionists, social workers, physical therapists and related personnel.

Mental Hygiene. There are few factors which can exert more influence on the fate of a nation at war than the mental attitudes of its people. Wide-scale apathy, mental depression, hysteria or panic, on the part of its civilians, can defeat its military forces. Neglect of these factors is an open bid for disaster.

In order to avoid possible adverse psychological effects, the Mental Hygiene Section should review bulletins, literature and plans of other sections and divisions of the Civil Defense organization.

Plans should be initiated during peacetime for the wartime care of mental casualties. Undoubtedly, there will be many—and prompt recognition of these conditions combined with immediate, appropriate remedial measures is the only way to keep this serious problem under control. Ill-advised efforts by unskilled workers may serve only to aggravate the difficulties and it is therefore important that a large number of trained psychiatrists, psychologists, psychiatric nurses and psychiatric social workers be registered and organized for emergency civil defense purposes. This professional roster should be augmented by carefully selected ancillary personnel, such as psychiatric first aid

personnel and nurses aides. Carefully prepared technical information should be distributed to practicing physicians. Office of Civil Defense news releases for public consumption should be carefully reviewed to guard against expressions which might inadvertently have far-reaching, undesirable psychological effects.

Displaced persons and persons whose homes or families have been lost frequently present overwhelming emotional, behavior and other psychological disturbances. Early treatment is the best insurance against psychological disability. In addition, the need for wartime evacuations of patients in mental hospitals must be considered.

All of these problems are related to the National Mental Health Program, conducted by the Mental Hygiene Division of the United States Public Health Service. This organization therefore should be asked to assist the Office of Civil Defense in plans and operations related to all mental hygiene activities which are essential to civil defense. State offices can, in most cases, obtain similar assistance from official State agencies. Metropolitan areas may have the services of such agencies available, and other large cities may delegate these responsibilities to qualified psychologists. Most cities, however, will need to depend on practitioners of medicine to whom the civil defense organization would dispense adequate technical information and advice.

Veterinary Medicine. Some diseases of animals can be transmitted to humans and, even more important, man is dependent upon animals for a major part of his nourishment. Therefore, protection of our animal population against disease is an integral part of any program instituted to protect the health of the human population.

Epidemics of diseases among domestic animals must be recorded, surveyed and combated just as effectively as epidemics of human diseases. Multiple mass movements of meat and other food-producing animals, such as cattle facilitate wide-spread dissemination of infectious diseases of animals. Failure to control these epizootic diseases would soon result in an extremely serious shortage of animal food products.

Many infections of domestic and wild animals are transmissable to man, directly, or indirectly through insect parasites. Many of these diseases are fatal to humans; for some, the only specific protective measure for man is control of the diseases or the parasites of animals.

One mode of such human infection is consumption of meat which was infected during the life of the animal. Wholesome meat, on the other hand, may be infected at any time between slaughter and human consumption. Other animal products also are potential sources of human disease. Milk, for example, may be infected within the animal or in the milking, collecting, holding, bottling or distribution processes.

During normal times, an elaborate control system reduces these

potentially great perils to a status of relatively minor danger to man. During a national emergency, however, grave results could follow diminution of epizootic control measures; failure of meat inspection systems; loss of adequate milk sanitation equipment or personnel; delays in food transportation, especially when combined with crippling of refrigeration; and numerous other equally catastrophic events.

All of these possibilities must be anticipated and suitable plans made to eliminate or at least reduce them.

The Bureau of Animal Industry of the Department of Agriculture has a large corps of veterinarians, a wealth of experience and an excellent record of performance in this field. This organization therefore should be asked to assist the Office of Civil Defense in plans and operations related to all general sanitation activities which are essential to civil defense. In State offices of Civil Defense, a similar arrangement probably would be possible—where it is not, it is recommended that the State Department of Health be requested to furnish such assistance. In most municipalities, such help would be obtained from the local health department.

Public Health Nursing. In public health activities, public health nurses are indispensable participants and their detailed functions are extremely numerous. In emergency situations, they may be assisted by practical nurses and nurses aides.

The United States Public Health Service should be asked to assist the Office of Civil Defense in plans and operations related to all public health nursing activities which are essential to civil defense. Similar requests should be made, by State and local Civil Defense organizations, to Public Health Nursing Divisions of State and local health departments.

Nutrition. Civil defense must be concerned with two serious nutrition problems. The first is the necessity to send a heavily-damaged city emergency food supplies for the surviving population, and any rescue groups which are dispatched to help the city; the second is the need for emergency food supplies for evacuation lines and hospital organizations. Some aspects of this problem are medical in nature.

The Nutrition Section of the United States Public Health Service should be asked to assist the Office of Civil Defense in plans and operations related to medical aspects of all nutrition activities which are essential to civil defense. Nutrition Sections should also be established in State and possibly metropolitan Civil Defense Organizations. Implementation of such programs during a national emergency will require previous, extensive peace-time training and recruitment, as well as complete plans for war-time mobilization of nutritionists.

Vital Statistics and Mortuary Service. Plans should be made in the civil defense program for uniform methods of establishing personal identity. Complete success of these operations—which are important to the preservation of family integrity, insurance and related records, national vital statistics, inheritances and similar functions—would be facilitated by the adoption of a national registration system.

Effective methods should be developed for identification and recording of names, status and location of the sick, injured and dead. During peace-time, adequate plans for these services should be made and complete instruction and training furnished State and Local Organizations.

Efficient emergency mortuary services are essential to preservation of public morale as well as to maintenance of vital statistics and protection of public health. Bodies of the dead should be removed as soon as transportation of the living injured has been completed. A system of dispersed morgues should be planned.

On arrival of a body at the morgue, medical confirmation of death must be provided. Then every possible means of identification should be employed and carefully recorded. Many bodies may have to be buried without being claimed; for these cases, a central office must be established to classify and preserve identifying data for future presentation to relatives.

In the morgue, during the tragic process of identification of bodies of friends and relatives, the utmost tact and sympathy must be offered. Emergency neuro-psychiatric facilities should be available.

If at all possible, some type of coffin should be provided. Religious services should be extended to all funerals. Mass burials are undesirable but may become necessary in the event of huge catastrophies. Mass cremations should be avoided except when ordered for the protection of public health.

The National Office of Vital Statistics, United States Public Health Service, is responsible for recording of vital statistics and, in addition, should be asked to assist the Office of Civil Defense in plans and operations related to all emergency mortuary services which are essential to civil defense. In the States, the assistance of the State Offices of Vital Statistics, or their equivalents, should be obtained. A similar arrangement, in cooperation with the local coroner, can be used by municipalities.

Laboratory Service. In Civil Defense, plans for uniform policies and procedures should be established for all medical and public health laboratory services required during a national emergency. These include essential procedures in the fields of hematology, bacteriology, parisitology, serology, immunology, biochemistry, pharmacology, pathology, and toxicology. Plans must encompass not only

utilization of existing laboratories but the organization of emergency field laboratory facilities.

Federal provision of highly specialized laboratory procedures should be assured by plans either for assignment, to States and municipalities, of federal equipment, supplies and technicians, or for shipment of material to available federal laboratory centers. This section also must be prepared to cooperate with the American National Red Cross and other appropriate organizations to procure, process and store blood or blood substitutes, and to perform huge numbers of blood matchings. Another duty would be to utilize all available laboratory methods to assist the Vital Statistics Mortuary Section in the identification of bodies.

The National Institutes of Health, the Communicable Disease Center and similar components of the United States Public Health Service should be asked to assist the Office of Civil Defense in plans and operations related to all laboratory services which are essential to civil defense. State and local health departments should be requested to furnish similar help to their respective civil defense organizations.

Administrative Branch

The administrative functions of the Medical Division will necessarily be complex. The Administrative Branch therefore is proposed to assist the other two branches in training programs to be developed in cooperation with the Training Division; administrative service for the Medical and Health Services Division; mobilization of personnel including medical and allied technologists and the handling of personnel records; evacuation problems in cooperation with other divisions; and surveys and plans for hospital facilities; supply requirements and procedures; and fiscal matters of the divisions.

The Medical Divisions in the State and local organizations should have the responsibility for the proper staffing of the medical components of the mobile reserve battalions.

MEDICAL SUPPLIES

Large quantities of medical and surgical equipment, supplies, drugs and biologicals will be required in any attacked area. Because many of these items are perishable within a relatively short time, and because extensive local stockpiling would result in a serious and costly depletion of national medical supplies, regional depots are proposed.

The Department of the Army has developed uniform categories of equipment and supplies and has had extensive experience with stocking them, with putting them into circulation for consumption before deterioration occurs, and with releasing them for distribution.

It is therefore proposed that the Medical Supply Division, Medical Department, Department of the Army, assume the responsibility of procuring and maintaining medical and surgical supplies for medical phases of Civil Defense when it is determined that stockpiling is required.

TRAINING

Self-Help Training. Instruction in fundamental medical and first aid principles should be provided so that individual families can temporarily manage less serious illnesses during an acute shortage of physicians; and so that each person can administer emergency casualty first aid to himself or others. The American National Red Cross should be requested to assist in the conduct of such training courses.

Technical Training. It is proposed that the Medical and Health Services Division, Office of Civil Defense, assisted by the Training Division, enlist the services of the Division of Medical Sciences of the National Research Council in the preparation of technical professional material dealing with the care and treatment of patients. The additional assistance of the American National Red Cross should be secured for the preparation of material in a training program for first-aid workers and nurses' aides.

In State and local Civil Defense organizations, the Civil Defense directors should obtain the cooperation and assistance of professional organizations in implementing the training procedures. Competent instruction in special civil defense activities related to the field of medicine and public health should be provided through state organizations and metropolitan teaching centers.

SPECIAL PROBLEMS

Extensive Epidemics. A major war-time menace to public health is the appearance of a pandemic of a serious disease. The great influenza epidemic of World War I is a striking example. A catastrophe of this kind would severely tax the combined efforts of all official, professional and voluntary public health and medical agencies and organizations. It certainly would become an important problem to Civil Defense.

Because most medical and health personnel not in the Armed Forces would have duties in civil medical defense, Civil Defense Organizations would assume a heavy responsibility in such a pandemic. No single branch or section of the Medical Division can effectively deal with it. Such a situation would therefore become a direct administrative problem of the Chief Medical Officer of the National, Regional, State, or local organizations of Civil Defense. It would be his duty to coordinate the efforts of his entire organization in such a way as to effectively cope with this danger and, simultaneously, provide medi-

cal and health services to areas which have been subjected to enemy attack.

Personnel Problems. It is essential that, wherever possible, women be used in civil defense activities. In the selection of male professional personnel, Selective Service, Military Reserve and National Guard status should be considered. Equally important are physical condition, employment as industrial physicians in essential war industry, and professional school teaching appointments. Men with such responsibilities should not be included in Civil Defense Mobile Unit organizations but should be held for local civil defense duties.

Within the Office of Civil Defense, classification of individual professional qualifications, by a system similar to the Military Occupational Specialty Number System employed by the Department of the Army, should be considered.

Provision of Blood and Blood Derivatives. One of the major factors on which successful treatment of large numbers of casualties is dependent is the availability of blood and blood derivatives for transfusions and other purposes. In the event of extensive enemy attacks on the civilian population, huge quantities of these substances would be needed immediately.

Problems of procurement, preservation, storage and distribution of blood supplies are of great magnitude. The Laboratory Section will need to cooperate with the American National Red Cross and medical associations, which have extensive blood bank projects in operation. Efficient utilization of these facilities is essential to Civil Defense plans.

RADIOLOGICAL DEFENSE IN THE CIVIL DEFENSE PROGRAM

The peculiar dangers characteristic of atomic attack are those arising from the presence of ionizing radiations, a physical phenomenon loosely termed radioactivity.

While it is hoped that international control of atomic energy, which would eliminate the possibility of atomic attack, may be achieved, our national security demands immediate development and implementation of a specific plan for radiological defense as a part of the national civil defense program.

All those passive measures of atomic defense directed toward the prevention or mitigation of personnel injuries resulting from overexposure to radiological hazards are collectively termed radiological defense.

As related to atomic attack, any and all risks arising from, or attributable to, the presence of ionizing radiations are called radiological hazards.

With respect both to atomic attack and to radiological defense, the term ionizing radiations may be taken to mean those nuclear emanations, gamma rays, neutrons, beta particles and alpha particles, which are capable of penetrating the human body to varying depths. They may cause injury through ionization of the countless tiny cells of which all living tissue is composed. For purposes of this discussion, there is no need to be concerned with their detailed physical characteristics.

ESTIMATE OF PROBABLE EFFECTS OF ATOMIC ATTACK

Use of Bomb Assumed. The possibility of employment of atomic weapons in attack against our country increases with time, but detailed discussion of enemy capabilities, both present and future, does not properly lie within the scope of this report. In order to provide some definite conception of the devastating effects of atomic attack, it will be assumed, solely for purposes of simplification, that a single atomic bomb is dropped without warning on some densely populated industrial area in the nation.

Aerial Burst Probable. In view of the numerous technical advantages which may reasonably be expected to accrue, it is probable

that the bomb used by a theoretical enemy would be detonated well above the earth's surface, as was the case at both Hiroshima and Nagasaki.

Casualty Estimates for Aerial Burst. Detailed analysis of pertinent data provides the following estimate of probable casualties resulting from this type of aerial detonation of a single atomic bomb:

Total Numbers of Fatal and Non-Fatal Casualties. It is estimated that human casualties of various types would total roughly 100,000, including:

Fatal. Approximately 40,000 in all, with 20,000 persons killed outright and 20,000 additional dying within the first week following detonation.

Non-Fatal. Approximately 60,000 in all, with 20,000 serious cases in the first week, plus 20,000 requiring extensive and 20,000 lesser degrees of medical treatment during the first three weeks after detonation.

Generalized Types of Casualties. The two general types of injuries to be expected are:

Those Common to Ordinary Attack. These would include shock, burns from flash and flame and varied trauma produced by blast, flying debris and structural collapse. They would be similar to those resulting from ordinary high explosive raids of comparable destructive force and would cover a wide range of individual severity.

Those Peculiar to Atomic Attack. These injuries, which may be observed either alone or in combination with others listed immediately above, are caused by exposure to ionizing radiations. In non-fatal cases, the general signs and symptoms of such injuries usually become apparent from 3 to 21 days after exposure. They include malaise, nausea, bloody diarrhea, prolonged blood clotting time, and reduced resistance to infection and disease. Administration of whole blood represents the principal form of effective treatment. Promptly administered, it may be expected to save the lives of many "borderline" cases.

Geographical Distribution of Casualties. In general, but with marked "spottiness" attributable to "chance shielding" and other factors, the nature and percentage of casualties would be directly dependent upon distance from the point of detonation. Over-all distribution estimates, based on distances from the center of impact, are as follows:

Within 500 Yards. Nearly 100 percent immediate fatalities may be expected. They would be due to exposure to ionizing radiation, blast, burns, structural collapse and numerous other factors.

Between 500 and 1,000 Yards. Nearly 100 percent fatalities may be expected, with deaths occurring at various times within the first three weeks after detonation and depending upon the degree and nature of exposure. The types of injuries sustained would again vary widely. In practically all cases, ionizing radiation could be the primary cause of death, though in many instances it may not be.

Between 1,000 and 1,500 Yards. The likelihood of fatal injury due to the effects of ionizing radiations would be greatly reduced, but the likelihood of serious injury by flash and flame remains high. It may be expected that fatalities in this area would total approximately 50 percent of all individuals present.

Between 1,500 and 2,500 Yards. Ionizing radiation may be expected to cause many non-fatal injuries, but practically all fatalities would be directly attributable to other factors. It is likely that approximately 15 percent of all people in the area would be killed.

Between 2,500 and 3,000 Yards. Fatalities would be rare, probably 1 to 2 percent of all persons in the zone. Most of them would be due to thermal burns or to indirect effects of the blast.

Beyond 3,000 Yards. Few, if any, injuries may be anticipated.

Radiological Hazards Produced by Aerial Burst. The detonation of an atomic bomb produces two generalized types of radiological hazards. In an aerial burst, the first, and by far the most injurious to people, is caused by the intensive gamma radiation and the vast shower, or "flux," of neutrons released during the split-second period of actual detonation. While this particular hazard lasts only a few seconds, its killing power is incredible. In combination with injuries from other causes, it may be expected to result in death to practically all persons within 1,000 yards of the center of impact. Being an adequate distance from the point of detonation is the only practical measure of mass protection from this hazard, although some persons in near-by positions may escape its effects due to "chance shielding." This "accidental" form of protection may be provided by terrain, earthen embankments, heavy walls of concrete or similar radiation barriers.

The second type of radiological hazard produced by atomic bomb explosions is the lingering, or persistent, hazard attributable to the presence of radioactive fission products, or "bomb ashes." In an aerial burst, these are of only minor importance, as most of the harmful "waste materials" are swept skyward with the hot gases resulting from the explosion. There they are widely dispersed by the varying winds at different levels of altitude. The likelihood of serious ground contamination attributable to fission products is small, even near the

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center of impact. Aerial contamination may, however, temporarily provide serious hazards to aircraft operating within some miles downwind of the site of detonation. Then, too, "fall out" from the bomb cloud may produce localized hazards at points far removed from the place of actual attack. The principal effects of the latter would be psychological rather than physical.

Radiological Hazards Produced by Surface and Sub-Surface Bursts. In planning for radiological defense, the possibility of surface and sub-surface bomb detonations cannot be entirely disregarded, though likelihood of their employment is considered comparatively small.

In a surface burst, the radiological hazards produced at the actual time of detonation are grossly comparable to those of an aerial burst, although the range of the blast effects may be noticeably lessened. On the other hand, the lingering radiological hazards will usually be of far greater importance than in those instances in which the bomb is exploded in mid-air. Persistent radioactive ground contamination may reasonably be expected to be encountered in the target area. It will represent a serious hazard, particularly to personnel whose civil defense duties may require entry therein. Downwind contamination of the air will be much the same as that resulting from an aerial burst. In addition, there may be contamination of nearby bodies of water as a result of "fall out", while spread of ground contamination through surface drainage and movement of sub-surface waters is also a distinct possibility. Any distant, downwind hazards attributable to cloud "fall out" will be primarily of psychological significance, as in the case of an aerial burst.

Should the bomb be detonated beneath the surface of a body of water, as was the case in the second Bikini experiment, the radiological effects will differ widely from those produced by surface or aerial explosions. Under these circumstances, the radiations released at the instant of detonation may largely be "absorbed" by the water and so be rendered of minor importance. On the other hand, aerial contamination, though greatly limited in extent, may be of high intensity. All nearby land areas and above-surface objects, as well as the water body itself, will doubtless be heavily contaminated with radioactive fission products. As a rule, this contamination will persist for unusually long periods of time, depending upon rate of radioactive decay, dispersion and dilution in the water, and other factors.

OBJECTIVES OF A PLAN FOR RADIOLOGICAL DEFENSE

The primary objectives of the radiological defense plan should be:

a. To prevent or mitigate personnel injuries resulting from exposure to radiological hazards, through *detection* and *avoidance* of such hazards;

b. To facilitate the work of relief and the restoration of essential services, through the protection of personnel whose civil defense duties require their entry into radiologically hazardous areas; and

c. To prevent or minimize confusion and panic, through the collection and proper dissemination of factual information concerning the existence, or non-existence, of radiological hazards.

SPECIAL CONSIDERATIONS IN PLANNING FOR RADIOLOGICAL DEFENSE

The peculiar characteristics of atomic attack present new and highly technical problems of defense, requiring special consideration in all phases of radiological defense planning. The more important of these are:

Detection and Avoidance of Radiological Hazards the Basic Principle in Radiological Defense. Assuming lack of warning of attack and consequent inability to utilize available shelters, little can be done to protect persons within 3,000 yards of the point of bomb detonation from the extreme radiation hazards existing at the moment of actual explosion.

On the other hand, personnel injuries caused by over-exposure to the persistent radiological hazards produced as a result of the detonation can very often be either prevented or mitigated through detection and avoidance of those hazards.

In view of these facts, the detection and avoidance of radiological hazards necessarily becomes the basic principle for all radiological defense operations within the civil defense program.

External and Internal Radiation Hazards. One highly insidious characteristic of many radiological hazards is the fact that they may exist either outside of or within the human body. In most instances, the source of radiation remains outside the body and causes injury through penetration of the tissues from without. Under these circumstances, the rays or particles are termed external radiations. Broadly speaking, injuries attributable to this type of hazard usually become apparent within three weeks after exposure.

On the other hand, radioactive fission products, or "bomb waste," may inadvertently enter the body. This usually takes place by direct methods, such as inhalation or contamination of open cuts or wounds. It may, however, occur indirectly, as is the case when humans eat fishes whose bodies contain radioactive materials picked up in feeding. Once inside the body, the radiations from such materials penetrate and ionize the tissues from within and are consequently called internal hazards. Since the amount of material entering the body is usually

small and its radioactive intensity comparatively low but often long-lived, injuries attributable to internal hazards may not become apparent for several years.

Limitations of Protective Clothing and Devices. Insofar as highly intensive radiations are concerned, truly protective clothing is non-existent and there is little reason to believe that its future development is possible. Ordinary clothing, however, not only provides protection against certain of the less penetrating radiations, such as alpha particles, but also prevents, at least to a degree, surface contamination of the skin with fission products which may unavoidably be picked up in contaminated areas. As a general rule, contaminated clothing should be removed and disposed of as soon as possible after leaving contaminated areas. Disposable hats and gloves are desirable for use by those persons whose civil defense duties require their entry into radiologically hazardous areas in which they are likely to pick up contamination.

While it may prove desirable to provide certain civil defense personnel who are required to work in radiologically hazardous areas with face masks of a type effective in preventing inhalation of radioactive materials, their widespread use by members of the civil population is currently deemed to be neither necessary nor desirable.

Limitations of Decontamination Procedures. Decontamination procedures as they pertain to extensive land areas, buildings, ships or large items of special equipment have proved to be impractical. On the other hand, human decontamination, confined to the removal of contaminated clothing plus thorough washings and re-washings of the face, hands and body with soap and water, often is both practical and effective. This should be routine procedure for personnel required to work in contaminated areas.

Detection of Ionizing Radiations Requires Special Equipment in Hands of Trained Personnel. It is impossible to see, hear, feel or smell ionizing radiations. Their presence can be detected only by means of special equipment, such as ionization chambers and Geiger counters, operated by technically trained personnel.

Protective Measures for the Individual. While the primary measures of radiological defense are of a highly technical nature and would necessarily have to be carried out by members of a specially trained and equipped radiological defense organization, the individual should be prepared to take the following precautions in order to assure the maximum possible degree of personal protection from radiological hazards:

a. He must be thoroughly aware of the insidious nature of the radiological dangers inherent in atomic attack and must strictly comply with all instructions and regulations promulgated for the purpose of minimizing their devastating effects;

b. He must avoid designated radiological hazards;

c. He must make every effort to avoid bodily contamination with radioactive materials and must follow the prescribed measures for personal decontamination should he have reason to believe his body may have become contaminated; and

d. He must exercise every possible precaution aimed at prevention of internal radiation hazards caused by entry of radioactive materials into the body. For example, he would refrain from eating or drinking foods and liquids which there is reason to believe may be contaminated, would refrain from smoking while working in or near radiologically hazardous areas and would wash the hands thoroughly before handling foodstuffs.

In this general connection, it is naturally assumed that he would take full advantage of available shelters should the time factor permit.

RADIOLOGICAL DEFENSE OPERATIONS IN STRICKEN AREAS

Collective operations carried out in stricken areas by members and components of local radiological defense organizations represent the backbone of the entire radiological defense program. In many instances, they may prove to be not only the means of prevention of countless human injuries caused by over-exposure to ionizing radiations, but also the key to safe, orderly and effective operation of all civil defense activities within a stricken area.

Practically all organized measures of radiological defense are carried out by local organizations. They take the form of area survey and technical service operations. Each is discussed below.

Area Survey Operations. Each local radiological defense organization should number among its components 50 or more Radiological Defense Area Survey Units. These are groups of from four to ten individuals fully trained and specially equipped for detection and measurement of ionizing radiations. Under technical direction of the Radiological Defense Operations Officer (Area Survey Units), they would conduct surveys of assigned areas for the purpose of detecting and delimiting radiological hazards.

Except as otherwise prescribed and with such variations as may be necessitated by operational exigencies (radiations of extreme intensity, physical destruction, irregularities of terrain and similar obstacles), area surveys would be made on a uniform line transect basis, following parallel lines from 150 to 200 yards apart. In "built up" sections, streets would be followed, surveying each one, or every other one, depending upon the size of the blocks.

In the vicinity of the so-called "incident area," or "area of total destruction," the lines of survey would take the form of converging lines directed toward the center of destruction. These particular

operations are aimed primarily at determining the perimeter of the radiological hazard which may reasonably be expected to exist in or near the incident area. The information gained will be of especial value to firefighting, rescue and other civil defense groups operating within this vital area.

The so-called "rear areas" include territory extending back from six to eight miles on all sides of the incident area. Here the radiological surveys would be made on the standard parallel-line-basis. They may be expected to provide facts essential for safety in the directed movements of the civil population. On the basis of information furnished by the Area Survey Units, the police service then would post, and where necessary patrol, the boundaries of all radiologically hazardous areas in order to prohibit entry therein by unauthorized persons.

The "immediate downwind area" extends up to 50 miles from the center of the incident area in the general direction of the winds prevailing at the time of and immediately following the incident. Area survey operations conducted in these areas would take the form of "spot checks" aimed at detection of any radiological hazards attributable to cloud "fall out." Downwind surveys at greater distances would be made by Area Survey Units from other local organizations in accordance with directions from the appropriate State Civil Defense Director, acting with the advice of his Radiological Defense Advisor.

The so-called "down-water" operations are surface surveys of streams and rivers aimed at detection of radiological hazards which may be considered capable of later producing hazards at points downstream from the incident area.

Individuals engaged in area survey operations would record all significant radiation data on standardized grid sheets. Essential digests of these data, especially information concerning the nature and location of radiological hazards, would be periodically transmitted to the Radiological Situation Plotting Center in the operational headquarters of the local Civil Defense Director via established channels of communication. There they would be graphically portrayed on charts of the locality in order to provide current information on the radiological situation.

Evaluation of the data collected by the Area Survey Units and summarized on the Radiological Situation Plot would provide the local Civil Defense Director with information vital to proper discharge of his duties and responsibilities. It also would furnish the police, firefighting, rescue and other civil defense groups with facts essential to proceeding safely with their respective operations.

In this connection, it should be obvious that negative information—that is, no radiations detected—gathered by Area Survey Units

may often be of as great, and sometimes even greater, importance than positive data. For example, should the area survey operations disclose no radiological hazards within certain areas, all civil defense activities within those particular sections can be conducted without fear of injuries resulting from over-exposure to ionizing radiations. In addition, the civil population can also be assured that no radiological dangers exist therein.

Technical Service Operations. Each local radiological defense organization should have among its components from ten to 100 Radiological Defense Technical Service Units for assignment to various Civil Defense Services. These groups should be composed of from two to 20 individuals fully trained and specially equipped to detect and measure ionizing radiations. They would operate under technical direction of the Radiological Defense Operations Officer (Technical Service Units) and under tactical direction of the individual in charge of the police, firefighting, medical or other operational unit to which assigned. Their duty would be to collect and interpret technical information on rate and intensity of radiation necessary to prevent over-exposure of personnel whose civil defense duties require their entry into radiologically hazardous areas.

Radiological Defense Technical Service Units should always accompany, or precede, the police, firefighting, rescue and other operational groups to which assigned into any and all areas where there is reason to believe that ionizing radiations may be encountered. On the basis of the radiation rate and intensity data secured, the radiological defense personnel would advise the leaders of those units concerning the maximum period of time which workers may remain in specific radiologically hazardous areas without likelihood of injury. Withdrawals and replacements made in accordance with the advice furnished should provide protection from radiation injuries for all persons engaged in post-attack civil defense operations.

Radiological Defense Technical Service Units assigned to firefighting groups are likely to be among the first, if not the very first, radiological defense units to detect the presence of ionizing radiations in bombed areas. Therefore they report their initial detections to the Radiological Situation Plotting Center in the operational headquarters of the local Civil Defense Director via established channels of communication. All significant data must, of course, be incorporated in the plot.

THE RADIOLOGICAL DEFENSE ORGANIZATION

General Organization Requirements. Effective radiological defense on a nationwide scale necessitates not only immediate establishment of a separate Radiological Defense Division in the Office of Civil Defense, but also immediate development of Radiological De-

fense organizations, including operational units, in states and communities. All plans of organization for radiological defense must be fully integrated with those for the over-all civil defense program.

The primary purpose of the organization must necessarily be the collection and interpretation of the technical information on existence of ionizing radiations which is required to achieve the objectives of radiological defense.

Proper interpretation of data concerning the rate and intensity of ionizing radiations requires their collection on a uniform basis. Furthermore, the necessity for close cooperation, not only between various state and local components within the Radiological Defense Division, but also between Division units and comparable units within the Armed Forces, demands absolute uniformity of all radiological defense procedures. These two factors combine to require an unusually high degree of standardization throughout all levels of the radiological defense organization.

In addition, there are two other organizational requirements which are of vital importance. First, in order to have an effective organization comprised of fully qualified technical personnel available at the time of attack, it is imperative that the Radiological Defense Division be immediately formed and activated, if only on a limited scale. Secondly, in order adequately to train and prepare for radiological defense in time of war, it is necessary during the present peacetime period to develop an organization of essentially the same design and strength as may be required in the event of war. These particular requirements are peculiar to radiological defense in that no nucleus of organization for such defense now exists. Most other elements of the Civil Defense organization currently exist in some degree and are capable of comparatively rapid expansion and coordination.

In organizing for radiological defense, the following facts must constantly be borne in mind:

Practically all actual defensive operations would be performed by Area Survey and Technical Service Units within local organizations.

The operational activities carried out by State units would be limited, but highly technical in nature.

The functions of the national organization would be largely concerned with development of sound training and operational plans and maintenance of tight technical direction of activities.

Responsibilities within the regional offices would be those of interstate coordination.

National Organization (Chart 6). In addition to promulgation of sound training and operational plans, the Radiological Defense Division of the Office of Civil Defense would establish policies, principles and standards to be followed in activities of the State and local organizations.

The personnel immediately required within the Radiological Defense Division, includes:

a. Chief, Radiological Defense Division. He would be responsible for over-all administration, supervision and coordination of the radiological defense program and for its scientific and technical application within the civil defense program. He should possess outstanding ability and national recognition in the field of radiological defense, as well as thorough appreciation of the scientific and technical aspects of this highly specialized field, including its medical implications. His academic background should include a doctorate in a physical science or in medicine, preferably the latter. He should be of professorial rank, or the equivalent, and military experience related to atomic warfare is highly desirable. He should be a "career employee."

b. Deputy Chief for Technical Direction. He would serve as senior advisor in the technical aspects of radiological defense, with supervision over all scientific and technical matters pertaining to detection and measurement of ionizing radiations and standards relating thereto. He should possess outstanding ability and recognition in a field of science basic to radiological defense. His academic background should include a Ph. D. or D. Sc. degree in a physical science related to radiology. He should be of professorial rank, or equivalent. He should be a "career employee."

c. Administrative Assistant. He would serve as general administrative assistant to the Chief, Radiological Defense Division and be responsible for all administrative details. He should possess both experience and demonstrated ability in high level staff procedure.

As implementation of the over-all civil defense program progresses, there will be required Assistant Chiefs for Personnel, Security and Public Information, Plans and Operations, and Logistics.

The Division should be served by an Advisory Committee on Radiological Defense, composed of five nationally recognized authorities in the fields of medicine, physics and chemistry who are also experienced in the practical aspects of radiological defense. Its primary mission would be to advise the Chief of the Division in matters of over-all policy and to submit recommendations pertaining to general operation of the Division.

In addition to the Advisory Committee, the Division should also be served by a number of advisory sub-committees. These so-called Task Committees would be actual working groups composed of recognized authorities in specialized scientific fields. They would be assigned specific tasks aimed at the solution of key problems, such as those pertaining to education of the public, instrument standards and training methods. Their work would be of vital importance in the development of a sound and effective plan for radiological defense.

Regional Organization. When Regional Offices are established, each should have a Radiological Defense Division primarily concerned with inter-state coordination of operations. It would be comprised of a Chief, an Assistant for Plans, Operations and Training and an Assistant for Logistics.

State Organization (Chart 3). The State Radiological Defense Division should be headed by a Chief, with an Assistant for Plans, Operations and Training and an Assistant for Logistics. He would be served by a State Advisory Committee on Radiological Defense, composed of recognized authorities in the fields of physics, medicine, and chemistry.

The only truly operational units within the state radiological defense organization should be Technical Service Units assigned to Mobile Reserve Battalions, plus limited numbers of Special Purpose Units which would operate under technical direction of the Chief of the State Division. The latter units, as ordered by the State Directors for Civil Defense, would perform detailed technical functions requiring highly specialized knowledge and skills.

Local Organization (Chart 4). Each local Rediological Defense Division would be composed of the following members and components:

a. Chief, Local Radiological Defense Division. He must be specially trained and fully qualified in the duties of the assignment. He would serve as advisor to the local Director of Civil Defense, furnishing technical information concerning the radiological aspects of civil defense. He would be responsible for the technical direction and coordination of all radiological defense activities within the locality and would advise the director in all matters relating to radiological defense.

b. Radiological Defense Operations Officer (Area Survey Units). He must be specially trained and fully qualified in the duties of the assignment. Under technical direction of the Chief, he would serve as Radiological Defense Operations Officer (Area Survey Units), furnishing technical information on the nature and location of radiological hazards. He would be responsible for maintenance of the central or headquarters Radiological Situation Plot and for technical direction of all radiological defense area survey operations.

c. Radiological Defense Operations Officer (Technical Service Units). He must be specially trained and fully qualified in the duties of the assignment. Under technical direction of the Chief, he would serve as Radiological Defense Operations Officer (Technical Service Units), furnishing technical information concerning the radiological protection of personnel comprising operational units of the firefighting, police, medical and other services. He would be responsible for the technical direction of all radiological defense

Technical Service Units, and for the assignment of such units, or personnel therefrom, to other operational units.

d. Radiological Defense Logistics Officer. He must be specially trained and fully qualified in the duties of the assignment. Under technical direction of the Chief, he would serve as Radiological Defense Logistics Officer, supplying all radiological defense equipment and matériel required by the local radiological defense organization. He would be responsible for the supply, maintenance and re-supply of all operational equipment required by Area Survey, Technical Service and other radiological defense operational units.

e. Radiological Situation Plot Group. This unit would have from one to five individuals of officer grade and from five to twenty-five of technician grade, all specially trained and fully qualified. Under technical direction of the Radiological Defense Operations Officer (Area Survey Units), the Group would maintain the Radiological Situation Plot in the operational headquarters of the local Civil Defense Director, and would be responsible for the correlations, charting and recording of information concerning the nature and location of all the radioligical hazards within the local operational area.

f. Radiological Defense Operational Supply Group. This unit would be composed of one individual of officer grade and from two to ten of technician grade, all fully qualified and specially trained. Under technical direction of the Radiological Defense Logistics Officer, the Group would supply, repair and re-supply radiological defense operational equipment required for use within the local operational area. It would be responsible for emergency supply and maintenance of all operational equipment required by Area Survey and Technical Service Units during periods of actual defensive operations.

g. Area Survey Units. (Ten to 100 Units). Each would be composed of from two to four individuals of officer grade, one of whom should be designated as leader, plus from four to eight individuals of technician grade, all fully qualified and specially trained. Under technical direction of the Radiological Defense Operations Officer (Area Survey Units), the Units would conduct area surveys for the purpose of locating radiologically hazardous areas through the detection and measurement of ionizing radiations. They would be responsible for delimiting all such hazards and for transmission of detailed information concerning the nature and location of each to the local operational headquarters through established channels of communication. They would serve a primary function of providing the local Civil Defense Director with information vital to proper discharge of his duties and responsibilities.

h. Technical Service Units. (Ten to 100 Units). Each would be composed of from two to four individuals of officer grade, one of whom should be designated as leader, plus varied numbers of individuals of technician grade, all specially trained and fully qualified. They operate under technical direction of the Radiological Defense Operations Officer (Technical Service Units) and under tactical direction of the individual in charge of the operational unit to which assigned and with which they move in operations. They would collect and interpret that technical information (intensity and rate of radiation) which is necessary to prevent overexposure of personnel whose duties require their entry into radiologically hazardous areas. Their primary function would be the radiological protection of members of the various technical service operational units. They would not normally engage in area survey operations.

Both because of the likelihood that enemy attack may come with little or no warning and because the initial strike may be so devastating as to render a large percentage of all members of a local Civil Defense organization essentially "hors de combat," it is important that development of the local radiological defense organization incorporate the following characteristics:

First, reserve personnel for the four key positions (Chief Operations Officers and Logistics Officer) should be at least "two deep." In other words, there must be for each of these positions at least one additional individual capable of immediately assuming the positions in the event that the regularly designated personnel be for any reason unavailable. These reserves should not only be fully qualified and trained, but should also be widely dispersed insofar as their regular places of residence and employment are concerned. Only then will constant availability of necessary personnel be reasonably assured.

Secondly, all radiological defense operational units, especially Area Survey and Technical Service Units and the personnel comprising them, must be so organized and trained that they not only can serve as replacements for other units, but also can operate either as units, or as individuals performing unit functions. In other words, Area Survey and Technical Service Units must be capable of performing either survey or service functions as may be assigned, while all personnel comprising such teams must be capable of functioning as units, part-units or individuals.

PROCUREMENT OF PERSONNEL

General Personnel Requirements. In the procurement of personnel for the radiological defense organization, all thought and action must be directed toward employment of individuals possessing the highest possible qualifications, particularly pertinent ability, training and experience.

Personnel prerequisites for various positions within the Radiological Defense Divisions differ widely. In some cases, the requirements call for extensive technical or scientific training and experience, but only limited administrative ability. In others, the reverse holds true. Between these two extremes there are many demanding a balanced combination of qualifications.

It is of utmost importance that the duties of each particular grade or position be clearly set forth and that minimum qualification standards for them be not only established, but rigidly adhered to in filling all positions within the radiological defense organization.

Sources of Personnel. In general, it should be possible to obtain personnel for the Radiological Defense Divisions from the following sources:

a. Personnel for Local Organizations. It is believed that a nucleus of personnel suitable for local radiological defense organizations can be drawn from the ranks of the teachers of physics and related sciences in the secondary schools.

b. Personnel for State Organizations. It is believed that professors of physics and related sciences in the various colleges and universities provide an adequate source of personnel for state radiological defense organizations.

c. Personnel for National and Regional Offices. In view of the unique prerequisites required, it is believed necessary to draw key radiological defense personnel for the National and Regional Offices of the organization either from the faculties of various colleges and universities or from those persons privately engaged in pertinent professional pursuits.

TRAINING OF PERSONNEL

General Training Requirements. In the main, all radiological defense personnel require not only technical training and practical experience in physics or some closely related science, but also specific instruction and practice in the special techniques of detecting and measuring ionizing radiations. It is highly desirable that key administrative personnel possess, in addition to the technical background just mentioned, military experience in problems pertaining to atomic warfare.

All technical training of radiological defense personnel should be conducted under the technical direction and supervision of the Chief of the Radiological Defense Division, Office of Civil Defense, and in accordance with a specific program approved by the Advisory Committee on Radiological Defense. This training must be characterized by the highest possible degree of uniformity and standardization and must be closely integrated with related courses of instruction in the National Military Establishment. Furthermore, since the develop-

ment of radiological defense personnel fully qualified to perform their respective duties requires appreciable time, immediate peacetime inauguration of an approved training program is imperative. Its initiation cannot be postponed until the moment of attack.

In addition to the technical training of radiological defense personnel, it is necessary to orient all other members of the Civil Defense organization with respect to the specific radiological problems which they are likely to encounter in performance of their assigned duties.

Specific Training Procedures. In order to obtain the high degree of proficiency required for effective radiological defense, it is essential that the following training procedures be adhered to at the several levels of organization:

a. Local Training. Training in the local organizations must be directed primarily toward the development of maximum individual proficiency in area survey and technical service operations. It would consist largely of instruction and practice in the techniques of detecting and measuring ionizing radiations, plus detailed discussion and analysis of the specific problems likely to be encountered in performance of their duties. Selected teachers of physics and related sciences from the secondary schools would be given extensive basic training in radiological defense at various colleges and universities, stressing the practical techniques employed in area survey and technical service operations. Those who successfully complete this course of instruction will be qualified for positions as leaders of Area Survey and Technical Service Units. Thereafter, those interested individuals who have demonstrated outstanding ability in the basic training would be given additional instruction which will qualify them to serve not only as unit leaders, but also as local instructors.

b. Training of Personnel for Special Purpose Units. The training of personnel for Special Purpose Units would be conducted at various colleges and universities under the administrative direction of the Chief of the State Radiological Defense Division. All personnel assigned to such units would require, in addition to their own special technical training and experience, specific instruction in the more complex problems of radiological defense.

c. Training of Key Personnel. Insofar as possible, key administrative and technical personnel in the radiological defense organization should be given such advanced training in the problems of atomic warfare as may be offered within the several branches of the National Military Establishment.

LOGISTICS

General Logistics Policy. The procurement and supply of radiological defense equipment and matériel is a major problem,

complicated by the fact that it is currently impossible to state what specific types of special equipment are best suited for radiological defense training and operations. In general, it may be said that the over-all equipment and matériel requirements for radiological defense would be computed by the Office of Civil Defense; that procurement preferably would be through a common source and in accordance with plans and specifications jointly agreed upon by the Office of Civil Defense, the Armed Forces Special Weapons Project, the Armed Forces and the Atomic Energy Commission; and, finally, that supply should be in general accord with the over-all civil defense logistics plan.

In the state organization, responsibility both for development and implementation of the radiological defense logistics plan and for technical supervision of logistics operations would rest with the Assistant for Logistics. He would act in accordance with the general provisions of the over-all civil defense logistics plan promulgated at the national level. Within local organizations, corresponding responsibility would rest with the Radiological Defense Logistics Officer. He, too, must act in strict accordance with national policies.

Types of Equipment Required for Local Operations. The principal types of radiological defense equipment required for local operations are:

a. Survey Meters. These instruments (ionization chambers and Geiger counters) are utilized for the purpose of detecting and measuring ionizing radiations.

b. Dosimeters. These instruments (primarily special purpose electroscopes) are utilized to record total periodic exposure of personnel to ionizing radiations.

c. Plotting and Charting Equipment. This includes area maps, grid charts and all other items of equipment used for standardized recording and graphic portrayal of technical data relative to the presence of ionizing radiations.

For the most part, radiological defense equipment and matériel required for use by local organization, both in training and in actual defensive operations, should be stored, under lock, in police and fire stations and in those schools and buildings regularly utilized as training centers.

COMMUNICATIONS

General Communications Problems. Because of the many complicated problems involved, establishment of a separate communications system for use by the Radiological Defense Division is deemed neither sound nor practical. In actual operations, Area Survey and Technical Service Units, which normally operate in close association with the police and fire services, would depend primarily upon com-

munication facilities of those services and secondarily upon telephone, telegraph and other public service facilities.

Particularly in the event of atomic attack, it is reasonable to suppose that for a period of hours immediately following the incident—which may reasonably be expected to be the critical period for most radiological defense operations—the principal communication facilities available for use by radiological defense personnel actually engaged in defensive operations may be the two-way radio systems maintained by the police and fire services. It is, of course, possible that these and other facilities may be inoperative and that messenger service will have to be inaugurated.

Post-Incident Communications Procedures. In the event that the police and fire radio systems are the only communication facilities available in the immediate post-incident period, and in view of the great volume of essential traffic which must be handled by these facilities, individual members and functional components of the local radiological defense organization should be required to adhere to the following communication procedures:

Transmissions of all types must be kept to an absolute minimum. In the main, radiological defense messages should be confined to issuance of directions and reporting of essential digests of information concerning the radiological situation. Radiological defense personnel should not undertake personally to operate (that is, call or talk over) either police or fire radio communication facilities. Instead they should write out, in the briefest possible form embodying absolute clarity of meaning, any and all messages which require transmission. These would be turned over to the police and fire communications operators for transmission in accordance with approved procedures and established priority schedules.

As soon after attack as operational procedures permit, available telephonic communication service should be utilized in order to reduce traffic on the radio systems. As a general rule, direct lines to the local civil defense operational headquarters would be available at regular or emergency police or fire stations and sub-headquarters.

Special Radiological Defense Communications Code. Serious consideration should be given to development of a simple, standardized communications code for use in radiological defense operations. Such a code would allow for brevity of operational messages. It would also provide the security essential in transmission of technical information.

PREPARATION OF THE PUBLIC ESSENTIAL TO EFFECTIVE RADIOLOGICAL DEFENSE

Maximum Protection Requires Thorough Public Preparation. The effectiveness of any and all radiological defense operations conducted at the time of and immediately following atomic attack will be in large measure directly dependent upon the extent to which the public may previously have been prepared to meet the eventualities of such attack. Maximum protection requires sound and thorough preparation of the entire civil population well in advance of the time of actual attack.

Education of the Public of Paramount Importance. Education of the public in respect to the *true* potentials and *actual* limitations of atomic warfare is the only means by which the civil population may be adequately prepared to meet the eventualities of atomic attack. Prompt development and implementation of such an educational program is a major undertaking of vital importance to national security.

Objectives of the Educational Program. It is generally agreed that the psychological aspects of atomic warfare are of maximum military and political significance. No previous type of warfare has offered such rich opportunities to exploit fear of the unseen and the unknown. It is, therefore, obvious that the primary objective of a program of education of the public in respect to atomic warfare should be to dispel the current unjustified fear of the radiological hazards involved in such warfare and to develop a wholesome understanding of and respect for the potentials of atomic weapons.

Development of an Educational Plan a Civil Defense Responsibility. In view of its vital importance to our national security, development of a plan for the education of the public designed adequately to prepare the civil population for the eventualities of atomic attack is a primary responsibility of the Office of Civil Defense. Detailed preparation of the plan would be the duty of the Chief of the Training Division. However, the Chief of the Radiological Defense Division, acting with the advice of recognized authorities in pertinent fields, would prescribe the specific technical features to be incorporated therein. All technical facts and figures which may be utilized must necessarily be concurred in by the Atomic Energy Commission, the Military Liaison Committee, the Armed Forces Special Weapons Project and other governmental agencies directly concerned.

Implementation of the Educational Plan a Multiple Responsibility. Full implementation of an approved plan of education of the public in respect to problems of atomic warfare is properly a multiple responsibility to be assumed by a large number of agencies and organizations, public, private and endowed. Since conduct of such a program is both essential to effective civil defense and vital to national security, wholehearted and widespread participation in it is assured.

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CHEMICAL DEFENSE IN THE CIVIL DEFENSE PROGRAM

If a thousand enemy bombers dropped full loads of modern chemical bombs on a major American industrial city unprepared for such an attack, the result would be death and injury to thousands of people. The clouds of war gas vapor released by the bombs bursting in the target city would kill or disable unprotected civilians—homemakers, workers, and infants—without discrimination. In addition, liquid war gas would contaminate buildings, homes, machines, soaking into the masonry, wood and furniture, lying in pools on factory floors and city streets, releasing toxic vapors over a period of hours or days. The lethal cloud would travel downwind from the target city bringing death and injury to the unprotected inhabitants in its path.

Such an attack on an unprepared city would create enormous problems of evacuation, re-location, medical care and treatment of survivors, and decontamination of facilities. The industrial machinery of the city, largely intact, would be stopped by the wiping out of the irreplaceable skilled operators, and its war production would be choked off.

That such an event could occur in the United States seems incredible. Yet this nation has no choice except to anticipate such an attack; it cannot fail to take every precaution to protect itself against the possibilities of chemical attack on the civilian population, as well as against the atomic and other conventional weapons. The President's Advisory Commission, in its report on "A Program for National Security" dated May 29, 1947, declared:

> ". . . chemical weapons of great destructiveness have also been added to the arsenal of war, but the conscience of man and the danger of reprisal have prevented their employment. Whether this will continue to be true or whether a future aggressor will cite our possession of the atomic bomb as justification for disregarding the conventions of the past is a matter on which we can only guess."

Chemical attacks would be intended primarily to kill, or disable and demoralize people, and to contaminate essential facilities so that their use would be denied until special protection is provided. Types of war gas, the strategic use of which is feasible at this time, are the blood and nerve poisons, and the blister gases. The blood and nerve poisons at the point of release from the bombs react very rapidly to produce casualties among unprotected persons. Inhalation of the

vapors, or liquid contamination causes death by respiratory failure in a relatively short time, which may vary from a matter of minutes to several hours depending on the dosage. (A common example of this type of chemical substance is *hydrocyanic acid.*) Blister gases, either in liquid or vapor form, burn and blister any part of the body they contact. Even in small quantities they have a marked effect on the eyes and the respiratory system; and are quickly absorbed by the skin. As in a case of a severe sunburn, exposure to them may go unnoticed for 2 to 6 hours before signs of injury appear. Prolonged exposure to a high concentration of vapor will produce death; and extensive contamination of the skin will produce death, if the removal of liquid agent is neglected or unduly delayed. Liquid blister gas contaminates the objects with which it comes in contact requiring special treatment to remove or destroy the contaminating war gas. Treatment for liquid blister gas contamination of the skin, or personal decontamination, must be applied in a matter of minutes to avoid injury; and the effect of contamination of areas and facilities is to deny their use until decontamination has been completed, to avoid contamination and injury of the users of these facilities. (A typical blister gas is the well known *mustard gas.*)

Thoroughly organized chemical defense plans and techniques, if civilian death and suffering are to be held to a minimum, is a prime requisite of civil defense. However reluctant one is to see the United States undertake an elaborate scheme of gas defense in connection with civil defense, a population well-trained and well-informed on anti-chemical measures will largely nullify the effectiveness of enemy war gas attacks. Thorough preparation is the most certain way to reduce casualties; it may even discourage the enemy's use of war gas entirely. The lack of such preparation would clearly constitute an invitation to attack by war gas.

A Plan of Action. The existence of an active, effective chemical defense organization, extending from the National Office of Civil Defense to the individual in a potential target area, is essential to insure thorough preparation for defense against chemical attack.

Therefore, this plan of action is proposed:

Immediate establishment of a Chemical Defense Division in the Office of Civil Defense, qualified to proceed with the formulation of an organization which may readily be expanded for emergency use.

Training of individuals in knowledge of war gases, how to protect against them and first aid measures for gas casualties.

Such education of the public as is essential to assure awareness of the potential danger and the steps required in the event of enemy attack.

Constant research in methods to protect against war gas attacks,

and in the care and treatment of war gas casualties. The details of this plan follow.

ORGANIZATION FOR CHEMICAL DEFENSE

National Organization (Chart 7). A Chemical Defense Division in the Office of Civil Defense is the first requirement in a program of chemical defense. For planning, for training, for preliminary organizational activities, it is estimated that a small staff of technically qualified individuals headed by a chief and aided by an expert advisory committee can function adequately in peacetime. In the event of an emergency such a staff would be expanded to meet the requirements of new conditions.

Any substantial organization in states and localities except for tests of techniques and organization that might be requested by the National Office, would seem inadvisable until plans have been more fully developed, anti-gas techniques and procedures have been established, and anti-gas training equipment and supplies made available. These are prime essentials for an activity as technical and uncertain as one involving war gases. Only by developing such plans, techniques, and equipment through National channels can there be any assurance that uniform plans and equipment are developed.

The Chief of the Chemical Defense Division should have a technical background in chemical engineering or chemistry, and previous military experience would be desirable. He should have wide recognition in the field of chemical engineering or industrial chemistry. Preferably he should be loaned to the Government by the chemical industry for a period of twelve months or longer, and be replaced by a successor with similar qualifications. Thus the latest viewpoints and experiences in the chemical field would be brought to the service of the country. If a permanent full-time chief is named, he should have equivalent qualifications and preferably wartime experience in chemical warfare.

The Chief of Chemical Defense Division would be the technical advisor to the Director of Civil Defense on chemical and incendiary defense and as such, would establish the national chemical defense policy for civil defense. He should be assisted by a Chemical Defense Advisory Committee composed of representatives of the American Institute of Chemical Engineers, the American Chemical Society, the Armed Forces Chemical Association, the Chemical Corps, United States Army, and other professional and industrial groups.

The Deputy Chief, Chemical Defense Division should be a senior field grade officer of the Chemical Corps, United States Army, assigned for a two year tour of duty. This would give to the Office of Civil Defense chemical warfare experience of the Armed Forces and would eventually build up in the Army's Chemical Corps, a pool of

officers familiar with the problems of civil defense. The Deputy Chief should represent the Office of Civil Defense on the appropriate technical committees of the Armed Forces, the Joint Chiefs of Staff and other agencies on matters of chemical defense, incendiary defense, and chemical plant protection.

The administrative and technical personnel who constitute the remainder of the Chemical Defense Division staff should be qualified by technical education and experience in the chemical field for the specialized work of the Division. In their hands should be responsibility for developing chemical defense operating plans, techniques, and training programs, as well as carrying on the administrative functions of the Division.

In selecting personnel for the Chemical Defense Division of the Office of Civil Defense, and for the Regional, State, and local organizations consideration should be given to utilizing technically qualified Reserve Officers of the Chemical Corps, who are over age for troop duty, and retired personnel of the Armed Forces.

Regional Organization. When Regional Civil Defense Organizations are established, there should be a Chemical Defense Division, with a chief and a small staff, to advise the Regional Coordinator on chemical defense, to work directly with State Civil Defense organizations in the region, and to maintain liaison with the Army Area chemical sections on chemical defense matters related to civil defense within the region. This staff would be subject to expansion in the event of emergency.

State Organization (Chart 3). As a State Office of Civil Defense is established, by action of the State, it should include a Chemical Defense Division. The Chief of the Division might well be a technically qualified state official, a university chemical professor, or an industrial chemist. He should have the appropriate organizational and administrative qualifications and wide recognition for his professional attainments in the chemical field. He should be aided by a State Chemical Defense Advisory Committee composed of representatives of the professional and technical chemical engineering or chemical societies and industries. The size of the Division staff and extent of its operations would depend on the size of the State, its location with respect to the likely areas of attack, and availability of qualified personnel. It would be subject to expansion in the event of an emergency, in accordance with the needs of that emergency.

Local Organization (Chart 4). It is in the local units of government and, principally, in major industrial cities and large population areas that chemical defense will need to be emphasized. It is for possible attack on such centers that adequate plans must be made, organization perfected, and equipment provided. Hence, when it is determined that a thorough-going organization is required for a par-

ticular city or area, nothing should be left undone to assure most effective chemical defense.

In such a center there should be a chief of chemical defense under the local Director of Civil Defense. He should be thoroughly qualified in the field of chemistry or chemical engineering. He would have a trained staff together with an organization designed to perform all the functions which would be essential in the event of war gas attack. His organization would comprise three fields: training, operations and supply. Across the entire area of the city would be trained chemical defense teams, a part of the over-all Civil Defense organization, with specialized knowledge of war gases, their detection, and decontamination, and the treatment of persons affected by these war gases.

The Chemical Defense Division in the local Civil Defense Organization would operate in the closest cooperation with other services of the organization, particularly with the medical and health, police, fire, engineering and public utilities, transportation, communications, civilian war aid, evacuation, special weapons and radiological defense divisions.

FUNCTIONS AND OPERATIONS OF CHEMICAL DEFENSE

Federal Operations in Peacetime. During the peacetime period, the Chemical Defense Division of the Office of Civil Defense would be concerned with the preparation of chemical defense policies and technical plans suitable for speedy implementation in a wartime emergency.

The Division should prepare technical plans for chemical defense operations, sufficiently detailed to provide standardization and direction, yet sufficiently general to permit adaptation of these plans to local situations by the State and local organization. It should develop supply procedures and be responsible for computing overall estimates of requirements for chemical defense supplies and equipment, either for procurement or industrial mobilization planning. It should engage in the research and development of chemical defense equipment, supplies, and techniques for civil defense, initiating specific projects when necessary, and participating in appropriate studies being conducted by the other divisions of the Office of Civil Defense and the Departments of the National Military Establishment, the product of which is pertinent to or may affect chemical defense activities of the Division. It would collaborate with the Training Division on chemical defense training plans; and in the preparation of technical training publications on chemical defense. Detailed qualification standards for chemical defense positions and operational jobs, which would be of extreme importance in the classification and assignment of volunteers for chemical defense activities in the wartime organization, should be prepared by the Division as part of its technical planning.

Federal Operations in Wartime. The Chief of the Chemical Defense Division of the National Office would give assistance to State and local offices in carrying out national chemical defense policies and plans. These policies would be subject to continuous review in the light of developments in newly created situations, and the modifications promulgated to the operating agencies in the State and local Organizations.

The Chemical Defense Division would be in constant touch with the Federal intelligence agencies on foreign chemical warfare developments. It would disseminate information pertinent to the chemical and incendiary defense activities of the civil defense organizations as soon as received. Peacetime functions pertaining to chemical defense supplies and equipment would be accelerated to meet the expanded operational requirements of the civil defense program, and distribution adjusted to direct the full weight of equipment and supplies to the critical areas, as the strategic situation warranted.

Chemical Defense Divisions should be organized in the Offices of the Regional Coordinators to the extent required by the chemical defense activities of the States in the regions, and the chemical aspects of plant protection and incendiary defense pertaining to the major industries in the region.

State Operations in Peacetime. In general, the establishment of a Chemical Defense Division in State Civil Defense Organizations should be deferred until the technical planning on chemical defense by the National Office has been formulated. Pending establishment of the State Chemical Defense Division, however, key persons should be selected for assignment and trained in chemical defense courses arranged by the National Office. The activities of the Chemical Defense Division of the State Organization should be limited to the preparation of detailed plans for state chemical defense activities, including the development of estimated equipment requirements.

State Operations in Wartime. The State Civil Defense Organization should have a Chemical Defense Division. In general, the Division would perform the following functions in wartime:

a. Formulate chemical defense policy for the State based on the over-all chemical defense policies of the Office of Civil Defense.

b. Receive chemical intelligence from the National Office on the likelihood of attack and types of war gases to expect and pass it on to the local Civil Defense Organizations.

c. Establish and maintain working agreements on chemical defense with the Armed Forces installations in the State; and with chemical defense organizations of the large public institutions and major industries within the State.

d. Receive, and promptly disseminate to local organizations, the Regional Coordinator, and the National Office of Civil Defense,

verified reports of war gas attack within the State, indicating the type of war gas used.

e. Give technical advice and supervision to local Chemical Defense Divisions.

f. Develop requirements for chemical defense equipment and supplies based on estimates received from the local organizations in the State; and allocate equipment and supplies available for issue.

g. Conduct chemical defense schools and training conferences for the periodic training and orientation of key chemical and other civil defense personnel of the State and Local Organizations.

Local Operations in Peacetime. Organized chemical defense activities in a community should not be undertaken until detailed technical plans have been formulated by the State Chemical Defense Division and adequate equipment and supplies for chemical defense training are available. However, key persons to staff the local Chemical Defense Division should be selected and trained in anticipation of the need for their services.

Local Operations in Wartime. As a war emergency develops, expansion of the chemical defense organization should undergo a stepwise development in keeping with developments in the war situation, to include, eventually, the operational units for chemical defense.

In wartime, the local organization should include a Chemical Defense Division adequately staffed, its operating personnel thoroughly trained to cope with a war gas situation. The Chief of the Chemical Defense Division would prepare a standard operating procedure for local defense against chemical attack to be carried out in dealing with every anticipated situation which might result from a war gas attack. This would include the utilization of public and private equipment and professional, industrial, and civic installations adaptable to the several phases of chemical defense.

The local Chemical Defense Division should adapt the chemical defense policy of the Federal and State Organizations to special situations pertaining to the municipality. It should organize and train the technical personnel assigned to chemical defense units, and supervise the distribution, maintenance, and repair of chemical defense equipment and supplies made available to the local organization.

Other functions which the local Chemical Defense Division should perform in anticipation of, or in actually dealing with a war gas situation, are as follows:

a. Receive information from the State Organization on the likelihood of chemical attack and types of war gases to expect.

b. Maintain close contact with Weather Bureau and local Air Force Meteorological Station.

c. Maintain a chemical defense operations map on which is plotted continuously the chemical intelligence and weather information.

d. Conduct a survey, and maintain a current inventory of facilities in the community which can be used in the local Chemical Defense plan to provide gas cleansing stations for persons, and the means for laundering of recoverable contaminated clothing. The survey should include making arrangements with owners and operators of gasoline service stations, car washing facilities, public garages, and laundry and dry cleaning establishments for the use of these facilities in a chemical defense emergency.

e. Conduct a survey within the community and surrounding rural areas to determine the location, type, and availability of orchard tree sprayers, crop dusters, and other apparatus suitable for use in large area decontamination operations, and maintain a current inventory of this equipment. The survey should include making arrangements with owners and operators of this equipment for its use in a chemical defense emergency.

f. Work with the management of large industrial and other facilities within the community and adjacent area in establishing an integrated local Chemical Defense plan, which would include the several kinds of industrial and other activity represented locally, to provide for distribution of anti-gas equipment, integration of industrial and civic medical facilities for treatment of gas casualties, and for stockpiling of decontamination materials.

g. Receive and verify reports of local war gas incidents; and promptly notify appropriate local Civil Defense staff divisions and the State organization of verified war gas incidents.

h. Control and direct the operations of the chemical defense units; and dispatch units to war gas incidents.

i. Work closely with police, fire, engineer and public works divisions following a war gas attack to effect disposal of unexploded chemical bombs and the decontamination of essential targets, to hasten the restoration of critical services.

Chemical Defense Units for Local Civil Defense Organizations. It is expected that many large localities will be subdivided into two or more districts for civil defense operations. Each small community not subdivided and each district of a large municipality, depending on the size of the community or district, should have one or more Chemical Defense Operations Groups composed of operating units for the various chemical defense operations. The Group should include a headquarters team, chemical detection team, chemical decontamination teams, a personnel gas cleansing station team, and a contaminated clothing laundry team. Functions of the teams in a war gas attack would be as follows:

a. Headquarters Team—(Chief and small staff)—Directs the activities of the Chemical Defense Operations Group, and maintains communications with Chief of the Division in the Control Center.

b. Chemical Detection Team—Identification, survey, mapping and sampling of war gas contamination. Assists Medical and Health Division in the emergency determination of contamination of food and water.

c. Chemical Decontamination Team—Decontamination of buildings, instruments and machinery, vehicles, foodstuffs and areas; assists in the destruction of contaminated structures, facilities, and foods which cannot be decontaminated.

d. Personnel Gas Cleansing Station Team—Operates station for the decontamination of civil defense workers and other persons contaminated by or exposed to war gas and the replacement of contaminated clothing.

e. Contaminated Clothing Laundry Team—Handles, launders, or otherwise disposes of contaminated clothing collected at gas cleansing stations, returning laundered clothing to service. Work with medical gas casualty teams on disposition of contaminated clothing from gas casualty cleansing stations.

When the warning is given of an impending attack on a municipality, the Chemical Defense Operations Groups would assemble for duty at prearranged posts and await directions from the Control Center.

During, and immediately following the attack, the wardens would report to the Control Center the situation in his block or area, indicating the presence of war gases when appropriate. At the appropriate time, the Chief of the Chemical Defense Division would order the Chemical Defense Operations Groups to proceed to the suspicious area, and verify the reports of the wardens. They would each report to the Control Center indicating the presence or absence of war gases, the type of war gas used, the boundaries of contaminated area, and the steps being taken to provide emergency decontamination. Samples of war gas taken by the Chemical Detection Team would be sent to the Control Center for dispatch through channels to the Chemical Corps, United States Army.

Unless directed to do otherwise, the Chemical Defense Operations Groups would post the area with gas warning signs, and, after assisting in removing individuals from the gassed areas, would undertake decontamination in accordance with a priority list previously established. They would assist other Services in restoring facilities as soon as possible.

At the Control Center, the Chief of the Chemical Defense Division or his representative would receive the verified reports on the war gas situation, which, in turn, would be promptly reported to the State Control Center. Guided by the recommendations of the Chemical Defense Operations Groups, and the established priority for relief of critical installations in the community, he would direct the activities

of the Groups. He would issue orders, as required, transferring teams from one district to another to bring the maximum operational strength to bear on a situation wherein the forces faced with that situation required augmentation. Samples of war gases used would be forwarded at the direction of the State Control Center to the Chemical Corps, United States Army for analysis. The other divisions in the local organization would be advised of the war gas situation and operations set in motion according to the overall standard operating procedure for defense against chemical attack.

If the war gas situation in the community were such as to overwhelm the capabilities of the local Civil Defense Organization, the report to the State Control Center would include an appeal for chemical defense aid and other assistance. The State Director of Civil Defense would then direct the implementation of the Mutual Aid and Mobile Reserve Plan for the relief of the afflicted community. If a succession of attacks overwhelmed the chemical defense capabilities of the State Organization, this would be made known to the Regional Coordinator who would request another State to furnish the required assistance, or would appeal to the Commanding General of the Army Area.

INFORMATION FOR THE PUBLIC

Should a war gas attack occur, probably the greatest danger is the likelihood of panic. Panic arises from fear, but knowledge and understanding help to dispel fear, thus enabling the individual to meet the situation calmly. A population well-informed on war gas and well-trained in chemical defense is not only largely insured against gas casualties, but is also insured against panic being created by the enemy use of war gas.

Not all areas of the United States have the same vulnerability to enemy war gas attacks. These areas which are vulnerable should be given highest priority for chemical defense equipment. A public information program, soundly conceived, will play an important role in apprising the public of the policies with respect to chemical protective equipment. In certain areas, the threat of attack may warrant immediate issue of chemical defense equipment, while in other areas this equipment can be held in storage for immediate distribution pending a change in the over-all situation. The public should be so advised; and from time to time, it should be assured that the equipment will be made available to the individual when it is required. As research and development progresses in this area of civil defense, the public should be made acquainted with the results of these studies made in its behalf.

The release of information on chemical defense should be initiated in peacetime and maintained throughout the development of civil defense activities.

TRAINING IN CHEMICAL DEFENSE

The Chief of the Chemical Defense Division would give technical advice to and work closely with the Training Division of the National Office in establishing the overall civil defense training policies governing the preparation of the civilian population to withstand enemy chemical attack and to minimize the effectiveness of such an attack.

Prior to and in anticipation of the establishment of chemical defense divisions in the State and local Civil Defense Organizations, a limited number of persons should be selected for key postions in these divisions and trained in courses of instruction prepared by the Chemical Defense Division of the National Office. Chemical defense training schools may be established in states and certain communities to conduct these programs. Initially, however, it is expected this training will be conducted in schools established by the National Office or in schools of the Armed Forces, such as the Army's Chemical Corps School, by special arrangement of the National Office.

The objective of chemical defense training and information activities should be to give every person:

a. A fair knowledge of war gases likely to be encountered, and the precautions to be taken in each case.

b. An understanding of the use, and capabilities of the gas mask.

c. A basic understanding of decontamination methods for destroying war gases.

d. A thorough understanding of the first-aid measures to be applied in the treatment of gas casualties.

In addition to these basic training requirements, intensive chemical defense training would be needed for civil defense workers in chemical defense units and in units of the related services.

Training of Chemical Defense Teams and Related Services. The Detection Teams must be given detailed training in the identification of war gases, types of munitions, mapping of contaminated areas, collection of samples of war gases for analysis, methods of reporting, and care and use of detection equipment. The teams must be qualified to give technical advice on the extent of contamination of food and water by war gas.

The Chemical Decontamination Teams, in addition to being trained in duties related to chemical warfare, should be trained to work with the fire, block warden and police services, rescue teams, and utility teams, because of the need for cooperative action with these other services whose functions may be hampered until emergency decontamination has been accomplished. The chemical training of the Decontamination Teams will include:

a. Detection and identification of war gases.

b. Detection, marking and reporting of unexploded bombs.

c. Decontamination methods and procedures.

d. Disposal, or destruction, of contaminated materials and structures which cannot be decontaminated.

e. Care, use, and capabilities of protective equipment.

f. First Aid measures for gas casualties.

The Medical and Health Services Division is charged with the care and treatment of war gas casualties, as well as other types of casualties, and is the unit of civil defense to which the individual should look for treatment in the case of war gas injury. However, in keeping with the self-help principle of civil defense, each individual will be responsible for his own anti-gas protection, including self-aid or personal decontamination. Only the individual so affected by war gas that he is unable to apply adequate self-aid will be cared for by the Medical and Health Services Division. The training of professional medical personnel in handling of gas casualties and basic chemical defense would be a responsibility of the Medical and Health Services Division, and in this training the Chemical Defense Division would give close cooperation and considerable assistance on the technical aspects of war gases. This cooperation between the two divisions would be carried out in the training of the Medical Rescue Units and Public Health Units for dealing with the special hazards of their operations in contaminated areas.

Gas casualties will add greatly to difficulties of the Medical and Health Services Division. Gas personnel assigned to medical installations will require special training to assist the medical personnel in managing and transporting these casualties. The problems are these:

a. Managing the casualties so as to minimize the effects of exposure to war gases without aggravating any other clinical conditions arising out of associated injuries.

b. Protection of litter-bearers and others from unnecessary chemical injuries as a result of working in contaminated areas, and in handling contaminated injured persons.

c. Avoidance of spreading contamination to other personnel.

d. Protection of the interior of ambulances, operating rooms, wards and other facilities so that normal services not related to gas warfare can be carried out.

One or more members of each squad of litter bearers, who ordinarily collect casualties and give first-aid to casualties, should receive training in the recognition of war gases, have a basic knowledge of their effects on the body, and understand the special hazards associated with the handling of contaminated wounded.

Wardens should receive additional training in recognition of war gases and in the prompt reporting of incidents in which war gases and incendiary bombs are involved, to facilitate initiation of chemical defense operations from the Control Center. In this connection,

selected members of the police and fire services should be trained in detection of war gases and reconnaissance of gassed areas. They may be the first persons to enter an area which has been subjected to a war gas attack and can thus assure that the gas situation will be reported promptly to the Control Center through police or fire service communications channels.

Information for the public and training in chemical defense will play an important part in overcoming the psychological reaction to war gas. War gas should command respect, but not fear; and timely information and adequate training will give individuals in a target area confidence in dealing with enemy war gas attacks.

SPECIAL PROBLEMS OF CHEMICAL DEFENSE

Incendiary Attack. The fire fighting problem presented by "saturation" raids with incendiary bombs and high explosives is of such vital importance as to necessitate careful study in order to prevent or minimize destruction. Fire fighting is a problem for the fire service, and the training of citizens in "self-help" actions for combating a single incendiary bomb may or may not be of material assistance to the fire service in a saturation raid.

What is needed is thorough study and professional planning beforehand so that the fire services will be advised as to what to expect in case of a "fire raid" on an American city. The incendiary attacks on Japan and Germany were developed on a scientific basis, not only as to the vulnerability of the target, and type and volume of munitions, but also the aircraft force requirements for attaining the desired level of damage. The same approach to a determination of the strategic vulnerability of our cities to incendiary attacks should be made. The techniques of air attack should be applied in planning a high level damage incendiary attack on each of our key cities, and then a defense against such an attack should be developed. In planning for the defense against large scale incendiary attacks, certain existing deficiencies will be indicated, such as the lack of firebreaks and fire walls or divisions, faulty dispersion, flammable materials, and improper design and construction, and will stand out as features which will complicate the fire defense. Obviously then, the product of this study should be made known to each municipality, or community, to advise it in respect to the steps it should take to reduce vulnerability to incendiary fires. As a minimum benefit, this approach would give the Chief of the Fire Service in each municipality a professional picture of the fire problem which would be created by an incendiary attack. Its greatest usefulness, however, would be in the guidance it would give to industrial and civil planners in the matter of new industrial and civil construction.

A research project should be established for coordination by the Research and Development Board to conduct this study, and to integrate any other studies or investigative work being done in the National Military Establishment which is related to this problem.

Chemical Plant Protection. Chemicals present two problems which it is believed come within the scope of civil defense: One is the protection of chemical plants by various devices, and the second, is the protection of civilians living in areas adjacent to certain chemical plants or plants using toxic chemicals, from the effects of toxic, hazardous or dangerous gases unintentionally released as a result of bomb damage or other damage to the plant.

The planning of protective measures for the protection of chemical plants from bomb damage should be based on the information accumulated by the United States Strategic Bombing Survey, and other joint target groups, on the measures employed in World War II. For example, the I. G. Farben Chemical Industries experimented with all manner of protective construction against blast and fire. The Office of Civil Defense should make a study of this problem with respect to sensitive chemical industries in the United States, to assure the availability of planned actions before the bombs begin dropping.

Unrelated to chemical warfare as such is the possibility of toxic, hazardous, or dangerous gas clouds emanating from bomb damaged chemical plants or industrial plants using such chemicals. This poses the problem of anti-gas protection for civilians in, and adjacent to, areas of industrial chemical concentration. Toxic gas from our own manufacturing plants will be just as deadly as if it comes from the enemy, and it may be a great deal more concentrated. A study should be made by the Office of Civil Defense to delineate the target areas of industrial chemical concentration wherein this danger requires consideration, the type of hazardous, dangerous, toxic or explosive products likely to be released by bombing damage in these target areas, and the means to be employed and the type of warning to be given to the areas "down-wind" of the affected areas. The chemical defense plan proposed herein is adequate to provide the organization and procedure for this defense, but it will require re-examination in the light of the results of this study to include any additional special protective features determined to be essential for the areas delineated in the study.

Gas Mask for Civil Defense. The military gas mask issued to the Armed Forces has certain military characteristics which are reflected in its design and cost, such as, compactness, light weight, efficiency of absorbents, and long life under field or combat conditions. These military characteristics may or may not exceed those required for civil defense activities.

There are two categories of civilians who will require gas mask protection: First, those civilians in a target area whose need for gas mask protection is one of short term duration, that is, they will need protection for such time as is required to evacuate an area contami-

nated by war gas; second, that group of civilians who must remain in the contaminated area doing assigned jobs, as for example, civil defense personnel in the fire, police, rescue, chemical defense and medical services, and workers in war production.

A research project should be established, to be coordinated by the Research and Development Board, to evaluate the best means of providing civilians with adequate protection for the eyes and respiratory system against the effects of war gas vapors. In conjunction with this study, consideration should be given to including protection against the inhalation of radioactive dusts and particles. Research and development on this project should be assigned to the Chemical Corps, United States Army, so that this program may be integrated into development work on a comparable military item, if this is feasible.

OTHER SPECIAL WEAPONS DEFENSE IN THE CIVIL DEFENSE PROGRAM

In addition to the civil defense measures designed to meet the effects of both conventional and unconventional weapons of warfare as covered elsewhere in this report there are, as an outgrowth of World War II and subsequent scientific developments, many other types of special weapons that could be employed in modern warfare. It is reasonable to assume that the future will bring forth additional weapons of warfare.

Civil defense, to be fully effective, must take these developments into account and must have in its program adequate plans to meet the effects of such types of weapons.

The Office of Civil Defense Planning has studied and considered many of these features and has developed tentative plans in connection with them. It is proposed that there be established in the Office of Civil Defense a division to be known as "Other Special Weapons Defense." It is contemplated that this Division will, in collaboration with the Research and Development Board, the Armed Forces and other interested groups, continue these studies and develop appropriate civil defense plans in each case.

The capabilities of these special weapons and the scientific problems which they create from a civil defense standpoint are not sufficiently well defined or developed at this time to warrant including in this report the tentative plans as developed.

As information resulting from research in these fields is obtained, it is proposed that supplements to this report will be issued from time to time in order to acquaint the Civil Defense organization and the public with the problems involved and to indicate guidance as to the proper defense measures which should be initiated as well as the organization that will be required in the National Office, the state organizations and the local communities.

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COMMUNICATIONS AND RADIO BROADCASTING SERVICES IN THE CIVIL DEFENSE PROGRAM

Communications are the "nerve system" of civil defense.

The American communications system is exceedingly efficient. In wartime, however, it may be severely damaged in areas under heavy attack; therefore every contingency must be provided for and sound plans developed so that in such an emergency communications in some form will be available. How to anticipate such problems should be the purpose of civil defense communications planning in cooperation with authorities in the communications field.

In each area or community the communications needs will vary, depending on geography, size, strategic importance, and likely extent of civil defense operations. Typical of the requirements in any efficient civil defense organization, are the following:

a. Communications facilities to properly equip Civil Defense control centers for receiving and transmitting information on air raids, summoning workers and special crews; for dispatching units and directing the many operations.

b. Air raid warning networks, consisting of wire and radio communications of the highest efficiency for speedy receipt and transmission of warnings.

c. Communications between air and ground in the event of atomic attack, for air reconnaissance to check on radiological activity; also to assist in the control of highways in connection with transportation and evacuation operations.

d. Mobile radio-telephone and walkie-talkie (short range radio telephone) for ground reconnaissance following atomic or gas attack, and for search and rescue work.

e. Effective police and fire communications systems.

f. All the special uses of radio broadcasting services for public information and guidance as well as for warning, also amateur radio operators' services.

g. There will be need for communications from areas attacked for immediate transmittal of information to pre-designated civil defense control points. Communications will be imperative to facilitate quick appraisal of the extent of destruction, the type of attack,

whether high explosive, atomic, chemical or other types of warfare, also for communicating with other points in order that organized assistance may be promptly dispatched, directed, and control instituted.

ORGANIZATION FOR COMMUNICATIONS SERVICES

National Organization (Chart 8). It is proposed that a Communications Division with a small but competent staff be established in the Office of Civil Defense, with three branches: General Communications; Radio Broadcasting and Other Radio Services; Air Raid Warning and Aircraft Observers Communications.

The Division should be headed by a Chief of Communications, who should function on a parity with the Chief Signal and Communications Officers in the Military Establishment. In the event of emergency, the staff would be expanded to meet requirements of new conditions.

The Communications Division should be responsible for the overall planning of communications for civil defense, liaison and coordination with other staff members within the Office of Civil Defense, the Military Establishment, other governmental agencies, commercial communications and broadcasting companies. It should determine the technical specifications and formulate for civil defense organizations plans for communications systems to assist in the effective functioning of civil defense.

This Division and the Air Raid Warning and Aircraft Observers Division in the Office of Civil Defense, in conjunction with the Headquarters of the United States Air Force, should develop the requirements for civil defense air raid warning and aircraft observers systems. With the assistance of the Air Force they should prepare the necessary operational and training procedures for the use of the Civil Defense Air Raid Warning Chiefs who will be stationed at Air Force Air Defense Control Centers; also, determine the location of aircraft observation posts; prepare instructions, techniques and procedures for organizing and training the volunteer civilian personnel required to serve as aircraft observers.

This Division should be responsible for providing communications facilities for the Air Raid Warning and Aircraft Observers systems. It should furnish technical advice to civil defense organizations and assist in the preparation of pamphlets and instructions for the use of civil defense personnel concerning communications and for the information of the public in civil defense.

The Chiefs of the other divisions in the Office of Civil Defense should be responsible for surveying and determining the communications requirements of their particular specialty. They should consult

with, and act on the technical advice of the Communications Chief, regarding methods and techniques to be employed.

The Communications Chief should have broad knowledge of telephone, telegraph, teletype, radio-telephone, municipal signal systems, radio broadcasting and amateurs' radio services. A military background would be helpful in coordinating and integrating the civil defense program with the Armed Services. It is desirable that he have extensive experience in communications in order that he may be capable of developing plans for communications systems adaptable and adequate for the needs of civil defense. Similar general qualifications are desirable for the Regional and State Communications Chiefs.

General Communications Branch. It is proposed that an assistant engineer be in charge of the General Communications Branch responsible for planning the general communications systems for civil defense. He would coordinate the communication requirements and services with other divisions in the Office of Civil Defense, the Armed Forces, other government agencies, and the commercial telephone and telegraph companies. He should be responsible for the study and development of technical plans and advice on communications relating to Civil Defense Control Center operations.

Radio Broadcasting and Other Radio Services Branch. It is proposed that an assistant engineer be in charge of a Radio Broadcasting and Other Radio Services Branch. He would be responsible for study and coordinating the utilization by civil defense of the services of radio broadcasting stations and amateur radio operators; furnishing technical advice and assistance to the Police, Fire and Transportation Divisions in regard to the efficient use of communications systems employed by those services.

Air Raid Warning and Aircraft Observers Communications Branch. It is proposed that an assistant engineer be responsible for the engineering, development of technical plans and arrangements for the communications required for air raid warning and aircraft observers systems.

Regional Organization. Whenever Regional Offices of the Office of Civil Defense are established, a representative of the Communications Division should be included on the staff of the Regional Coordinator. He should be responsible for the general supervision and coordination of Civil Defense communications within the region including those required for Civil Defense Air Raid Warning and Aircraft Observers systems. He should serve as the Office of Civil Defense communications liaison with the Armed Forces Signal and Communications representatives in the coterminous area. In time of emergency the organization would be expanded.

State Organization (Chart 3). It is proposed that a Communications Division be established which would be responsible for the necessary surveys, planning and coordination of civil defense communications required for the State operations including Air Raid Warning and Aircraft Observers systems. In an emergency additional personnel would be added as required.

The State Communications Division should work closely with the Communications Divisions in the cities and communities within the State to assist in effectuating the communications plans furnished for guidance by the national organization. These would embrace the various types and arrangements of communications facilities to meet civil defense requirements. The State communications organization should also collaborate with commercial communication companies to provide necessary services.

Local Organization (Chart 4). A Communications Division with necessary personnel as determined locally should be a part of a local Civil Defense organization. This Division would be responsible for coordinating the planning, arrangement and provision of communications required for local Civil Defense. Efficient communications are a primary requirement for the successful operation of control centers and this Division should assist in determining the location of the local control center or centers, based on the availability of adequate and dependable communications facilities at the selected locations. This Division should be responsible for the communications arrangements for air raid warning and for implementing the communications plans made available for guidance by the Office of Civil Defense.

Advisory Staff Panels. The values inherent in consulting with expert and highly experienced personnel in the communications industry, should be utilized by the Office of Civil Defense through the formation of permanent communications and radio broadcasters advisory panels to review at appropriate intervals the objectives of Civil Defense communications planning and the attainment of them. Each member should be qualified in the use of a particular medium of communications. Representation should include the common carrier telephone and telegraph companies, radio broadcasting companies, and amateur radio organizations. Arrangements should be made for appropriate representation by members of the Armed Forces and other interested governmental agencies to attend meetings of the advisory panels. It is also important that the communications chief be represented at advisory panel meetings conducted by the other Civil Defense Divisions, in order that communications matters may be properly coordinated.

The communications chiefs of the state and local organizations should similarly organize advisory committees. Valuable assistance

may be obtained from the local telephone and telegraph companies and their cooperation should be solicited.

It is suggested that a joint committee be appointed consisting of representatives of the Armed Forces, of the Office of Civil Defense and selected members of radio broadcasting stations to explore all possible methods that would permit broadcasting stations to remain on the air during emergency periods.

COMMUNICATIONS FUNCTIONS AND OPERATIONS

Fundamental Requirements. Plans for communications should recognize that targets of the enemy are most likely to be large centers of population and industry, certain dams, power stations, rail yards, bridges, locks, military and other vital establishments; also, that the demand for various categories of communications will be extensive.

To insure the availability, orderly and efficient provision of communications for civil defense, when required, the needs must be envisioned, technical specifications determined, and sound and acceptable plans for guidance formulated in the early stages of Civil Defense planning. During peacetime, to assist in the proper preparation for an emergency, responsible authorities should be made familiar with the requirements for communications systems and procedures. The communications facilities which may be installed initially on a limited basis for civil defense operations should be sufficiently flexible to permit rapid expansion as the need arises.

Studies and surveys will be required of the availability and for the proper utilization of various systems of communications. These should embrace common carrier telephone, telegraph, teletypewriter, and radiotelephone services, municipal communications systems, radio broadcasting stations and amateur radio services. Local surveys should include the number of mobile units equipped for one- and two-way radio communications and their frequency assignments; amateur radio; portable transmitter and receiver units for emergency use; and other facilities as may be required locally, such as "walkie-talkies," power sirens, and loud-speaker systems.

Additional facilities should be acquired only with the certainty that existing equipment will not meet requirements. For example, in order to avoid unnecessary depletion of equipment, the warden service should, to the extent practicable, use telephones already available instead of installing special facilities.

Standard telephone and other equipment should be used. This will avoid delays in procurement and in the installation of equipment, and the need of special training in operational procedures, and obviate problems in the maintenance of the facilities. Standard equipment is generally less expensive, simpler to operate, more readily available and installed than special types of equipment, and requires no unusual training of the maintenance personnel.

Common carrier communications systems should be employed as the basic means of communications, supplemented with radio telephone and other means as studies may indicate are desirable. Definite arrangements should be made with telephone companies for the handling of emergency civil defense calls and to secure uninterrupted availability of telephone services.

Civil Defense Control Centers. Civil Defense state and local control centers are essentially centers of communications for the receipt of air raid warning and other information; for the initiation of action, direction and control of Civil Defense operations during an emergency.

Certain local Civil Defense control centers will function as key point or district air raid warning centers and will be responsible for receiving air raid warning information from the Civil Defense Air Raid Warning Chief and for transmitting such information to other Civil Defense control centers.

Civil Defense control centers will vary in size and scope and more than one center or an alternate center may be established in a city depending upon the size, geography, and other factors pertaining to the community. They should be located with due regard to the ready availability of wire communications facilities, security and dependability of services from the viewpoint of alternate routing of connecting lines, and with capabilities of rapid expansion of the services. Alternate centers, where provided, should be equipped with a minimum of communications facilities necessary to permit its effective operation. They should be properly interconnected for operations during alert periods with skeleton forces prepared for immediate activation in the event the primary center is made inoperative due to sabotage or attack.

Civil Defense local control centers should be equipped with communications facilities for the following purposes:

a. Receipt of air raid warning information.

b. If the control center functions as a key point or district warning center, additional and special facilities will be required including private line network, where necessary, for quickly relaying the air raid warning information to specified air raid warning centers.

c. Local action in informing designated authorities, public utilities, schools, hospitals and the like, of an impending air raid.

d. Operation of sirens, and possibly public address systems to alert and convey other information to the public.

e. Summoning the wardens and emergency groups for duty when needed.

f. Receiving warden reports of sabotage and other incidents.

g. Dispatching appropriate civil defense units for organized assistance.

h. Maintaining contact with Civil Defense Control Centers of neighboring communities to facilitate exchange of assistance.

i. Transmitting messages to the local police and fire departments' wire and radio centers.

j. Communicating with the key radio broadcasting station (a preselected radio broadcasting station which will function as the master station for operational direction and guidance of all other broadcasting stations within a prescribed area).

k. Receipt and transmittal of information involving water supply, chemical defense, public utilities, transportation and evacuation operations.

Provision should be made for the availability of an adequate force of messengers, including Boy Scout organizations, in the event of disruption of normal communications facilities due to sabotage or attack. Arrangements should be made for the allocation in advance of frequencies required for radio channels to be used exclusively by Civil Defense Control Centers.

The wardens responsible in a prescribed area should make a survey within their assigned territory and arrange for the use during an emergency of specific telephones on a 24-hour basis for communication with the next higher echelon or the control center as determined locally.

RADIO BROADCASTING

Radio broadcasting stations (standard band Amplitude Modulation (AM), Frequency Modulation (FM), Television (TV), and Facsimile (FX) can be used to advantage by civil defense and should be utilized as an important medium to inform the public as to its responsibility in civil defense. In the event of emergency the broadcasting of appropriate warning and other information can contribute immeasurably to the maintenance of morale and prevention of panic. It should be recognized that for radio broadcasting stations to serve the needs of civil defense effectively it is essential that they remain on the air preceding an air attack, during air raids, and in the post raid periods.

In anticipating possible enemy military action within any section of the United States, such as limited scale airborne drop to destroy vital installations, the Office of Civil Defense, in conjunction with the Armed Forces, should determine the extent, if any, and the manner in which the civil defense program should envision the use of radio broadcasting stations, in directing the conduct of civilians and warning against misleading reports broadcast by the enemy.

Use of Radio Broadcasting Stations to Educate the Public. Civil defense operations will, of necessity, be centered around communities, the utilization of volunteers and the basic principle of self-help, neighborly and community assistance. The public should know what they should do in an emergency. This is one of the important responsibilities of the Office of Civil Defense and obviously will involve a major educational program and require a well integrated system for the dissemination of information. The radio broadcasting stations can be employed as a valuable medium for this purpose. In the United States, radio broadcasting stations are acknowledged generally to be a most effective means for widespread education of the public, since their services assure comprehensive coverage in a minimum of time.

With a properly planned and coordinated civil defense program for the broadcasting stations, civil defense educational material could be quickly presented to a maximum audience with a minimum number of persons required to prepare and disseminate the information.

Broadcasting Before an Air Raid. The morale value inherent in radio broadcasting of authentic information has been proved many times during disasters such as floods and fires, but has never been established under enemy attack in this country.

On the assumption that broadcasting stations will be able to operate under appropriate security measures, they can perform vital services before an air raid, such as warning the public of impending air attack, mobilizing civil defense workers, and the citizenry itself, in the early stage of emergency. Bulletins could be broadcast regarding the location of shelters, advice given pertaining to conditions which might lead to jamming of thoroughfares; neighboring communities could be called upon and civil population requested to stand by for aid in the event of need after the attack.

In an emergency all possible conditions cannot be foreseen. Civil defense plans should, therefore, comprehend the establishment during emergency of a single appropriate source, preferably in the local Civil Defense organization, for broadcasters to consult for specific instructions concerning conditions induced by the attack.

Broadcasting During and After an Air Raid. Positive assistance can be rendered to civil defense by broadcasting stations during and immediately following an attack. If the attack should be atomic the public must be encouraged to steel itself against the tremendous shock of surveying the damage, the loss of life, and the casualties which will inevitably ensue. During this period of shock, it is almost certain that the public will come closest to mass hysteria. Broadcasting stations through proper programing and dissemination of reliable information may perform a service unavailable by any other

means. They could assist, under the direction of Civil Defense, to:

a. Reassure the civilian population.

b. Inform Civil Defense workers of developments by broadcasting bulletins authorized by Civil Defense.

c. Assist in mobilizing, through its facilities, fire-fighters, police, and other services.

d. Prepare those who have taken shelter for the emergencies they must face when the all-clear signal is sounded, giving them instructions on assembly points to which they should proceed, emphasizing the need for orderly conduct and describing the Civil Defense services which will be available to restore the community to as normal a condition as possible.

e. Inform the public of those areas which should be avoided because of radiological or other contamination.

f. Give instructions on the use of water and other utilities in the home and in other locations after the attack.

g. Warn vehicular traffic approaching the damaged area to stay clear (the great majority of vehicles now have radio receiver installations).

h. Mobilize assistance from adjacent communities unaffected by the raid.

i. Assist through announcements and programs in re-establishing as much as possible the even tenor of community life.

Radio broadcasting station facilities could be made available to Civil Defense, military and municipal officers that they might directly address the people on the conditions in the emergency which might bring to the nation messages calculated to reassure the public.

Service for Separated Persons. Broadcasting stations, properly organized could in time of emergency transmit personal messages involving certain family members in offices and others remotely located in suburban areas at the time of an attack. Much panic could be avoided if the two separated groups could be reassured as to the safety of the others, thus aiding civilian morale immeasurably. Such advice has been performed by broadcasting stations many times during a domestic disaster. Extreme care, however, will be necessary in the examination of the source of such messages before broadcast.

Key Radio Broadcast Stations. The Civil Defense Air Raid Warning Plan contemplates the designation of key radio broadcasting station or stations throughout the nation, which will serve as master stations for operational guidance of all other radio broadcasting stations within the area. Separate instructions will apply to the more than thirty international short wave broadcasting stations.

A channel of communication would be established from local Civil Defense Control Centers to the key radio broadcasting station or stations, for transmitting information and instructions. Under this

arrangement, key radio broadcasting stations would accept information and instructions only from such authorities as the Civil Defense Air Raid Warning chiefs and the local Civil Defense Control Centers. Other radio broadcasting stations which would become satellites in emergency conditions would, by direct line connection or monitoring of a special carrier or by other means, be in constant touch with the key radio station, ever prepared to hear any signal which would indicate impending attack and the prescribed action to be taken by them. Only in the event of proper codified instruction to the satellite radio broadcasting stations would they join with the key radio stations in broadcasting of Civil Defense information to the listening public.

Television Broadcasting Stations. Television broadcasting stations provide for Civil Defense an excellent means for educating the public and conveying pertinent information through the simultaneous presentation of video as well as audio messages. Television has flexibility, permits prompt revision of information as an emergency situation changes, maintains accuracy of information by the simultaneous presentation to all users without deterioration which may occur when data are passed down through several hands.

During World War II, television proved a great aid to civilian defense authorities in cities where stations were operated and in many instances personnel were trained through television broadcasts. Through the preparation of training film by the Office of Civil Defense, television could be arranged for various demonstrations such as the use of gas masks. Television is expanding across the nation. It may, therefore, reasonably be expected that a great many people will be reached through this medium. The Office of Civil Defense should keep informed as to new devices or applications of television which may be developed.

Dependability of Operation of Broadcasting Stations. In metropolitan areas and in many of the smaller communities broadcasting station transmitters are located at some distance beyond the populated section of the community. Most of them are so equipped that should there be an attack or sabotage which would destroy their centrally located studios these could continue on the air from the transmitter quarters on an emergency basis.

Amateur Radio. Emergency service is a tradition in amateur radio operations. The amateurs' record during peacetime disaster indicates they are resourceful, adept at improvisation and possess a high sense of community service. They are licensed radio operators owning their own portable radio telephone and telegraph equipment, thus providing for maximum flexibility. Under a carefully organized plan they are capable of making an important contribution to civil defense in providing supplementary emergency communications channels, especially during a post-raid period. The Office of Civil

Defense should initiate study with a view to integrating the civil defense program with the Army and Air Force for the utilization of the amateurs' services.

SPECIAL SERVICE COMMUNICATIONS

a. Communications facilities for the Police and Fire Departments are essentially instrumentalities enabling the departments to function efficiently and with dispatch. To insure adequate communications their existing systems should be surveyed with a view where necessary to effecting improvements and bringing them up to generally accepted present-day standards for efficient police and fire department operations.

b. Adequate telephone facilities are the foundation of good police and fire department communications and a traffic study should be made jointly with the local telephone company to ensure that proper operating procedures are adhered to and that sufficient spare capacity exists in the equipment to permit the installation of additional extension telephones and trunk lines where needed in anticipation of sudden large increase in usage. In some cities alternate centers may be established to serve as headquarters in an emergency. The interconnecting communications systems for such centers should be carefully planned and arrangements made for transferring calls when necessary to the selected locations to give reasonably efficient operation in the event of the destruction of the primary center.

c. In the vicinity of chemical industries, warning plans may have to be developed so that downwind areas may be alerted prior to a raid. This would require special communications.

d. Communications will be required for the direction and control of transportation and evacuation; for the establishment of road blockades to isolate certain areas to exclude unauthorized persons; to prevent concentration of people and vehicles that hamper rescue work and conversely to prevent exclusion of persons who have legitimate business in the area. A channel of communication must be maintained to headquarters from assembly areas and to points along the road net where traffic control points are set up. Air reconnaissance may be required of highway traffic movements. Civil Defense should study the manner and extent to which the civil defense program may be integrated with United States Air Force plans for utilizing the civil air patrol, together with the use of the amateur radio air-to-ground frequencies which have been allocated to them by the Air Force.

e. Generally all fire alarms are recorded in the water pumping or filtration plant depending upon the local arrangements. This is for the purpose of alerting the personnel to stand by and await word

from fire headquarters concerning subsequent action to be taken such as increasing water pressure in certain areas. To insure, insofar as practicable, proper control of water supply during or following a raid or sabotage which may result in the contamination of water supply, the communications facilities to the water plant should be checked from the viewpoint of adequacy, protection and dependability under emergency conditions. Alternate communications routes, and probably other means should be provided such as a mobile radio channel to tie in with the fire department and any radio system which might be established for the exclusive use of the local Civil Defense Control Center.

f. Radio equipment similar to Army divisional radio sets, and field telephones will be needed by Mobile Reserve Battalions.

SPECIAL PROBLEMS

Radio Silence. Silencing of radio stations for military security purposes may be necessary under certain conditions to deny to an enemy any advantages that radio emissions might afford as navigational aids to enemy aircraft or guided missiles and, in the event of a raid, from obtaining information as to the extent of destruction inflicted.

The pattern that may be followed in imposing radio silence, the extent and conditions under which the use of radio may be restricted, including security and censorship control, will in varying degrees impair or may nullify certain operations of civil defense organizations.

To insure effective and intelligent planning of communications for civil defense, any restrictions affecting radio operations which may be promulgated, should be developed jointly and promptly by the Armed Forces, other Government agencies concerned, and the Office of Civil Defense to achieve the most effective workable plan. Consideration should be given to the need for continuous operation of the radio telephone services of the police and fire, as well as of radio broadcasting stations, as compared with the risk of any advantages which may accrue to the enemy. Studies should embrace radio techniques, possible use of codes by such agencies as police and fire to give protection to military security, deceptive and other counter measures designed to obtain maximum usefulness of radio at all times.

Continuity of Service for Defense Communications. To insure that emergency calls may be made from and to agencies vital to civil defense, including hospitals and schools, the telephone companies should be called upon to review the service arrangements to insure communication during periods of emergency or surges of traffic in the central office or on the private branch exchange switchboards.

These reviews should include such matters as flexibility of switchboard and other telephone service arrangements; adequacy of emer-

gency operating practices for use of the attendants; need for protection of their telephone facilities; requirements for alternate telephone service arrangements; and emergency handling of calls by telephone company operators. In order that such agencies may be able to make outgoing calls despite heavy incoming traffic a portion of their central office lines should be equipped only for outgoing service, and to insure that duly authorized people may reach them it may be desirable to assign non-published numbers to certain lines and remove them from the consecutive series.

It is also important that the telephone company be informed which lines will originate calls vital to civil defense operations so that they may take action which will help to protect such lines against interruption of service.

Capabilities of Meeting Requirements. The capabilities of the communications industry appear adequate for civil defense. The United States is fortunate in having the most extensive and finest communications system in the world. The nation-wide networks, the highly integrated, coordinated and standardized equipment and operational procedures of the common carriers, and the coordination of radio broadcasting services through national associations of broadcasters are a civil and military asset.

During a post-raid period, in the event heavy damage has been inflicted to communications in a community, the alternate geographical routes and general diversity of the facilities, flexibility of networks inherent in the design and construction of common carrier communications systems give some assurance of portions of the communications facilities remaining in service. It seems reasonable to anticipate that emergency communications can be rapidly established through the availability of preplanned portable and mobile radio equipment, the use of existing mobile and marine radio telephone facilities and the preinstallation of communications equipment designed to enable prompt restoral of communications by interconnecting spare or other facilities. The planned availability of emergency repair forces and supplies within the cities and adjacent communities, plus the traditional resourcefulness and ingenuity of the industry should contribute effectively in the maintenance of communications services.

Restrictions Applicable to Use of Communications. The importance and demand for communications in time of emergency may result in overloading of some facilities provided for civil defense operations. To prevent delay in transmitting vital messages all civil defense personnel should be cautioned to restrict usage to essential messages.

Checks should be instituted by proper authorities on the use of police and fire radio telephone systems to assure that all traffic that could be handled as efficiently or perhaps better over land lines or other means, are employed so as to minimize congestion of the radio channels.

To facilitate the handling of necessary civil defense communications during an impending or post-raid period, blackout or similar emergency, it is highly desirable to prevent surges in telephone traffic, if possible, and the public should be urged to avoid the use of the telephone during such periods.

The telephone operators' job in handling the important civil defense calls makes it advisable, as a general rule, to confine their operations to that of establishing connections and not to add to the difficulties of the situation by requesting them to pass messages.

Procurement Priorities. The basic communications services and private line networks for civil defense will be obtained from the common carriers. If during wartime, equipment and service priorities are established it should be the responsibility of civil defense to arrange for the proper priority, including local civil defense control center requirements for radio telephone facilities, public warning sirens and loud speaker equipment. The design and provision of adequate types of public air raid warning devices should be explored.

Frequency Allocations. Frequency allocations for radio telephone channels to be assigned for the exclusive use of civil defense should be secured in advance from the proper authorities.

Protection of Facilities. The protection of common carrier telephone and telegraph systems and radio broadcasting stations against normal physical hazards and the war hazards of sabotage and fifth column activities such as attempting to take over radio broadcasting stations, is the primary responsibility of the commercial companies and the public or private agencies operating the systems.

During World War II, the communications industry cooperated fully with the military and interested governmental agencies and instituted extensive protective measures including security and privacy of communications, the protection of buildings and inside and outside equipment against sabotage and air raids. These plans and practices should be reviewed and brought up to date in the light of any changed conditions and made effective at the proper time.

The Office of Civil Defense should coordinate with the Military Establishment and with other interested governmental agencies, the procedures for the safeguarding and maintenance of all essential facilities and locations of the common carrier communications companies and the broadcasting stations. This coordination should include the matter of personnel, physical property, sabotage within and without the facilities and in the prevention of infiltration of undesirable elements.

FIRE SERVICES IN THE CIVIL DEFENSE PROGRAM

Fire was the great destroyer in World War II. Incendiaries alone, and in combination with high explosives, were responsible for heavy destruction in at least 54 principal cities of Germany and 65 cities in Japan before the atomic bomb was employed. In few bombed cities was the destruction less than 20 percent of all buildings, and in some cities of Japan the destruction was over 90 percent. Fires caused most of this destruction. In cities where the greatest fires were started, there was also great loss of life; for example, 60,000 fire deaths resulted from attacks on Hamburg in July, 1943.

The threat of fire destruction in another war will be no less than in the last. New weapons, such as the atomic bomb, will bring about destruction, particularly fire destruction, on a scale hitherto unexperienced.

It is a reasonable assumption that in event of attack the targets will be our large centers of population and industry, certain dams, power stations, rail yards, bridges, locks, military installations and similar establishments. Of these the cities and industries are the elements with which civil defense plans are most directly concerned. The fire service personnel and equipment in these large centers of population and industry are capable of providing reasonable protection from all usual disasters resulting from acts of God, fires, and similar catastrophies.

Fire departments are at present organized to care for civil defense in peacetime. If there were no other civil defense machinery, the fire departments would fight fires, perform rescue, handle victims of burning or explosions, protect dangerous buildings and carry on salvage and restoration. Those things would not be new to the fire service as they are now considered by fire departments to be duties peculiarly theirs. Firemen's thinking require little or no conditioning for transition from peacetime to wartime duties.

War is the destruction of physical properties as well as human life. Should American cities be destroyed in part, the very ability to keep going will depend on the preservation of industries, food and clothing supplies, together with housing facilities. The fire services are valuable for preserving these physical resources through the use of existing forces of trained men, mobile equipment and systems of

communications. With these operating units, the fire services provide a considerable part the basic nucleus of a complete civil defense organization.

The facts are established as to the effects of known types of guided missiles, atomic bombs and other types of high explosives on the cities of Germany, England and Japan. However, the building construction of large cities in the United States differs radically from the cities in those countries, and it is difficult to determine accurately the relative bombing effects likely to be sustained in this country.

In view of the rapid development of more destructive missiles, it is open to question whether American cities will be more or less vulnerable to these aerial attacks. This is one of the principal unknown elements, and it is of course one of the most formidable problems of the fire service in civil defense planning. Even though total or near total destruction within a city is anticipated, plans for conventional fire operations are not necessarily wasted effort. It must be assumed that destruction will be only partial in many instances and that it will require numerous and successive conventional bombing raids, many tons of guided missiles or a number of atomic bombs to completely devastate cities of the United States. The fire service then becomes a very vital and indispensable entity in a scheme for national security. This program for the fire services is based on these assumptions.

There are nearly 16,000 organized fire departments in the United States of which only about 900 are composed of full time paid professional firemen, numbering approximately 80,000. New York, the largest city, has a population of 7,500,000 and 11,000 firemen. The number of fully paid firemen may be as few as five or six in cities of around 5,000 population. Some smaller communities are protected by fire departments in which men are paid, but on a part time basis. There are also many departments where the organization membership is "volunteer."

Supplementing these departments are numerous Army, Navy, Air Force and Coast Guard fire-fighting units, some county fire departments not under municipal control, and many private fire brigades in larger industries that employ full time and paid firemen. These departments have full complements of men and equipment that compare favorably to those of municipal departments. In addition to the personnel in all these organizations, there are tremendous investments in fire service buildings, land and equipment which form a well equipped peacetime army and a focal point on which civil defense plans may be established.

A Plan of Action. To prepare for the possibility that American cities may be the victims of enemy attack, this program of civil defense proposes:

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Establishment of a fire services division in the Office of Civil Defense to formulate general policies and plans for fire prevention and fire fighting, to finance the provision of certain emergency equipment and facilities needed by the fire services in civil defense, and to operate as a center for the collection of pertinent information and the dissemination of it to the members of the fire services.

Establishment of a fire services division in each state to coordinate fire services for civil defense, including supervision of the use of federally financed equipment and facilities provided for fire service use, training programs, development of emergency water supplies, statewide fire communications and movement of fire companies within the state, control of explosives and flammables and supervision of building protection adopted for defense against fire.

Utilization of all existing fire services, building these forces to meet recognized standards for peacetime requirements and to be prepared to operate additional civil defense equipment in wartime.

Assisting in all training in self-help techniques such as first aid fire fighting.

ORGANIZATION FOR FIRE SERVICES

National Organization (Chart 9). The Office of Civil Defense should have a fire service division, headed by a qualified fire service officer. His staff should include a competent fire protection engineer. The division should develop procedures for operations, training, apparatus and equipment, special housing, clothing and food supplies, and in cooperation with other divisions, develop procedures for communications, structural protection, emergency water supplies, fire prevention and fire guard programs. The division should have a fire services advisory committee consisting of outstanding fire officers and fire protection engineers, selected geographically.

State Organization (Chart 3). States should provide their own fire staffs. The chief of the state fire services division should be a state fire officer as defined by state law or a fire chief assigned for that purpose. He should be the official custodian of any federally issued fire equipment, and will operate a mutual aid plan or other state-wide plan of fire department coordination which may be worked out in the state, all under the State Civil Defense Director.

Local Organization (Chart 4). Each locality should establish a Fire Service Division for Civil Defense. The local fire service units will be the essential base of the Civil Defense Fire Services Division. How they are grouped for operations may depend on the pattern of coordination adopted within the state.

Fire departments usually are under the direction of a municipal council and a municipal executive. The Fire Chiefs are in charge of the uniformed forces and are held responsible for the proper conduct of the personnel, their equipment while in quarters, at fires or other emergencies. To properly fulfill these responsibilities, Fire Chiefs have been accorded certain prerogatives by law, such as right of way, right to commandeer, to enter premises, to demolish or remove property and to be in complete command within fire lines during periods of emergency.

This present responsibility of the fire chief to his usual municipal superior may have to be changed in an area civil defense plan for use of fire service units in wartime. If fire services in a metropolitan area, established for civil defense purposes, are put under a single command, they must become units of a metropolitan fire department, since it is obviously impossible for a municipal fire chief to be responsible to other than a duly constituted superior. If a local fire chief is responsible for carrying out orders of a chief fire officer of a metropolitan area and a Director of Civil Defense, he cannot at the same time discharge a responsibility to the municipal superior (mayor or city manager) he was originally serving. This matter rests with municipal and, to a lesser degree, state governments in accepting changes and perfecting plans for the fire services that may be required for national security.

Personnel recruited for fire fighting on a "self-help" basis should be organized under plans separate from the regular or fire services of civil defense previously mentioned. These persons are organized to use first-aid fire fighting equipment within a particular property, usually on a plant, departmental or tenant-area basis. They have been known as fire guards or fire watchers or in some cases as auxiliary firemen.

FUNCTIONS AND OPERATIONS OF THE FIRE SERVICES

The errors in operational techniques which resulted when large cities in Germany, England and Japan were struck by saturation raids must be considered in planning for fire operations in possible future enemy attacks.

Very often during times of raids, orders were simultaneously issued from civil defense and armed force commands to mobile reserves and fire departments in surrounding cities for assistance without the knowledge of the chief officer of the fire department in the city under attack. These supplementary forces rushed into the cities, took up their positions at random, with the result that they often wasted valuable static water supplies, contributed to the confusion of traffic, consumed essential gas, oil and food to the detriment of those home companies under discipline and control of chief fire officers and in strategic positions for efficient operations.

Fire department communications and water supplies were often destroyed by high explosives which entailed devising alternate meas-

ures to supplement these services. During the early raids of the war, Germany lost many firemen and much equipment due to her failure to disperse fire companies to the outskirts of her cities. In many cities vitally needed mobile equipment was rendered useless because of lack of gas and oil.

The shortage of trailers, heavy cranes, shovels and bulldozers resulted in the loss of many valuable hours in attempts that were made to rescue trapped persons and also to clear the streets to provide all units of civil defense reasonable and prompt access to the stricken areas.

Standard hose in use in these countries failed to withstand the movement of vehicles over the lines as well as other severe and rigorous treatment to which it was necessarily subjected. These countries also lacked heavy duty pumpers and many other heavy stream facilities which are in common use in this country.

Many man-hours were lost due to the failure to protect personnel against cut and bruised feet, burned hands and head injuries because of improper clothing, head and foot gear. In addition, fatigue and the need for food and drinking water were acute in many cases and caused further loss of man-hours at critical times.

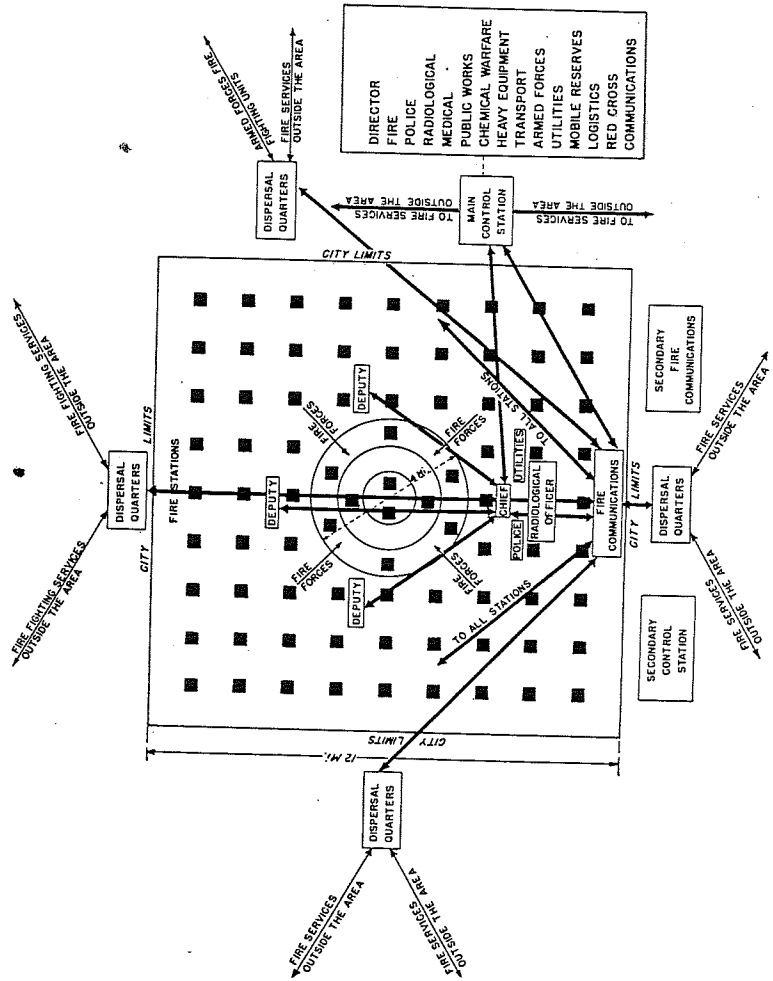
The efficacy of destroying buildings in the apparent path of fire by use of explosives has been a controversial subject in this country for many years. The experience of German fire departments that utilized trained sappers in this work, gives conclusive proof that such practice is not only a waste of time and effort, but also causes needless destruction.

For the purpose of outlining some of the fundamentals involved in a large area fire, as a result of an atomic bombing, which in effect would be a conflagration at the very outset, the accompanying illustration (see page 127) has been arranged on the basis of protecting a city of 144 square miles, or that area within a city and its environs which would be of larger proportions. Contrary to actuality, the fire stations have been almost equally spaced in this illustration, but the number involved is approximately correct for the size city. Likewise, for the purposes of planning, other assumptions have been made, but the operations described are those followed as general procedure by all fire departments with addition of extra functions that would be necessary under a plan for civil defense.

Upon receipt of any form of advance warning of attack, the fire department will follow a pre-arranged plan, to minimize, insofar as possible, complete destruction of fire equipment and crews in any given section of the area. Recall, also based on a pre-arranged plan, will bring off-duty men to dispersal centers to man extra equipment.

Immediately following the attack, field control headquarters would be automatically set up at the location from which the first

PLAN FOR LARGE SCALE FIRE OPERATIONS



alarm is dispatched. Radiological officers would be assigned to the fire service and would respond to the field headquarters upon receipt of the alarm. These men would make the necessary preliminary ground survey to determine extent and degree of contaminated areas for protection of the fire fighting forces. Radiological survey planes of the Armed Forces may fly over the area and transmit vital information to the civil defense control center. This information, in turn, would be relayed to the field headquarters' radiological officers to give them the additional information necessary to properly chart and provide the chief fire officer with the necessary intelligence to plan his operations and protect his personnel.

Additional calls for fire service assistance from the field headquarters would be provided on the move-up principle of companies within the city, those in dispersal locations, and if necessary, forces outside the city, all of which would be handled by the fire alarm headquarters in liaison with the Civil Defense control center. Calls for various other integrated services in the devastated area would be dispatched from the central Civil Defense control center as the fire forces advance and the needs arise.

Fire officers must be prepared for loss of their conventional water supplies and communications. Citizens seeking to escape from the area would create chaos and confusion and further hamper efficient and orderly operations. Under such conditions fire officers must then resort to supplementary facilities and make every effort to carry out their missions.

Communications. The principle of operation of fire department communication systems for exclusive fire department service should be continued in setting up or extending communication facilities for wartime fire situations. It is not practical, for example, to expect fire departments to depend on a system shared with other services. Shared communication facilities were tried in England during the last war and failed.

Existing public and private fire alarm systems operate over wires. The standards for their installation require features which make these systems very reliable in operation. Such systems should be strengthened by correction of whatever deficiencies exist and maintained in accordance with recognized standards of performance. The private systems, operated on a "central station" or "proprietary" basis, provide for fire detection, alarm transmission, supervision of protective equipment and other services which are important in wartime. Such standard private fire alarm service should be maintained where it exists and be applied widely to important buildings and war industries.

The exact telephone service requirements in war would depend upon the selection that is made of fire department service areas. The public must be carefully instructed in the use of the telephone in reporting fires in wartime to prevent indiscriminate use which would tend to overload the telephone facilities. The kind and extent of these instructions will depend on the manner in which it is decided that fire emergency calls should be handled. In England, it was finally decided to accept such calls only through a special fire reporting service operated during attacks by the fire guard service.

Radio services are a part of the fire service communications system. These provide facilities for communications when fire apparatus is out of quarters, as at the scene of a fire. It is necessary to provide this service both for peacetime and wartime operation in communities. Its usefulness in rural and forested areas is obvious.

For dealing with disasters or war situations, each fire department would require one or more mobile field radio units. These units are radio stations on automobiles. They can receive notification of fires, serve as dispatching offices for local companies, and maintain a channel of communications between the forces at the scene of the fire and public fire alarm headquarters.

One feature of fire department radio service is the use of portable pack sets of limited range for communication at a fire location. One function of a field communications unit would be to serve as the coordinating headquarters for fire ground communications.

Radio service is important for disaster or wartime conditions when it is necessary to move fire fighting companies within an area which may involve movements of one hundred miles or more, depending on the situation. Field units would play an important part in such mobilization. Each group of fire companies should be provided with a field unit operating on the same frequency as that of the companies and officers of the department responding.

Rules and regulations of the Federal Communications Commission provide adequate frequencies for use of fire service communications. Fire services should be encouraged to take up frequencies that are available and make the maximum use of radio facilities.

If there is no other communication service available it would become necessary to provide messenger and courier service for the fire department. While members of fire fighting companies and chiefs' aides can, and frequently do, perform such service, some of these messengers must be motorcycle-equipped for communication between stations and fire units working away from their stations.

It is more likely, however, that radio equipment in the described pack sets and field radio units can reduce messenger service requirements materially, and perhaps largely eliminate them if the portable radio equipment is provided in a sufficiently large number of units.

Fire Prevention Bureaus. Fire prevention bureaus are a necessary part of fire defenses in time of peace and naturally they become increasingly important during time of war. Effective building and

fire prevention codes, coupled with strict enforcement and regular inspections, will accomplish definite results in efforts to reduce loss of life and property by fire, and to conserve vital resources.

Glaring examples of carelessness occurred many times during the last war. The Fall River fire at which a large portion of critically needed crude rubber was destroyed, the loss of the NORMANDIE in New York harbor and countless other unnecessary large losses were but a few of the inadvertent victories for the enemy. All these occurred despite previous specific inspections, warnings and safety recommendations which were made by fire department inspectors and fire protection engineers.

The fire prevention bureaus of fire departments are in general undermanned throughout the country. In addition, many cities have failed to keep their building and fire prevention codes up to date. The need for this inspection work in civil defense is obvious.

Fire Department Housing. Municipalities, in many instances, have continued to maintain station locations almost as they were in the days when fire apparatus was horse-drawn. Many of the buildings which house fire companies are continuing to serve with few if any improvements. While some cities have had the foresight to plan for complete relocation of their fire stations, as the buildings become obsolete, few have arranged their locations with respect to the new problems with which fire departments are confronted in a civil defense program.

The vulnerability of existing or new stations should be carefully considered. Additional stations will be required for company locations near the outskirts of cities, for storage of food, clothing and other emergency supplies and to provide housing for firemen bombed out of their regular stations. Additional locations for alternate communications centers and headquarters should be selected as a part of civil defense plans.

Personnel. While many of our fire departments are not manned according to recognized standards, it is generally considered that the present manpower strength is sufficient to operate the apparatus and equipment now available. Inasmuch as off-duty fire department personnel is subject to recall in time of emergencies, the strength can be materially increased to meet emergency war conditions, providing the forces are not too seriously depleted by enlistments or recruitment in the Armed Forces. In any event, the fire service should be designated as a highly essential service.

Apparatus and Equipment. All potential target areas now have a large part of the equipment necessary for fire fighting in civil defense operations. Certain equipment will be needed in the event of war to supplement that which is now available. This will include such items as: pumpers, (including small portable pumps of various

types), small fireboats, standard double jacketed rubber lined fire hose, salvage covers, air compressors, light generators, acetylene cutters, respiratory equipment, jacks, ropes, blocks and tackle, mauls, axes and other minor equipment, additional gasoline and oil trucks, mobile repair facilities, field kitchens, motorcycles, field radio units, portable radio pack sets, voice amplifiers, cots, blankets, special foot gear, clothing and other items.

Such of this equipment as is not now provided by the states and cities for normal operations should be assigned priority procurement status in time of emergency.

Mutual Aid. Provisions for mutual aid, or disaster plans as they are frequently called, which involve the integration of many public and quasi-public services, are in effect in certain cities and sections at the present time. While these various plans are not standard in form and in most cases exist only on paper, for the most part the approach and objectives are similar in design and intent.

Many plans and agreements drawn up exclusively between local fire departments are now in operation and they function with varying degrees of dispatch and efficiency. Drills and testing operations provided in these plans are rarely subjected to trial or practice. It is understandable, therefore, that the working units involved in such plans could not perform with any high degree of speed or unity should the need arise.

These particular agreements not only involve municipal and private fire forces, but also Army, Navy, Air Force and Coast Guard units. It would be advisable for the fire chiefs and their staffs in the larger cities to confer with officers in charge of other fire departments in their area and arrange a plan of mutual aid whereby the personnel and equipment of these departments could be used in widespread fires or disasters. This is the framework upon which interim measures for civil defense should be built. With this as a foundation, various allied services may be integrated and stimulated by regular conferences at which new developments and other pertinent information from the Office of Civil Defense may be discussed and acted upon.

These mutual aid forces should be organized, inspected and subjected to occasional test drills to insure proper functioning of specific duties. Under the general scheme of fire service planning and instruction, fire officers should maintain close liaison with the local civil defense organization in order to be informed on all new practices and developments. They should hold regular conferences with the various participating agencies of civil defense so that all may be prepared to join forces at a given notice. They should invite other agencies in the Civil Defense organization to use their facilities for training or for mobilization.

Fire Departments should utilize coordinated plans of operation for disasters and in that way become reasonably prepared and trained for enemy attack.

Armed Forces' Fire Fighting Units. The armed services have numerous fire fighting units located throughout the United States and in many instances in close proximity to potential target areas. While at the present time these units have been reduced to peacetime needs, they represent the nucleus of a fire fighting service at federal level that has possibilities for mutual aid that must be considered in planning for civil defense. These units have trained personnel and equipment comparable in every way to similar units in up-to-date municipal fire departments.

There are many military establishments of target nature, remote from other potential target areas, civil or military, which must be self-sustaining to a great degree, and therefore they cannot be expected to offer to or require from the Civil Defense organization any substantial mutual assistance. On the other hand, military establishments near other target areas, civil or military, may be in a position to offer to or require from Civil Defense an appreciable degree of mutual assistance, depending upon the nature of the incident.

However, it is reasonable to assume a high probability of simultaneous attack, particularly where the military establishment may be of important strategic nature or a planned area defense. Under these conditions, consummation of coordinated preparatory plans for mutual fire fighting assistance is of particular importance.

An emergency plan of broad scope should be developed and currently revised and practiced at each military establishment.

The basis for a sound and effective approach to an adequate civil defense fire fighting program for the armed services participation lies in the continued establishment and maintenance of a strong, well organized, equipped, trained and administered fire fighting activity by all military units.

TRAINING

Fire Department Personnel. Most of the larger fire departments have drill schools and some have provision for officer training. Much of this training is rudimentary in character. In addition, there are training programs for firemen in nearly all the states, which are operated under the guidance of the state department of education or a state university. These offer courses of training which also are rudimentary for the most part. About 30,000 firemen, mostly from volunteer and small paid fire departments each year take courses of systematic instruction through these state programs.

As a general matter, the present training schools and facilities are far from adequate. However, several of the large cities, and a number of the states have established training centers which are beginning to provide substantial school establishments for fire-fighter training. The state programs and some of the local ones receive federal aid through funds appropriated for vocational training of public service employees. One method of carrying out additional training for regular firemen is to increase the support given these existing programs.

Present courses of training available do not provide all the education and training necessary for fire personnel, particularly with respect to the technical aspects of fire prevention, fire control and extinguishment. In addition, there is a need for additional laboratories, for proving grounds at which fire techniques may be tested and developed, and for additional technical libraries.

At present there are no adequate full-time courses available for advanced officer training, even for the usual peacetime needs for such training. In civil defense, the fire problems are in some respects new and different and courses of training for officers should be established to cover both old and new problems of officers' duties. Several of the existing state training centers (selected from a consideration of location in relation to demand) should be built up to provide advanced as well as rudimentary types of training. They should be provided with additional teaching personnel, buildings and equipment to properly do the work. In a few large cities there is a large fire department personnel which would justify the organization of courses for advanced education of fire officers in local colleges and universities. Certain federal agencies such as the Department of Agriculture, the Bureau of Standards, the Bureau of Mines, the Chemical Corps of the Army and others can contribute instruction material based on their scientific work dealing with the chemistry and other aspects of fires and explosions.

Whatever type of training organization is set up, it should produce the type of personnel, discipline and morale necessary to enable fire departments to meet the wartime and peacetime fire protection problems which are becoming more complex and technical each year.

Self-Help Group. The training of self-help groups in residential areas can be largely accomplished by arranging to give instructions at fire stations in the use of first aid fire fighting equipment, handling of incendiaries, and methods of calling for fire department assistance under various conditions.

The training of self-help groups in the larger buildings and industrial plants will require visits by fire department inspectors qualified to give training on the use of first aid fire fighting equipment provided within the facilities, in addition to proper procedures for effective maintenance and employment of built-in fire protection such as private hose streams, hydrants, standpipes, sprinkler systems and special fire protection equipment.

An effective program of fire prevention by fire department bureaus should be kept continually in motion throughout industry. This can be done largely through the medium of instruction during periodic inspection of property.

PUBLIC EDUCATION

A general campaign of public education for occupants of dwellings should be directed toward developing proper attitudes regarding "housekeeping," safe practices in handling flammable and other dangerous materials and like safety precautions. This may be accomplished in part through national and local publicity in newspapers, periodicals, the radio, and partly by education of citizens devoted to the work of the local civil defense organization.

SPECIAL PROBLEMS

Water Supplies. Little progress has been made in the past seven or eight years to institute necessary water system improvements due to shortages of materials. As materials are now available, consideration should now be given by municipalities to extend and renovate public water systems.

Fire officers and public works officials should make an exhaustive study of the ways and means that England and Germany provided for static water supplies. These countries installed tanks and utilized the basements of bombed-out buildings which were cleaned, waterproofed and filled with water, thus providing a wide dispersal of essential reservoirs. In addition, they laid out dry pipe lines above ground from rivers to various sections remote from static supplies. These pipe lines were valved at frequent intervals and were easily repaired when damaged.

Fire officers should chart their streams, lakes, ponds and other available water supplies. They should also arrange for ramps or other means to conveniently bring their pumpers to such sources of supply. In addition, they should train their men to become adept in placing pumpers in line with fire boats whenever possible and practicable. They should encourage large industries to provide emergency static supplies which in many instances are recognized as practical and economical for peacetime fire protection requirements.

In this connection, the sprinkler systems that existed in London during the last war proved their worth many times by extinguishing fires caused by incendiaries, and others that resulted from ordinary causes when the city was under attack. The use of sprinkler equipment in buildings with a high potential fire rating will pay dividends in time of peace and serve well in the event of war.

Fire officers should have a knowledge of the location of tank trucks in their vicinity and make arrangements for the transportation of water for extinguishing purposes under certain conditions, and plan for transforming some trucks for hauling water to forces in the field.

Bulk and Spacing of Buildings. In many cities there are planning boards, zoning and building officials whose duties are to control the orderly and safe development and growth of the city. The principles involved are well established and recognized in legislation in most of the states. Among their functions are the limiting of conflagration conditions and providing for the greater convenience of the people living in the city. To date, however, these agencies have not had to give consideration to the vulnerability of the city when under attack by high explosive bombs, incendiaries or other weapons of war.

As a part of civil defense planning these agencies should give attention to measures for the purpose of making the city and its population less likely to be destroyed in war. This does not mean that buildings would be immediately torn down, but it is only logical and prudent that no new buildings be erected in such a way as to increase the wartime dangers. The normal fire dangers in the pattern of buildings in a city have been appraised by fire experts, and conflagration breeding areas have been defined. In a good many cases it would be practical to remove these buildings which constitute known fire traps. Such action would serve the two-fold purpose of removing both a peacetime and a wartime danger.

While these measures are primarily obligations of planning, zoning and building agencies, fire authorities should be prepared to advise on this phase of wartime planning, and assist in the preparation of necessary federal, state and municipal legislation to provide sensible limitations on height, area and spacing of buildings, and to remove or make safe these conflagration breeding areas.

A fundamental point is that the only defense against many weapons is dispersion and open space. A prudent citizenry and progressive communities should be guided by this basic principle.

POLICE SERVICES IN THE CIVIL DEFENSE PROGRAM

Police agencies are responsible for security of the lives and property of the people, and for the preservation of the public peace and order. Theirs is a day by day service for which they must be well trained and thoroughly equipped.

Police functions in a war situation are basically no different, except as the problems are multiplied under emergency conditions. In the hands of police lies the responsibility for protecting civilian population and property; the speed and skill with which police agencies adapt themselves to crises can be a major factor in meeting the difficult situations which enemy attack would create.

Not only will the direct police functions of protection and preservation of order be of prime importance in an emergency, but all the varied services of civil defense will be effectively performed only if the police successfully perform their tasks.

There are "police" in all branches of government, from federal law enforcement agencies to the town constable. Each is an independent agency, operating in assigned fields and with prescribed authority. Federal and state law enforcement agencies assist police agencies in states or communities in many respects, but generally there is no command relationship between any of them. In turn, state and local police supplement Federal authorities in the enforcement of Federal laws.

Proposals for police services in a civil defense program deal particularly with state police and state traffic patrols, county sheriffs and police, and the public police officers of cities, villages and towns. These are the law enforcement officers whose responsibilities include: enforcement of regulations for the protection of the public; prevention, repression and detection of crime; investigation of offenses; apprehension and assistance in the prosecution of offenders; detention of offenders for trial; and performance of miscellaneous services.

The special powers, the skills and the constant availability of police make them indispensable in emergencies. It is they, if they are properly organized, trained and equipped, who can, by their leadership and control, prevent or minimize misdirected mass action.

Therefore, as an essential part of the civil defense program it is proposed:

That a Police Services Division be established in the Office of Civil Defense, to plan and coordinate police activities in the civil defense program.

That full utilization of existing police agencies be the basis for operations in this field.

That steps be taken to supplement existing forces with suitably trained auxiliary police for civil defense duties.

POLICE ORGANIZATION FOR CIVIL DEFENSE

In the states and communities, police services are currently organized, manned, and operating. At the outset of a war emergency police departments would already be available. Within the Federal Government an organization is proposed to coordinate and integrate their civil defense functions with other functions of civil defense. The first organizational step is to activate the proposed national organization. The second step is to knit together, for planning purposes, the national with state and local police organizations, with full regard for the sovereignty of the states and the governmental prerogatives of local jurisdictions. The accomplishment will require the full cooperation between Federal government and the various governmental subdivisions in the United States. The proposals made are those considered necessary to insure preparedness of the police agencies of the country for a national emergency.

National Organization (Chart 10). In the Office of Civil Defense there should be a Police Services Division, with three Branches—Plans and Operations, Personnel and Training, and Procurement and Supply. The Division would be under the direction of a Chief, assisted by a Deputy Chief. He will act with the advice of a Police Advisory Committee, chosen so as to be widely representative of state and local police departments.

Regional Organization. The Police Services Division should have a representative in regional offices of the Office of Civil Defense wherever they are established. In time of emergency, this Police Services Division should be organized on a basis comparable to the national Police Services Division.

State Organization (Chart 3). In each State office of Civil Defense, it is recommended that there be established a Police Services Division, headed by a Coordinator of Police Services for Civil Defense who will serve on the staff of the State Director of Civil Defense. The commander of State Police or Highway Patrol may or may not be the Coordinator. If he is not, it will be necessary for the Coordinator to maintain a close relationship with him. Under the Coordinator of Police for Civil Defense should be assigned such staff as is necessary, organized along lines comparable to the national Police Services Division office. The Coordinator should be aided by a Law

Enforcement Advisory Committee representative of police departments and sheriffs.

Area Organization. For the purpose of Civil Defense Coordination or intra-state mutual aid, it may be desirable to subdivide a state into areas, which might embrace a metropolitan area or two or more counties. In such cases, a law enforcement official should be designated as Area Police Coordinator by the State Civil Defense Director or by mutual agreement of police officials and sheriffs in the area.

Local Organization (Chart 4). In local units of government urban or rural, when Civil Defense units are established, the chief of police or sheriff would be the Chief of the Police Services Division in each case responsible to the local Director of Civil Defense. In unincorporated areas, small towns and villages, police service is variously furnished by state police, county police, sheriffs, constables, or other agencies. In some areas having a minimum of police service, civil defense police functions may be performed largely by volunteer groups of citizens.

PERSONNEL

National and Regional Police Personnel. Personnel for the National and Regional Police Services Divisions should be drawn from the ranks of existing police organizations. They should be persons with adequate academic background and police training, and successful supervisory and administrative experience in the civil police field. Key positions should preferably be filled by persons currently active in police work, released on leaves of absence by their organizations for limited tours of duty with the Office of Civil Defense. Each should be replaced, at the end of his tour of duty, by a successor similarly selected. This arrangement would bring into the Civil Defense organization the latest viewpoints and experiences in police operations, and would gradually distribute over the country police executives with intimate knowledge of civil defense problems and plans.

Regular Police Personnel. It must be anticipated that in time of war regular police strengths will need to be increased in substantial proportion. In all aspects of police planning such increases must be taken into account. The development of personnel with high individual competency is a long, costly, and trying process. The loss of trained personnel in any percentage seriously weakens police organizations. Such an effect is not only felt immediately but in months following the actual separation, because it is conservatively estimated that a minimum of two years on the job is required to train an individual to be a thoroughly competent policeman, providing he is interested, intelligent, and adaptable. In addition to the need for increases in strength, there will be necessity for replacements due to separations. In view of the added duties and responsibilities which will devolve upon the police in civil defense, depletion of police forces through recruitment for or enlistment in the Armed Forces should be kept to a minimum consistent with the national interest.

Auxiliary Police. Auxiliary police may be used in support of the regular police within their own jurisdictions in time of disaster, or in replacing a segment of the regular force when it is detached for mutual aid duty in another jurisdiction. In normal times and for the purpose of providing practical training, auxiliaries may be and are today used in many American cities to aid in the policing of unusually large crowds of people.

Some cities have preferred to arm and to extend full police power to auxiliaries, others have preferred to grant less extensive authority. Policy to be followed should be a matter of local determination. However many cities prefer careful selection, adequate basic training, and then the granting of full police power to obtain the greatest benefit.

In time of disaster unified police command is essential. For this reason auxiliary police personnel must be thoroughly integrated into the regular police agency. All police personnel, including auxiliary police, must at all times be under the control of the police executive.

The number of auxiliaries which can be employed depends upon the availability within a jurisdiction of potential recruits possessing desirable qualifications and upon the ability of a given organization to absorb them. These factors vary between communities. The ability of a given community to absorb auxiliaries is limited by the number of regular police officers available to provide adequate supervision. Above the maximum point, additional auxiliaries will prove more of a hindrance than a help. If the regular force plus its auxiliaries cannot cope with a situation, support from outside the community must be sought.

Whatever the number, auxiliaries on active police duty should be protected with industrial compensation insurance, or its equivalent.

Consideration must be given to selecting auxiliary police who have the basic qualifications of intelligence and character to perform the job. Physically, they need not measure up to standard requirements for police recruitment, yet they must have sufficient physical stamina to stand protracted hours of duty and physical exertion. They must be amenable to discipline and capable of commanding respect.

Consideration must be given to selection of auxiliaries with regard for their normal vocations. No one should be used if his police duty will take him away from another essential occupation.

FUNCTIONS OF POLICE FOR CIVIL DEFENSE

The functions of the police in civil defense should be indicated as exactly as possible. However, it is not possible to define with full precision the functions, duties, and inter-relationships of those who will deal with a war emergency. It is important to insure that an organization is at hand, trained to deal with emergency situations, flexible in its structure, and manned by competent personnel. The element of flexibility, making possible adaptation to established police agencies and practices, cannot be overstressed. In the national and regional operations it is possible to develop new patterns; in the state and local organizations, functions must be adaptable to existing organizations. Coordination and integration of the civil defense police operation must be evolutionary, based on willing cooperation, and relying on local and state initiative.

Federal Functions. The Chief of the Police Services Division in the national Office of Civil Defense, aided by a Deputy Chief, would advise the Director of the Office on police matters. He will plan, coordinate, supervise, and direct police matters for the Office of Civil Defense, including measures to provide for local police civil defense mobilization, organization, and training; the suitability and adequacy of defense equipment used by police organizations; and instructions for advice and guidance of state and local participating agencies. He would issue orders, directives, and instructions, as authorized, where necessary. He would implement plans and policies established by the Director of Civil Defense. He would maintain liaison with other Federal agencies as necessary in discharging his responsibilities. He would provide technical direction to the Regional Police Services Divisions.

The Plans and Operations Branch would develop basic plans for police civil defense operations, including coordination with other civil defense operations. It would coordinate inter-regional police matters, supervise regional operations and personnel, and conduct field surveys of planning and operations in police organizations. It would determine the basis of issue of civil defense equipment and supplies. It would establish police civil defense operational standards and procedures, and establish procedures for coordination between the different geographical and political jurisdictions within this field of responsibility.

The Personnel and Training Branch would be responsible for the preparation of plans for police training materials and programs. It would provide the Training Division, Office of Civil Defense, with technical information needed for education of the public in respect to police functions, and for the preparation of police training materials, texts, visual aids, and manuals. It would maintain liaison with the Training Division for the dissemination of police training materials. It would maintain liaison with the Public Information Office of the organization to insure public understanding of the police program. It would represent the Division before manpower agencies as to special manpower problems affecting the competence of police service. It would prepare the qualification standards which would be used in the classification and assignment of volunteers in the police service.

The Procurement and Supply Branch would develop plans and policy for supply of civil defense equipment supplied to police. It would make estimates and reports of military-type and non-military equipment for procurement and issue under regular procedures established by the Office of Civil Defense. It would advise on budget matters. It would provide technical information for the procurement, distribution and storage of equipment and supplies for police civil defense. It would maintain liaison with agencies concerned with allocation of materials or supplies used by the police but not furnished by the Office of Civil Defense.

Regional Functions. The Regional Chief of the Police Services Division would serve as an intermediary between the national program and the states in the region in the police civil defense program. His function should be coordination and not operational authority. He would act as liaison between the Office of Civil Defense and the military commander and such other agencies within the region whose interests or activities are related to police operations in time of emergency. When the regional police divisions are expanded, their functions would parallel those of the national Police Services Division office.

State Functions. In each State Civil Defense Organization the Coordinator of Police Services for Civil Defense should advise the Director on police matters, facilitate the flow of instructions and information from the National and Regional to the municipal and other offices under his jurisdiction, aid these offices in training programs for civil defense, and develop plans for intra-state and interstate mutual aid.

The Coordinator should be assisted by a staff organized to extend plans and operations, personnel and training, and procurement and supply arrangements throughout the state. Close relationship should be maintained by his office with the office of the commander of the State Police or Highway Patrol Department.

The principal officer of the state police organization should act as advisor both to the Director of the State Office of Civil Defense and the Coordinator of Police Service for Civil Defense. (*It is considered likely that in some states the Coordinator will be chief of the state police organization.*) He should be responsible for planning

and directing all actions of his department in its relationships with the State Civil Defense Organization. These actions should include plans for assistance to local police departments in event of enemy-caused disaster. State police and highway patrol organizations should be prepared and called on for the same type of services as are furnished by local police.

Area Functions. In a subdivided area of the State, the Area Police Coordinator would function to coordinate planning, operations, and intra-state mutual aid of adjacent districts with common interests.

Local Functions. In communities, the chief law enforcement officer should serve on the staff of the local Director of Civil Defense and should advise him on police matters. He would develop local plans and procedures to facilitate effective police participation in civil defense, and implement these plans when called for. All local police matters in relation to civil defense would be accomplished through regular and auxiliary police forces operating under his direction. He would establish and maintain coordination with other civil defense units within his jurisdiction and develop plans and procedures for extending assistance by his organization to areas outside his jurisdiction. He would maintain liaison with the State Coordinator of Police Services for Civil Defense to relate local plans to the over-all state plan for civil defense police service. He would be responsible for the selection and training of auxiliary police personnel.

The civil defense functions in local communities should be integrated with some fourteen functions more or less common to most police departments. It would be the responsibility of the chief law enforcement officer to integrate the special civil defense functions into those functions with which he is already charged locally. These fourteen functions are as follows:

Administration: Supervision of all Police Department business and provision of guidance in all matters not assigned elsewhere in the Department. (This would include administrative matters relating to civil defense.)

Public Information: Supervision of all matters involving the press and public relations of the Department; provision of guidance to personnel in their relationships with the public (similar services would be required, internally, in all civil defense police matters).

Personnel and Training: Procurement of additional regular and auxiliary police. Provision of training and education for police personnel in their civil defense functions and duties.

Procurement and Supply: Custody of property in the safekeeping of police pending return to owners. Custody of property held as evidence. Procurement and storage of equipment used in police operations, including police civil defense equipment.

Records and Identification: Maintenance of departmental files, including files of missing persons and property in the custody of the police; provision for identification of disaster casualties, persons and property; administration of identification procedures, including issuance of passes and permits.

Communications: Utilization of all commercial and some privately maintained wire communications systems, two-way mobile radio equipment; (the preponderance of police operations are assigned by radio).

Transportation: Provision and maintenance of police vehicular transportation.

Detention: Provision of suitable and secure places for detention of persons for the public protection, including expanded and alternate facilities.

Patrol: Protection of life and property and preservation of order. (This function is a duty of all police, but the number and distribution of patrol personnel makes the patrol the basic element for this general service. Patrols apprehend violators of every type; conduct unexploded bomb reconnaissance and related duties; stand guard at critical points; compose anti-looting patrols; conduct preliminary criminal investigations; transmit and enforce evacuation orders; perform traffic control and regulation functions as required.)

Traffic: Control and regulation of vehicular and pedestrian traffic. (This function is to minimize delays, congestion and conflicts and thereby achieve orderly, efficient traffic movements. It transmits and enforces evacuation orders; establishes and enforces highway traffic control through priority and dispatch systems; performs patrol functions as required.)

Criminal Investigation: Conduct of major crime investigations and apprehensions. (Assists military and other federal authorities in matters concerning espionage, sabotage and subversive activities; and makes unexploded bomb reconnaissances.)

Juvenile Aid: The processing of police cases involving women and children and missing persons. (Services will be utilized in coordination with all welfare services looking after women and children whose personal situations have been affected by war disaster. Assists other civil defense groups in post-raid periods in connection with evacuations and in locating members of families who have become separated.)

Vice Control: Provision of controls over alcoholic liquors and narcotics. (Under conditions occasioned by enemy attack, will participate primarily in assuring that stocks of drugs and alcoholic liquors are kept secure in the interest of maintaining the public peace and order.)

Auxiliary Police: Supervision of the auxiliary police program. (Recruits and arranges training classes and exercises; develops a program to maintain morale; supervises disciplinary procedures; arranges for uniforming and equipping; and maintains a pool from which auxiliary police are assigned as their services are required to any division of the department.)

All of these police functions are performed at various times, in time of peace as well as in time of disaster or war. In time of disaster or war, there is simply an expansion of certain of the functions and a contraction of others. The degree of expansion or contraction depends upon the conditions in existence at the time and place affected. A police department in normal or in abnormal times, daily or even hourly, shifts functional emphasis, depending upon the type of community, and the changing characteristics of the problem.

POLICE OPERATIONS IN CIVIL DEFENSE

The police service is a regular protective service of Government, flexibly organized to meet conditions as the need for police service arises. In time of emergency, certain police functions will be expanded and others contracted as called for by the emergency. Certain activities, responsibilities and authorities are designated by law to the chief law enforcement officer; in addition he would act in accordance with policies and activities indicated by the local director of Civil Defense. The principle must be firmly established that authority over operations must be clearly identified; this is particularly true when several services join in a combined operation or when more than one echelon of government is involved.

Communications. Police Departments make wide use of their own radio communication facilities, in addition to teletype, telephone, and other wire services. In time of emergency, these facilities will need to be expanded to accommodate decentralized sub-headquarters within communities, for alternate headquarters, and for field command posts, and traffic regulation point stations. Provision should be made within the police service for this expansion, taking into account possible requirements of alternate communications systems including police messenger service. It is essential that police communication facilities be reserved for police use.

Police communications, however, may be used as they have sometimes been used in time of natural disasters, as the sole communication facility in the early hours of the emergency until other communications have been restored.

Police communications can be used to make public contacts for other civil defense services, as for example, in connection with evacuation. The advantage of police making field contact with the public is that police service provides an effective means of sustaining public confidence and morale by placing in the presence of the people a source of assistance, information and direction. When such an authoritative service exists, the public is less subject to rumor and false reports.

To insure continuous communications, central police control stations require adequate and alternative lighting facilities and independent power supply.

Transportation. Police motor vehicles are essential for the performance of their duties, and are particularly important in police mobilizations for emergencies and for maintaining maximum operational mobility. This equipment should not be considered available for the movement of people or for other non-police functions. The mobility required to meet emergency situations taxes police facilities severely. In a survey of police facilities, the current adequacy of their motor vehicle equipment should be determined and plans made to provide for any necessary procurement.

Although mass movement of people is the responsibility of the Evacuation and the Transportation Divisions, the police would assign officers on fixed and moving traffic control points, establish traffic regulation points on highways, and connect these points with communications to provide control and direction of movement. These measures are necessary for efficient coordination of essential civilian and military traffic.

Evacuation. Civil Defense will be responsible for activities concerning the evacuation of population including the designation of gathering points and assembly areas and planning the relocation. Related to this is the police responsibility to transmit orders for evacuation or for the restriction of the movement of persons, and to enforce such orders. In an emergency situation local authority for an evacuation order is at the control center. Except under the most urgent conditions no other agency than the police (or their auxiliaries under police direction) should be permitted to transmit local evacuation orders.

Radiological Defense. For radiological defense, state and local police organizations must be prepared to make available in each police station a location for a radiological situation plot at the Headquarters from which police operations are directed. Locker space must be provided in which to store radiological instruments. Space and facilities must also be provided where radiological defense area survey units and radiological defense technical service units may report in and maintain static headquarters.

Police transportation should be provided to transport key radiological personnel to their assigned posts of duty from any police station to which they initially may have reported. Police transportation need not be furnished for other than key personnel.

To the greatest extent practicable police communications should be made available to the radiological defense staff and operational personnel. Police actions in radiological defense will include also the issuing of emergency warnings and instructions to the public by means of police mobile public address systems.

These procedures are necessary because in event of radiological attack, police cannot operate until the perimeter of the contaminated area has been defined. Nor will it be advisable for the police to operate within the contaminated area without the assistance of the technical service units.

Chemical Defense. In the event of a chemical attack the police must be prepared to make their communications facilities available to chemical defense staff and operations personnel. Police should arrange transportation to move chemical detection teams to the site of reported war gas contamination. Police will be expected to assist chemical defense teams in enforcing orders concerning the limits of contaminated areas, evacuation of homes, buildings, and unsatisfactory shelters, evacuee baggage limitations and disposal of contaminated personal belongings.

The police should convey to the public, where necessary, by means of police mobile public address systems, instructions for remaining in structures or shelters, or for moving from such structures or shelters. They must also be prepared to supervise the movement of people from structures or shelters to transportation which will move them to noncontaminated areas.

Unexploded Bomb Reconnaissance. The reconnaissance of unexploded bombs is a special investigative function of the police. They should be prepared to receive reports of unexploded bombs from the public or from other civil defense services. It would be the function of police, specially trained as bomb reconnaissance officers, to determine the exact location of the object reported, to verify or disprove whether it is an unexploded bomb, and if it is an unexploded bomb to record and report all necessary descriptive data concerning it. Incidental to this reconnaissance would be an estimate of the probable danger area, the immediate evacuation of persons from that area, and such traffic control as might be necessary. The descriptive facts concerning the unexploded bomb would be reported to the Armed Forces, which are responsible for disarming and disposal of unexploded bombs.

Mutual Aid. It is essential that intra-state and interstate agreements be developed, so that in event of enemy attack the police in the area affected will be reinforced as necessary, but without reducing police personnel in adjacent areas below foreseeable minimum requirements. Mutual aid should be on condition that police personnel brought into an area would operate as an integral part of the police force in the area but under their own supervisory officers. Command responsibility in an affected area should rest with the chief law enforcement officer of the jurisdiction being aided, except that if martial law is invoked, civil police authority would be superseded by military command.

Police personnel assigned to mutual aid units should be subject to the disciplinary rules that prevail in the jurisdiction being aided; they should have the same authority and immunities as do the police whom they are aiding.

It is not contemplated that auxiliary police would be employed in mutual aid activities. Such assignments would take auxiliaries away from their home communities and their normal vocations, perhaps for protracted periods, and would therefore be impracticable.

With proper training a substantial part of the effective strength of any police department can be fitted for mutual aid duty. Thereafter such number may be furnished as is mutually agreed upon.

The foregoing are examples of operational relationships which must be anticipated. Because of the variation in organization and functions in communities and states it is essential that they develop, test, and coordinate, standard operating procedures in advance of the need for civil defense operations.

PUBLIC INFORMATION

Public confidence is the greatest basic essential for civil defense. To engender and maintain this confidence a public information program should stress the responsibilities, duties, and resources of the police, and indicate their degree of preparedness for the protection of the community. In event of an enemy attack the police must keep open a channel of authoritative information to the local and State Civil Defense organizations.

TRAINING

Regular police training should be expanded to include subject, methods, and techniques necessitated by over-all civil defense requirements. The individual responsibility of the police officer is tremendously increased in time of disaster. Both in normal times and in time of disaster he often functions without direct supervision, and he must be prepared to discharge his duties in many situations unaided by supervisory assistance. Auxiliary police should be trained in specialized civil defense duties and in some regular police duties. There is need for training police and military personnel to develop their ability to coordinate their operations under civil defense situations.

Both regular and auxiliary police should be trained in the following subjects: Civil Defense organization and functions of civil defense services; relationship between federal, state, and local govern-

ments; relationship between civil police and the Armed Forces; air raid precautions; police duties in air raid alarms; protection against high explosives, incendiary bombs, chemical attack, and radiological attack; protection of vital installations; police evacuation procedures and control; looting prevention; black-out and light control enforcement; panic prevention and control; regulation and control of highway traffic operating under controlled dispatch and priorities; grounded aircraft procedures; and unexploded bomb reconnaissance.

In addition, some of the courses in regular police duties which should be given to auxiliary police are: organization of the department; general police duties and responsibilities; discipline, conduct, appearance, and courtesy; powers and duties of auxiliary police; first aid; traffic regulation and control; patrol methods; preservation of evidence; detention; search; arrest procedures; report writing; note taking; interviews and interrogation; use and care of firearms; legal aspects of the use of firearms; police communications, records, and reports; public relations; court procedure; law of arrest; law of evidence; elements of minor offenses; and elements of major offenses. Other specific subjects may be included to apply in local situations.

Training materials should be prepared by the Training Division, Office of Civil Defense, with the technical advice of the Police Services Division. Civil defense training for state and local police should be conducted under a program developed by the State Civil Defense Training Officer in cooperation with the State Coordinator of Police Services for Civil Defense. Police personnel and facilities should be utilized so far as is practicable.

Generally, civil defense training for the police should be given in regular police training schools under existing policies. The civil defense organization should avail itself of the cooperation and assistance of all established police in-service training facilities of the nation in carrying out the civil defense training program. However, police training in specialized civil defense subjects may be given in special civil defense schools. Many normal police duties and police civil defense duties are so closely interwoven that it may be said they cannot be separately identified. The regular and civil defense police training programs, therefore, should be largely integrated. Police civil defense training in many important areas of instruction will necessarily be integrated with the training of personnel of other civil defense services.

SPECIAL PROBLEMS OF POLICE

Special Problems of Police Operation. A special problem of the police involves operating relationships under emergency conditions which the police must maintain with agencies other than units of the Civil Defense organization. The police carry additional responsibility for cooperating with and assisting the Federal Bureau of Investigation, the Army, Navy, Air Force and Coast Guard and numerous other investigating agencies. The police share with each of these agencies responsibility for internal security.

The Federal Bureau of Investigation nationally coordinates police action in internal security programs which concern sabotage, espionage and subversive activities. In respect to the military services the police have the additional duty of cooperating in general law enforcement as it affects members of the military services and of maintaining traffic control and regulation to prevent conflicts between essential civilian and military movements.

In the community, the chief law enforcement officer must keep the Director of Civil Defense informed of the number of police and the amount of equipment available for civil defense purposes. This is necessary so a proper balance may be maintained in the commitment of police personnel, equipment and facilities between civil defense requirements and those above indicated. Similar coordination must exist in the state organization between the chief state law enforcement officer and the State Director of Civil Defense.

Procurement and Supply. Provision for procurement and supply of civil defense equipment and materiel on a national level for the police service should include assignment of priorities which will enable police to procure essential items of communications equipment, police transportation vehicles and fuel, uniform material and special equipment such as firearms. Specifications must be drawn for the issuance of special equipment which will be required for the police in war emergency.

In time of emergency it will be necessary for the Federal Government to determine to what extent it should augment or supply police departments with items of equipment necessary for civil defense operations.

Some of the equipment items which may be required for the police and their auxiliaries in civil defense are: uniforms, protective clothing, helmets, insignia, gas masks, specialized vehicles such as personnel carriers, portable flood lighting units, mobile public address units, portable voice amplifiers, mobile radio transmitters and receivers, "walkie-talkie" (short range radio telephone) units, auxiliary and portable main radio transmitters, auxiliary gasoline generators for lighting and communication facilities, and other similar equipment.

WARDEN SERVICES IN THE CIVIL DEFENSE PROGRAM

The success or failure of the civil defense program will depend considerably on the systematic organization of neighborhood leaders—the Warden Service. The Warden should act as a bond between the neighborhood and the local Civil Defense headquarters, and, in fact, the entire Civil Defense organization. Many phases of plans and operations are built around the wardens and much reliance must be placed on them for assistance, information and coordinated effort. Women should be given a great deal of responsibility in the Warden Service.

Historically, the warden is a public figure and a public servant. The average citizen who knows little of the intricacies of municipal government and civil defense will know his neighborhood warden and will cooperate with him. By their training and leadership wardens will be in a position to bring the principles of Civil Defense home to every householder in this country.

ORGANIZATION FOR THE WARDEN SERVICE

The Warden Service, because it is designed to serve all the people in every block, will be one of the largest and most important operational parts of the local civil defense program. In the warden's hands will be responsibility for constant contact and guidance in preparing his neighbors for emergency, and for whatever action may be necessary in the case of enemy attack.

The special teams and services, with their specialized training and duties, will undoubtedly make constant use of wardens in gathering information, in contacting people, and in carrying out the civil defense program whether in a crisis or in the day-by-day preparations for an emergency.

While the Warden Service should not have police powers, or mandatory authority over special teams, such as fire, police, radiological, chemical defense or unexploded bomb reconnaissance, they would work closely with such teams.

The Warden Service Division of the National Office (Chart 2) should be directed by a Chief, who would have a small staff to aid warden organizations in training, policy matters, and regulations.

Various surveys would have to be made in order to estimate manpower and equipment requirements for all warden services.

Regional Offices, when they are established, should have a representative of the Warden Service to deal with the several states comprising the region and the problems peculiar to them. The regional office would act as a channel of information both to and from the state and local warden services.

A Warden Service Division should be established in the State Organization (Chart 3) to promote and advise local warden services and deal with state wide problems.

THE LOCAL WARDEN SERVICE (Chart 4)

The organization of the Warden Service in a community should be directed by a Chief Warden, with sufficient assistants and clerical personnel to manage, direct, and supervise this service. In communities where it is practicable, local officials may find administrative and supervisory advantages in organizing the Warden Service as a branch of the Police Services with the Chief Warden responsible to the chief police official. The city should be divided into districts, generally averaging from one-half square mile to two square miles per district, and subdivided into block organizations, consisting usually of a regular city block. In the case of large metropolitan areas, it will probably be necessary to have a zone organization between the office of the Chief Warden and the district organization. Such zone would have twelve or fifteen districts reporting to it and could also serve as a subcontrol center. It may be advisable to constitute each component city in a metropolitan area as a zone or district, dependent upon its size and population. Similarly, it may be necessary to subdivide very large blocks into sections, each with a Block Warden type of organization.

In cities with special problems or large population, it may be necessary to subdivide the district into Sectors—each Sector to comprise four to six blocks, or such number as the local organization may determine, in charge of a Sector Warden, such organizational arrangement to be primarily for administrative purposes.

In the industrial and business areas, each large unit, such as factory, department store, bank or warehouse, having its own protective organization, should be considered separately from the Warden Service, though it may be either larger or smaller than a city block.

In many cases, entire blocks are composed mainly of a number of small businesses. Their organizational pattern should follow the same design as in a residential area with its Block Warden and his assistants, and should be a part of the Block Warden Organization; in many cases it would be supplemented by employees from the respective business houses.

All members of the Warden Service should be selected in a non-partisan manner and as prescribed by local authorities. Loyalty, ability and trustworthiness should be major considerations. All should be as nearly as possible, residents or employees of the community which they serve. Each block or neighborhood warden should be well acquainted with its residents and be the type of person who can secure their cooperation. As nearly as possible the Warden Service should be composed of men who are not subject to military service nor persons otherwise assigned; and women who are housewives or not employed away from their residence.

The residential areas have a large night-time population and a small day-time population. The converse is true of the industrial areas both in peacetime and wartime. For these reasons the residential areas will have to depend, to a large degree, on women for warden service for daytime duty.

All wardens should take a general training course in the organization and operation of Civil Defense, with special emphasis on the functions of fire, police, medical, rescue, panic prevention and control, demolition, unexploded bomb reconnaissance, evacuation, communications, transportation, and emergency welfare groups and teams, and including other important phases of Civil Defense. In addition, they should be given sufficient specialized training in first aid, fire prevention and fire fighting, gas war defense and decontamination methods, and radiological defense to enable them to cooperate with the special teams.

DISTRICT WARDEN SERVICE

Organization. While the basic operating level of local civil defense will be the sector, or block, these should be only of such an area as can be supervised by an individual with necessary assistants for "around the clock" control. It is evident that the number of block wardens, even in a city of 100,000 population, would be such that it would be difficult for a central headquarters to deal with each of them directly. This makes necessary a plan for a district organization to be composed of a number of sectors and blocks, and generally averaging one-half to two square miles in area. Each community may differ in the organization of such districts,—some perhaps following the fire or police district, but in general, these subdivisions might be so arranged as to include stations of the local protective services.

Where a zone organization is indicated, it would be an elaboration of the District Warden Organization, with such division of functions, duties and responsibilities between them as may be deemed proper by the local authorities. In all probability the Zone Office would be less concerned with the maintenance of records and administrative detail than would the District organization. Its function should be one of management and direction, possibly including a co-ordination service between the control center and the other echelons of Warden Service.

District Warden Functions:

Direct the activities of the Block Warden Service; explain rules and regulations, and assist them generally in their duties as further detailed under Block Warden Service; maintain records and questionnaires.

Designate assistant wardens (as many as needed) to assist other Civil Defense Services and to collaborate with the District Dispatcher.

Receive reports from the Block Wardens as to casualties and damage and their calls for emergency help to be relayed to the control center.

Receive and evaluate complaints for non-compliance as reported by the Block Wardens, referring all proper cases to law enforcement authorities.

BLOCK WARDEN SERVICE

Organization. Each Block Warden should have an alternate or deputy who can function in his absence. The deputy should be on duty during the period of the day the Block Warden is engaged in his employment. This will require a deputy who works different hours, or who is retired, or a person who is not employed. Two assistants should be designated to deal primarily with evacuation matters; likewise two assistants responsible for communications and messenger service, two assistants responsible for transportation problems; sufficient clerical personnel and such others as may be needed, dependent upon the size of the block and the character of the neighborhood, whether residential, business or mixed, and various other factors.

Block Warden Functions. The Block Warden should be the Civil Defense leader for his block to instruct and train the people in civil defense activities and direct them in civil defense operations. He would coordinate his work with the other civil defense services and cooperate with them in their activities; in an emergency utilize all facilities available to him to ameliorate disaster conditions, and assist other civil defense services. He would likewise cooperate with and assist neighboring block wardens, as directed, and would keep the District Warden advised of conditions in his block.

He would disseminate and explain rules and regulations (including blackouts and protective lighting) and general information concerning civil defense to the families and all other residents and employers and employees within the block.

He would meet, know and maintain contact with all persons in the block.

He should gather records as to the number and types of

business establishments in his block, together with the number and names of individuals; the particular skills of individuals such as the doctor, nurse, electrician, or plumber; the types of businesses which may be important during an emergency—for example, drug stores, food stores, hardware stores, plumbing establishments and electrical establishments.

He should have a map of his block showing homes, business establishments, the public utilities system, oil storage tanks, streets and alleys, fire hydrants, fire alarm boxes, types of construction in general, telephones, special hazards, emergency places of refuge, casualty stations, hospitals, police stations, schools, churches, bridges, and other descriptive data.

His records should show persons whose condition require special care and handling.

He would conduct surveys and maintain records concerning transportation as prescribed by the Transportation Division.

Training Duties of the Block Warden. The Block Wardens should canvass their blocks with a view to enrolling all eligible persons in first-aid courses, fire prevention, gas warfare defense, motor vehicle operation, and any other courses deemed necessary by the Civil Defense organization.

The wardens should give assistance and instruction along the line of miscellaneous self-help measures (including use of tools and equipment) designed to fit the peculiar needs of each family. In addition, they should constantly stress and promulgate self-help methods and measures to occupants of their blocks, and advocate the principle of mutual aid as well.

Residents of the block should be instructed in precautionary methods and measures, as:

The elimination of hazards, especially clearance of combustible materials from attics, cellars, and outside premises.

Protective measures and methods used against incendiaries and fires, war gases, and high explosive bombs, atomic bombs, and radiological effects.

Information regarding action of various types of bombs. Blackout and lighting control; simple directions as to blackout, lighting controls and shelter arrangements.

First Aid, fire fighting and fire extinguishers.

Maintenance of household tools and equipment; protection of valuable documents, personal and business.

Evacuation Duties of the Block Warden. Each person in the block should be registered and classified with respect to priority status in the event of evacuation. Files should be kept current and the Block Warden should be prepared to assist the Evacuation Service in an organized evacuation when it is authorized.

The Block Wardens would, in cooperation with, and under the direction of the Evacuation Service, canvass their blocks, with reference to reception of evacuees from other areas. They would gather information as to number of homes and rooms available; whether premises and households are best adapted to the reception of children or adults or equally well adapted to both; whether adapted to the care of aged or infirm, male or female, and other deciding factors; the amount of notice, if any required, and the length of time the householder could reasonably house or care for the evacuee.

In addition to locating residential quarters for evacuees, information should be gathered on hotels and boarding houses, and other buildings, both public and private, which could be converted into dormitories.

Tools and Equipment. All tools and equipment for civil defense requirements of the block, over and above that to be furnished by the householder or business establishment, should be listed by the Block Warden and requested from the District Warden. He would maintain inventories of usable emergency equipment, both public and private, within the block and where it may be found.

Emergency Functions of the Block Warden. At the first warning of an enemy attack the Block Warden and assistants would assemble at a designated place. He and his aides would assist people to shelters, prevent panic, and enforce blackout and other security measures. He would report by telephone to the District Warden's Post, and stay in his own block unless ordered elsewhere.

As soon as attack is over he and his aides would keep on the alert for gas attack and any other unconventional type of warfare, and make tentative assignment of duties to those present in the post during the attack.

Police would be given assistance in clearing streets of traffic; directing all pedestrians to proper shelter and calming those who appear unduly excited.

The warden would investigate and report all incidents beyond his control such as fire, trapped persons, casualties, unexploded bombs, war gases, damaged utility facilities, unsafe structures, blocked roads, or damage to transportation facilities; and make a careful survey of the incident-scene and submit supplementary reports, as required.

He would warn the residents, assist in necessary evacuation, and rope off dangerous areas; give directions to messengers and other Civil Defense personnel; give directions to Civil Defense units as to location of incidents; render first-aid pending arrival of medical units.

Post Attack Functions of the Block Warden. Immediately after an attack, the Block Warden and his forces should make a quick survey of the block. Fire, casualties, persons trapped in wreckage,

presence of war gas, unexploded bombs, blocked roads, and similar incidents should be noted and reported at once to the District Warden.

The Block Warden would request through the District Warden all necessary technical help.

The Block Warden Service would render such first-aid assistance to casualty victims as time and ability permit, reporting to the District Warden any casualties requiring hospitalization and transportation, and arranging for mortuary service.

As soon as practicable he would inform the District Dispatcher of his transportation requirements and facilities, and surplus vehicles to be made available for general use. Proper records should be made of all vehicles officially taken over by or through the Block Warden organization, unless they are owner operated.

Another vital function would be to carry out instructions and disseminate information received from the District Warden as to radiological defense, gas defense, and various precautions to take.

Post Emergency Functions of the Block Warden. After the crisis stage the Block Warden Organization would have the following responsibilities:

Make an additional survey of the block, building by building, and lot by lot, to determine the extent of casualties and damages of all types, and report to the District Warden.

Assist technical personnel in making of surveys for demolition purposes; report the need for making repairs and restoration of services; encourage individual self-help and mutual aid and the making of minor repairs in the area.

Check complaints against individuals and business concerns for non-compliance as reported to the Block Wardens, sending them on to the District Warden for further consideration and ultimate referral to law enforcement authorities.

Give assistance, help, and information to the families and business concerns within the block, including information and assistance to individuals and to the Vital Statistics Branch in connection with War Damage Insurance, Proofs of Death, and similar matters.

ENGINEERING SERVICES IN THE CIVIL DEFENSE PROGRAM

If any nation undertakes to wage war against this country, and strikes at important areas through well organized sabotage or by dropping bombs, likely points of attack will include vital industrial plants, water supply systems, gas, power, and communications plants and other similar facilities.

The civil defense requirements and operations for the protection of the people and vital plants involve engineering techniques embracing many fields of engineering. A city may be rendered helpless if essential facilities are destroyed or damaged. Therefore, Civil Defense should plan measures to insure safe and adequate water supply and sewage disposal systems, housing, and milk and food supplies. It may have to act against insect and rodent borne diseases. It may be obliged to repair damaged or broken water, sewer, and gas mains; telephone and power lines; buildings, bridges, and roads; furnish rescue services, demolish buildings, and remove debris.

The Engineering services, too, may be asked for technical advice on selection and construction of air raid shelters and civil defense control centers; protective construction for public utilities, essential industries, and public buildings; camouflage, blackout and dimout measures.

A Plan of Action. Therefore, as an integral part of civil defense, the following plan is proposed:

Establishment of an Engineering Division in the Office of Civil Defense qualified to proceed with a program adaptable to any emergency.

Maintenance of liaison with the Armed Forces, other governmental agencies, and technical societies for the purpose of keeping informed on the latest pertinent developments in engineering as they affect civil defense.

Preparation of manuals and materials to aid in carrying out engineering activities, including measures of self-help, involving precautions which communities and individuals should take in respect to water, milk, food, sewage, garbage and wastes disposal during and after an emergency.

ORGANIZATION FOR ENGINEERING SERVICES

National Organization (Chart 11). In the national office in peacetime the Engineering Division should consist of a chief engineer and assistants in special fields of engineering. In the event of emergency this staff would be increased in accordance with the needs of the situation.

The chief of the engineering division would supervise and coordinate engineering activities of the Office of Civil Defense. His assistants should be experienced in sanitary and public health, mechanical, civil, electrical and other engineering fields. All of these positions should be filled by men of outstanding qualifications and so recognized in the engineering profession. The United States Public Health Service should be requested to assign a commissioned sanitary engineer approved by the Director of Civil Defense to the Office of Civil Defense for the purpose of directing the sanitary and public health engineering activities. The staff should be aided by an advisory committee representing the various engineering fields. The Engineering Division would participate in preparing manuals, pamphlets, and instructional materials for civil defense use in engineering problems, and would render technical assistance to the regional, state, and local Civil Defense organizations.

Regional Organization. When regional offices of Civil Defense are established, an engineer should be assigned to the staff of each Regional Coordinator, and it is proposed that a commissioned sanitary engineer of the United States Public Health Service be assigned to each Civil Defense Regional office for this purpose on a part time basis. In an emergency he should be assigned full time. The regional engineer would maintain close liaison with the Army area commander.

State Organization (Chart 3). Many of the engineering activities affecting civil defense are entrusted by law to the engineering and health departments of states and municipalities. These agencies should be utilized in setting up engineering services in state and local Civil Defense organizations. For example, the state engineer or the state director of public works would be a natural selection for the position of Chief of the Engineering Division of the State Civil Defense organization. He would serve under the State Director of Civil Defense, coordinating his activities with other departments such as the State Health and Highway Departments.

In case of enemy attack he should make available equipment and personnel from state departments to assist in repairs, removal of debris and other work required.

Local Organization (Chart 4). The Engineering activities in the local organization should be carried out by an Engineering and Public Works Division headed by a Chief. The Chief should preferably be an engineering official of the local government, such as the city engineer or director of public works. The staff should include the heads of all existing local engineering and public works departments, supplemented by such other engineers as may be required to deal with special problems.

ENGINEERING FUNCTIONS OF CIVIL DEFENSE

A multiplicity of engineering services are required for the safety and health of communities. Some of the more important of these relate to:

Adoption of precautionary measures to safeguard water and food supplies; the construction of personnel shelters; protective measures for plants; incorporation of blackout and dimout measures when required; restoration of buildings, roads, bridges and other facilities; and the organization, training and equipping of rescue services.

Sanitary and Public Health Engineering

Water Supply. The most important phase of the sanitary and public health engineering service is the safety and adequacy of the water supply. Water must be furnished for domestic consumption, industrial use, and fighting fires. Large quantities would be required for fire fighting in case of attack and it is probable that many cities would not today be able to furnish the requisite amounts of water for this purpose.

Water supplies are derived from wells, infiltration galleries, streams, rivers and lakes and for each of these sources there are critical elements, damage to which might put the entire water works out of service, or render the supply unsafe for domestic and industrial uses. Protective and remedial measures include: policing of the vicinity of the intake and other vital works, and restriction of the use of the watershed by unauthorized persons; special analyses to detect poisons and unexpected pollution; designation of experienced crews and equipment ready to make extensive repairs to the system; and plans for the provision of an alternate source of supply.

There are major parts of a water supply system which are particularly vulnerable, such as aqueducts, pumping stations, treatment plants, and storage tanks. Damage to one or more of these units would result in partial or total failure of service. Advance planning should contemplate measures for safeguarding these units insofar as practicable.

Where a system has only one pumping station or one source of power, consideration should be given to the matter of providing standby pumping equipment and auxiliary sources of power.

Mains leading to ground reservoirs and elevated storage tanks should be so valved that they can immediately be shut off in case the reservoir or elevated tank is damaged or destroyed by an enemy attack and the water conserved for fire fighting purposes. Speed in valving off the damaged mains and effecting repairs is essential. Therefore, there should be prepared a complete map of the water distribution system showing such information as the exact location and size of each water main, valve, fire hydrant, cross connection, pump and storage reservoir. Copies of such maps should be maintained at various locations for convenience and safety.

Additional protective and remedial measures which can be taken by a municipality are:

a. To make a survey of all available chlorine and chlorine compounds within its area.

b. To maintain an adequate supply of repair parts.

c. To make a survey of all private, institutional and industrial water systems in the area, including swimming pools, both private and commercial, which could be used in an emergency.

d. To make a survey of all water and milk tank trucks, with their drivers, for possible use in transporting water.

e. To provide an alternate means of communication between the water works pumping plant and the Civil Defense control center or centers.

Information on the effects of atomic, chemical and other unconventional forms of attacks and the means of combatting or mitigating the effects of such attacks is needed and should be made available through Civil Defense organizations as soon as practicable to those in charge of water supply systems.

Sewage Disposal. Of importance in sanitary and public health engineering service is the system for the disposal of sewage. This system consists of collecting, intercepting, and outfall sewers, sewage pumping stations, and treatment plants. The troubles that may result from enemy attack and the protective and remedial measures are similar to those relating to the water supply system.

Damage to the sewer system by bombing would consist mainly of breaks in the mains and laterals, which, by undermining would probably cause breaks in other nearby conduits, the flooding of basements, damage to pavement, sidewalks and building foundations, and the disruption of sanitary facilities in homes, hospitals, industries, and commercial establishments. Where large areas are affected it may be necessary temporarily to provide portable comfort stations until the utility forces can make repairs to the damaged water and sewer lines. Damage to, or breaks in, outfall sewers might cause the discharge of raw sewage into a nearby water course. Plans might have to be made for disinfecting this sewage with chlorine. Damage to sewage pumping stations may necessitate the installation of by-pass lines or the use of portable engine driven pumping units. Measures for protecting the main sewage treatment plant would be similar to those planned for the water treatment plant.

Interruption of water service would make water carried waste disposal impossible and it would be necessary to immediately institute some type of temporary service. This service may be provided by privies or latrines set up in a location near the affected area, portable privies set over manholes in the street, or a scavenger system, involving the supplying of householders with containers for body wastes. Regular collection of the containers must be made and suitable conveyances employed to transport the waste material to a point of disposal. The types of containers generally would be: single use paper containers made of specially treated water-resistant paper, metal cans with tight covers, and chemical toilets in which a charge of chemical or deodorant is to be applied. Disposal of the contents of the metal cans and the chemical toilets may be by burial in the earth, emptying into an operating portion of the sewer system through a manhole, hauling to sewage treatment plant or incinerator. Disposal of the paper containers and their contents may be by burial in the earth or burning in an incinerator.

Temporary facilities would also have to be provided when large numbers of people are moved from a devastated area or for military reasons. These facilities may be portable comfort stations or latrines similar to those used by the Army. The decision as to the type or types to be used would necessarily rest with the local Sanitary engineer and health officer.

Garbage and Wastes Disposal. In normal times garbage and wastes are disposed of by municipalities in a satisfactory manner, the ultimate disposition generally being by burning in an incinerator or by the land fill method commonly designated as sanitary fill. However, in the event of an enemy attack new problems in respect to such disposal might arise due to the total or partial destruction of the plant, damage to the collection equipment, abandonment of homes due to fires or for other reasons, and evacuees leaving large quantities of garbage and wastes along their routes of travel.

If large numbers of people are moved from a devastated area to a temporary location and the sanitary fill method is employed for the disposal of garbage and wastes, the fills must be made under the supervision of an experienced sanitary engineer to insure that the fill areas will not become breeding places for mosquitoes, flies and rodents. State and local engineers engaged in civil defense activities should assume this duty.

Protection of Milk and Food Supplies. The protection of the milk supply from the farm to the consumer is the responsibility of

state and municipal health officers and sanitary engineers. Rapid increases in the population of a city due to its increased activity in the war effort or sudden movement of people into a new area resulting from the evacuation of another area may overtax the milk and food supply. This will in turn put a strain on the pasteurization, bottling and distribution plants to meet the increased demand, and will, unless foreseen and adequately planned for in advance, result in a lowering of the quality of the supplies and possible contamination as a result of careless handling due to lack of adequate inspection and supervision. Although they may not be damaged themselves local milk plants might be inoperative following a serious disaster because of failure of power, water, gas, or all of these services, in which case the entire supply might have to be processed at other points.

Milk and food supplies may be contaminated by chemical, radiological or other means of attack, and in an area which has been subjected to aerial attack, milk and food should be inspected and examined by competent personnel before being offered for sale or distribution. Milk and food supplies would also become contaminated from lack of proper refrigeration in transit from farm to ultimate consumer and lack of cold storage facilities in warehouses and stores due to failure of the power supply.

Housing—Sanitary Aspects. The sanitary aspects of temporary housing as relating to civil defense must be considered when large numbers of people are moved from a devastated area or by military necessity.

The problems involved in this temporary housing and feeding include: protection from the elements; proper volume of air space per occupant; proper heating, ventilation and screening; adequate water supply, sewage and wastes disposal facilities; adequate eating places; and provision of adequate and qualified personnel to make frequent inspections for general cleanliness of premises, cleanliness of bedding, proper sterilization of cooking and eating utensils, and medical examination of food handlers.

Although all of these problems are within the official duties of the state and local health officers and sanitary engineers, the Civil Defense sanitary engineers can be of assistance in making sanitary inspections and offering technical advice.

Stream Pollution. The prevention of stream pollution is a problem of national importance, and recent legislation by the Congress—Public Law 845, 80th Congress—places the responsibility for the prevention of stream pollution upon the United States Public Health Service and the Federal Works Administrator in cooperation with the water pollution agencies of the States. The purpose of the Act is "to conserve such waters for public water supply, propagation of fish and aquatic life, recreational purposes, and agricultural, industrial, and other legitimate uses."

Those problems in civil defense relating to stream pollution are the protection of streams from contamination by chemical, radiological and other unconventional forms of attack. The Engineering Division of the Office of Civil Defense would collaborate with the Chemical, Radiological and Other Special Weapons Defense Divisions in furnishing the necessary technical information and advice concerning these problems.

Protective Construction

The term "protective construction" as used here embraces those construction measures which would afford to civilians and essential facilities and activities passive protection against such destructive forces as blast, fragmentation, incendiary and other effects of enemy attack. It includes such precautionary measures as the provision of blast and splinter protection for vital production facilities; emergency arrangements to protect water, power, gas and other utilities; construction of air raid shelters and the like. It does not include dispersal of plants or measures to effect camouflage, blackout and dimout. Its purposes are to afford protection to the lives and property of the civilian population and essential facilities so that the fullest possible support of a war effort may be maintained by continued operation of the many vital production and supply processes insofar as practicable.

When World War II broke out in Europe and attacks on the cities of the United States were envisioned, steps were taken to develop means of providing passive protection for the citizens and vital facilities. In devising protection against even the comparatively small (by present standards) bombs then in use, it was found that there were limits as to what could be accomplished. These limitations were imposed by scarcity of materials and high costs.

The great increase in power of weapons in recent years necessitates a re-evaluation of existing protective construction procedures. It is readily apparent that the best protection which would be economically feasible would fall far short of full protection. Indeed, the public is well aware that full protection against atomic bombs is practically impossible. Despite the apparent futility of the situation there is much that can be done by the public and industry to minimize loss of life and property as a result of attack. Such action would materially aid the civilian support of the war effort.

The Engineering Division of the Office of Civil Defense would be responsible for cooperating and maintaining liaison with various governmental and other technical agencies in the development of improved techniques and materials of protective construction; also for

furnishing technical information and advice on this subject to manufacturing and nonmanufacturing industries, public and private utilities and to the general public.

Industrial Plants and Utilities. While the specific measures that would be applied in the protection of critical war plants and of utilities might differ materially in their details, their purpose would be the same. This would be to minimize damage resulting from attack and to decrease interruptions of service through facilitating quick restoration. The employees and vital machinery in industrial plants and power plants, for example, may be given a measure of protection from blast and fragments by providing special walls. Fuel storage tanks would be safer with this type of protection. Electrical conductors are safest when placed underground and utility mains such as gas and water are made more dependable by the provision of alternate or supplementary sources, adequate number of valves and standby power.

Protective measures formerly developed for industrial and other facilities were designed for protection against "conventional" weapons. Future protective construction should be designed to resist also the effects of newer weapons insofar as practicable. Inasmuch as the cost of installing protection may be high and must be borne by ownership or management, the technical advice of the Civil Defense engineering organization should be sought before embarking upon a protective construction program.

Air Raid Shelters. It would be desirable in the event of war to have available in likely attack areas, shelters of sufficient capacity and resistance to afford a reasonable degree of protection to the population from bombing effects.

Experience abroad in World War II, even prior to the advent of the atomic bomb, indicated it was not practicable considering costs, materials and manpower involved, to provide shelters that would give effective protection from all kinds of bombing, particularly if direct hits of large sized bombs were to be considered. With the much greater destructive power that has been demonstrated by the atomic bomb to be taken into account, it now seems clearer than ever that only partial protection would be feasible. Such protection would be effective in varying degrees, depending upon the power of the bomb and the distance from the burst. For special situations such as control centers, where a high degree of protection is needed, unusual and perhaps very costly construction might be justified whereas for less strategic situations only moderate costs might be justified. In brief, each particular situation should be studied first and designs prepared only after carefully balancing costs, materials, and other factors against the calculated safety risks. It should be noted that the nearest approach to full protection would be afforded by the use of deep underground spaces.

In congested areas such as in large cities the possibility of casualty is great, and planning should provide for protection of the greatest number within buildings, underground structures, or in private or communal shelters or tunnels, and particularly where natural ground protection is afforded. But these locations should be carefully studied to insure freedom from such hazards as flooding, breaking of gas and other utility mains, and to be sure that suitable and adequate entrances and exists are available.

Basement floors of office buildings, warehouses, stores, hotels, apartment houses, schools, churches and factories should be considered for communal and neighborhood shelters, but planning should include provision for necessary structural reinforcement and of ventilation arrangements that will satisfactorily care for occupants over a period of time. In closely congested areas where there are a number of tall buildings in close proximity to each other, protection from bomb fragments and gas bombs may be afforded on the second and in some cases other floors of such buildings.

The value of American homes as air raid shelters against present-day weapons can only be determined by actual experience. However, past experience and tests with conventional type weapons have shown that a substantial amount of protection is afforded the occupants of well-constructed houses. The best protection from blast, bomb fragments and flying glass would be found in the basement if well constructed or reinforced, or in the interior of the house away from the windows or under a stairway or strong table. If the basement is to be used as a shelter at least two means of entrance and exit should be provided. Only those houses that are reasonably fire-resistant, strongly framed, and which have strong cellar walls will offer much protection. Weak-framed houses are readily susceptible to collapse from air blast, and foundation walls of inferior construction would be overturned by the ground shock effects of near-miss underground explosions.

Control Centers. A control center is the headquarters from which the local Civil Defense organization directs and coordinates fire and police, rescue and medical and all other activities during and after attack. Whether there are one or several control centers in a city it is important that the control functions continue uninterruptedly during an attack and therefore protection of the control centers is necessary. A center may be established in the safest portion of a strongly constructed building or it may be housed in a specially constructed command-post type of shelter. If existing buildings are utilized, remodeling and reinforcing of the structures may be required. In any event, protective and other standards for control centers should

be developed and made available by the Engineering Division of the Office of Civil Defense.

Protective Concealment

The chances for survival of a given potential target, such as a power, water or other important plant, may depend to a large degree upon the ability of the attacker to locate and identify the target. In attempting to destroy a particular installation the enemy would be greatly helped if the target were easy to locate. Therefore, in order to increase the difficulty of finding the target, it may be desirable in the case of critical facilities to provide every reasonable means of concealing them.

A high degree of protective concealment of such facilities against visual observation can be accomplished by the application of camouflage and lighting control measures. Usually the treatment of a given plant would include some features of each. Camouflage may be effected by obliterating the identifying features of the actual target or by providing an artificial target by means of a dummy deception installation at a distance from the real target. By the exercise of control over all of the lighting in a target area the enemy can be denied the benefit of illumination to guide him to his target during night attacks.

Concealment measures have in some instances interfered with essential production, rail and vehicular traffic and related activities. Such interference might have been largely eliminated by a larger expenditure for a more effective treatment. However, despite their disadvantages protective concealment measures may again become a military necessity.

Factors that would influence the measures to be applied to a given facility are:

a. Whether the concealment is to be effective against visual or electrical means of detection.

b. Whether the treatment is for existing or for new facilities.

c. Whether the means are to involve concealment alone or decoy installations.

d. Whether for day or night concealment.

Camouflage. In the past, methods for concealing industrial and other facilities have been directed almost entirely against visual detection. These have included such measures as disruptive and tone-down painting and disruptive planting of shrubs to make the object less conspicuous; obliteration of the distinguishing features of the plant by applying camouflage nets and garnishing materials or by use of smoke; alteration of the appearance of a plant by deceptive construction so that its identity seems to have been changed; or creation of a dummy replica (decoy) at a safe distance from the real plant. As a rule, camouflage that is satisfactory in daylight is also effective at night. However, no matter how well conceived the daylight treatment may be, excessive illumination at night may defeat all efforts. In some cases, it would be possible to provide a dummy replica at a distance of a mile or several miles away. The dummy plant would be discreetly lighted in a manner simulating a plant in operation and would serve as a decoy.

Some of the methods of defeating visual detection probably will continue to be reasonably effective for that purpose. In the future, however, it can be expected that improved electrical methods of detection may be used by enemy airmen which will penetrate many such disguises. Electrical methods might include radar, special photography or thermal detectors.

Measures to prevent detection by electrical means of existing buildings doubtless would include screening or dummy construction that would be proof against such means. New construction would be easier to shield against detection by building plants underground, by construction in terrain that would help to mask its presence, or by specially designed construction that would give a false response to the detectors.

Lighting Control—Blackout and Dimout. Experience has shown that the difficulty of night bombing is substantially increased by the absence of artificial illumination at the ground in the vicinity of the target area. This was found to be true despite the fact that target areas could be identified with only weak natural illumination from moon or starlight. Pursuant to recognition of the value of such protection, methods of lighting control were developed and enforced to accomplish either total blackout conditions as protection against air attack on particular ground installations, to prevent the illumination of neighboring towns, cities and industrial plants from serving the enemy as guide posts to critical installations, or a dimout of exterior lighting in coastal areas to reduce the danger to shipping from enemy submarines as the result of skyglow.

The term "blackout" refers to the condition of screening or extinguishing illumination emanating from designated areas in order to deprive enemy airmen of all possible reference points which might aid them in making attacks. The degree of totality of a blackout would depend upon the results required.

Complete extinguishment could be effected with comparative ease by the opening of switches at power sources, but this would entail the complete cessation of essential activities utilizing electrical power or requiring a certain amount of illumination. Such extreme blackout measures would hamper war production and other essential services to an intolerable degree. In order that vital industrial or other activities may continue with a minimum loss of efficiency during an elert adequate blackout may be accomplished by extinguishment of all non-

essential lighting, provision of screens or shields at all points where essential interior light might escape, and provision of specially designed lights, shields, filters, and the like for use outdoors to permit the continuance of essential activities without risk of disclosure to aircraft.

Effective blackouts are possible of achievement but they are usually accompanied by a reduction of vital war production. Studies, therefore, should continue in the direction of determining the over-all value of the blackout. Meanwhile, the Civil Defense organization and the public must be prepared to blackout cities and areas when requested to do so by the military authorities responsible for the air defense of the United States.

In coastal areas where haze and low clouds are prevalent, exterior illumination from street and store lights and signs reflects from the clouds and produces what is known as skyglow. During the early part of World War II this skyglow was held to be partly responsible for the losses of coastal shipping to submarine raiders and measures were adopted to dimout certain coastal areas. Early studies indicated that sufficient light was reflected as skyglow to silhouette the hulls of ships and make them easy prey to attack. Skyglow was objectionable also because it could serve as a beacon to guide enemy aircraft approaching from the sea.

Skyglow was substantially reduced by the elimination of non-essential lighting, shielding of essential lighting downward and away from the sea, screening of stray indoor light, masking of vehicle lights and other means. However, owing to the hardships imposed on the population of coastal areas as a result of the dark-to-dawn dimout restrictions, it came to be questioned whether the benefits offset the disadvantages. Present indications are that dimout measures will not be employed in a future war. However, in the event the Armed Forces determine dimouts to be necessary, and only then, will the Civil Defense organization make preparations therefor.

General. The National Security Resources Board is responsible for the strategic relocation and dispersal of critical war industry in general, and the Munitions Board is responsible for determination of underground site requirements for vital industry. The Office of Civil Defense has a companion responsibility for maintaining close liaison with these agencies to determine what industrial facilities must be provided with camouflage, blackout, dimout or any other protective concealment features. The Office of Civil Defense should have the further responsibility for evaluating available information on these matters; cooperating with the Research and Development Board and other governmental and technical agencies in the development of adequate equipment, materials and techniques; revising existing technical publications on these subjects and preparing new ones if needed; and finally to render technical assistance to state or local Civil Defense organizations.

City Planning

Considering the spaciousness of the United States, its population and industry are concentrated into comparatively congested areas. This makes the nation vulnerable to present and future weapons of mass destruction such as atomic, high explosive and incendiary bombs.

It was in recognition of the danger to critical war industry that the National Security Act of 1947 gave the National Security Resources Board the responsibility for "the strategic relocation of industries, services, government and economic activities, the continuous operation of which is essential to the Nation's security". The directive establishing the Office of Civil Defense Planning states that it "will advise the National Security Resources Board of the relation of such matters to a civil defense program and will, to the extent requested, work closely with such Board, (1) in the development of policies and the solution of problems having to do with strategic relocation, and (2) in the implementation, where appropriate and when requested by the Board, of any such policies which may be directly related to a civil defense program."

Civil defense should be concerned with the dispersal of population coincident with the relocation of industries. City planning can be a powerful influence toward reducing the war hazards to civilians in newly established communities. Indeed, if the lessons in city planning alone that were learned during the war could be applied throughout the United States during the next several years, the over-all civil defense problem would be greatly simplified.

Planning. Considerable damage and loss of life in the devastated cities of Europe during World War II was attributable to deficiencies in planning and lay-out. It is important from the standpoint of civil defense that city planners of the United States take advantage of European experience in the correction of similar defects in American cities. Among the more objectionable features from the standpoint of civil defense are:

a. Insufficient space between buildings because of narrow streets or small size of building lots.

b. Lack of open spaces such as wide streets, parks, playgrounds and other recreation areas that would serve as fire-breaks.

c. Industrial plants, some of hazardous occupancy, too close to population centers and to other essential industries.

d. Excessively large and high buildings closely spaced, creating dangerous concentrations of people.

It is suggested that pertinent planning criteria be revised and appropriate legislation be enacted, if necessary, so that growth and replacement in existing cities and the development of new communities may be accomplished along lines that would minimize loss of life and property damage which would be caused by enemy action.

Zoning. The zoning standards in force in this country, when judged by peacetime standards, were considered reasonably satisfactory. However, the heavy bombing of European and oth[illegible]ities

during the war spotlighted serious defects in those cities which were similar to faults existing in cities of the United States.

Some of these are:

a. City blocks filled in solid with combustible structures.

b. Large, and often-times hazardous industrial activities in the midst of residential areas. (Under such circumstances when a critical industrial process is bombed the residential areas suffer almost as much as the main target.)

c. Vast multi-story apartment house developments which concentrate thousands of persons in relatively small areas.

Building Codes. City growth in the United States has taken place under building codes which have not been modified to take account of the lessons of the war-damaged cities of Europe. Now, however, civil defense considerations make it important that such demonstrated shortcomings as those listed below be rectified in the revision of building codes:

a. Excessive use of combustible material in the construction of buildings.

b. Insufficient space between buildings of combustible or semi-fire-resistant construction.

c. Lack of fire-walls, use of improperly designed or installed fire-safe doors.

d. Excessive use of wall-bearing construction.

Corrective Measures. A review of defects in city planning as revealed by surveys of extensive war damage shows that from the civil defense standpoint the greatest fault is that of congestion. One remedy for this lies in the adoption of measures which, when applied to existing cities, will permit of a steady improvement coincident with growth and replacement, and when applied to the planning of new community development will ensure that the population receives the maximum practicable protection initially.

Among the measures which would contribute greatly to the safety of the public in wartime are the following:

a. Limiting the population of a given area.

b. Separation of communities by a distance of at least several miles.

c. Better fire protection through a belt system of parks, several hundred feet wide arranged grid-wise; wider street rights-of-way; and larger building lots; limiting the height and bulk of office and residence buildings, and requiring greater use of fire-resisting materials in building construction, with fire walls and sprinklers where applicable.

d. Zoning of industry, either of a hazardous nature in peacetime or of a type likely to become vital in wartime, to locations separate from residential construction.

The Civil Defense organization should make available to city planning agencies all information on the civil defense aspects of city planning.

RESCUE SERVICES IN THE CIVIL DEFENSE PROGRAM

Bombing attacks on cities in the future may be expected to wreak even greater havoc on structures of all kinds than was experienced in World War II with the result that the problems of rescuing people entrapped in wreckage would be greatly increased. Traditionally, the fire fighting forces rescue persons found in burning buildings. This practice is sound and should be continued. However, many occupied buildings may be damaged or demolished without being set afire. Diversion of firemen from their main job of fire fighting to that of rescue and its related activities would seriously curtail the effectiveness of the fire force. In addition, heavy rescue work requires the use of certain equipment and techniques which are not normally employed by the fire forces.

The great amount of rescue work required as a result of the mass bombings of cities abroad demonstrated that a separate section in the local civil defense organization whose primary function would be the rescue of living persons and the recovery of bodies from the wreckage could best handle the problem. Since it is likely the problem will be fully as great and probably even greater in the event of a future war it is considered that this organization arrangement should be followed and accordingly it is proposed that rescue operations be carried out under a separate division of the local civil defense organization.

ORGANIZATION

The techniques of the rescue service should be developed in the Engineering Division of the Office of Civil Defense. The engineering services of the Regional and State organizations should be utilized in coordinating in their areas the activities necessary for the development of the Rescue Services.

Rescue operations should be the responsibility of a division of the local organization. However, in some instances, depending upon the size of the community and other conditions, the operations could be carried on by a branch of the Engineering and Public Works Division.

Rescue Squads should consist of approximately twelve men each including a leader, an assistant and ten others, composed mostly of

men who are specialists. In addition to a competent driver for operation and maintenance of the squad truck, these should include two men with experience in trenching, tunneling and shoring; one man with mining, rock tunneling or quarrying experience, and, if possible, with rescue experience; one operator for construction equipment; one carpenter or timberman; one man with oxyacetylene cutting experience; one wrecker; one man with the ability to operate and maintain the many items of electrical and mechanical equipment required, and two laborers.

For purposes of effective operation and training, and making allowance for dispersal of rescue facilities, Rescue Stations should be established throughout the community. There should be at least one Rescue Station for every 50,000 population. Each station would accommodate three squads designated as a Platoon and headed by a Platoon Chief. Each Rescue Station should be in the most favorable location in the area which it is to serve and should be capable of housing adequately its complement of men and equipment. The Platoon Chief would be responsible for the management of the rescue station. In large cities, Platoon Chiefs would report to a District Chief whose area should include about ten Rescue Stations. In small cities the Platoon Chief would report directly to the Chief of the Rescue Services Division.

In some localities there may be a shortage of qualified personnel for the Rescue Service. In this case or any other case where a locality finds itself with insufficient rescue facilities during an emergency it would request outside aid.

FUNCTIONS AND OPERATIONS

The work to be done in both light and heavy rescue operations requires special training and equipment. The principal duties to be performed by rescue crews would be to:

a. Release living persons trapped beneath debris or in damaged buildings which are not on fire.

b. Assist the fire services in their rescue operations when so directed.

c. Render emergency first aid to injured persons and to transport them to a casualty station, ambulance or safe place nearby.

d. Recover the bodies of persons killed in collapsed or damaged buildings.

e. Take any immediate steps necessary for the demolition or temporary support of damaged structures the collapse of which would endanger life, or would hinder the work of rescue crews or other services.

Close cooperation between the Rescue Service and the Medical and Health Service would be necessary because medical attention must be made quickly available to the injured. In fact, medical needs may at times dictate the particular rescue techniques to be employed.

Rescue techniques should be those that have been proved most effective by the British and German war rescue services, the United States Bureau of Mines, the mining industry and agencies engaged in relief of victims of natural disasters, but modified to provide the necessary safeguards against such special hazards as war gas and radiological contamination.

Each leader of a Rescue Squad, in addition to his technical duties, should be responsible for the valuable property that is found during his squad's operations. He will turn over all such valuables, together with details of where they were found, to the police. He should also see to it that each person or body recovered and turned over to the Medical and Health Service or the Mortuary Service is accompanied by a card or tag stating at what address the rescue or recovery was made and the name of the victim if it is known.

Rescue work at best is physically exhausting and hazardous. It must, at times, be accomplished in the presence of live wires and sewer and illuminating gases. In the event of radiological or war gas contamination, rescue personnel will require protective clothing, masks and possibly special equipment to permit them to carry on their work. The discomfort of wearing protective clothing reduces the endurance of the members of the rescue squad. Moreover, if radiological contamination is present, prevention of over-exposure of the men to ionizing radiations will limit the time squads may safely operate. These difficulties and hazards may necessitate more frequent replacement of squads than would be required if such contamination were not present. Either the Radiological Defense Technical Service Unit or Gas Detection Unit, or both, should be present to advise as to how long men may work safely in the contaminated area.

Demolition, Shoring and Debris Removal. Rescue squads would not be expected to undertake extensive demolition, shoring or debris removal during rescue operations. After the rescue phase of an incident has ended these operations would generally be accomplished by local departments of government or private construction or demolition companies. However, rescue squads must be both qualified and equipped to trench or tunnel through debris and walls, to take down or shore dangerous walls and clear away debris in their search for, and removal, of victims. The techniques employed would be based on those developed by commercial demolition and wrecking organizations.

Equipment. The multiplicity of operations that rescue squads may have to perform and the variety of hazardous conditions that may be present make it necessary to have a large assortment of tools, heavy equipment and instruments at their disposal. The[illegible] includ[illegible]

axes, hammers, bars, rigging, wheel barrows, oxyacetylene cutting equipment, compressors and air-driven tools, jacks, trucks and motor cranes, telephone sets, gas and dust masks and protective clothing, gas detectors, safety lamps and many other items. In general, heavy construction type equipment and large vehicles and operators would be obtained from public works and private construction organizations. Both the Rescue Service and the Engineering and Public Works Divisions will have need for these and close coordination, therefore, should take place between them in order that such facilities may be allocated to the best advantage.

TRAINING

All rescue workers should have training in first aid in addition to instruction in their various specialized fields and rescue techniques. All squads should have, to the greatest practicable extent, equal ability to cope with all of the conditions likely to be encountered so that replacements or changes of shifts will not hamper the progress of saving lives. Training manuals and instructions would be prepared by the Engineering Division of the Office of Civil Defense in collaboration with the Training Division of that office. In addition, the Office of Civil Defense should cooperate with the Research and Development Board and other agencies concerned in the development of improved methods and equipment.

The mining and quarrying industries, commercial wrecking and demolition agencies and the construction industry should be available sources, both for the personnel to man the squads and for qualified individuals to provide necessary instruction in the many techniques employed in rescue operations.

TRANSPORTATION IN THE CIVIL DEFENSE PROGRAM

The fact that the United States has the finest transportation system in the world is incontrovertible. The country's dependence upon transportation has so advanced its techniques and facilities that there are sufficient highways, railways, airways and waterways together with equipment therefor to move the entire population of the country at one time.

This preeminence has, however, placed a dependence upon our transportation system which has its disadvantages as well as its advantages. Even the housewife seldom walks from home to market. Deprive the people of the United States of this mechanical transportation and you bewilder them, upset their time and distance relationships, and place an unusual physical requirement upon them. Add to this the panic producing fear of an enemy attack and it can immediately be seen that without mobilization of transportation resources, organization and training and education of the public, little could be accomplished in any civil defense program. The necessity for adequate, efficient transportation in connection with all aspects of the civil defense program is self-evident.

To this end, therefore, the plan contained in the following pages is suggested. The purpose of this plan is to prepare a framework for guidance for a Civil Defense organization so that the transportation services of such an organization may be completely mobilized, efficiently organized and economically operated. It contemplates the establishment of a readily expandable organization, a survey of available facilities, a study of requirements and the formulation of detailed plans for the accomplishment of the transportation mission.

Due consideration has been given to the fact that major reliance has had to be placed upon privately owned vehicles as contrasted to publicly owned. Thus, of necessity, dependence has been placed upon the voluntary cooperation of the private citizen and of a commercial industry regulated by the State and Federal Governments, depending for its existence on a "for hire" business.

Cognizance is also taken of the possibility of the establishment of a wartime transportation authority which would have the responsibility for and authority over all domestic transportation. This

plan can be adapted to and operated under any such authority as may forseeably be set up.

ORGANIZATION FOR CIVIL DEFENSE TRANSPORTATION

In an organization for civil defense due care must be given to the varying types of organizations through which the effectiveness of the civil defense must make itself felt. All facotrs, policitial, geographical, and personal must be given their due weight, for unless the transportation organization is a practical one, it will not be allowed to accomplish its mission.

Therefore, in charting the organization, although authority is direct and through the directors of the various offices, nevertheless the functions have been so drawn as to allow considerable local variation. Furthermore, although authority must be exercised and honored along these lines, communication on technical matters should be direct between the transportation offices in the chain of command to maintain the flexibility necessary in any such large organization.

The Civil Defense organizations should make full use of existing permanent agencies, transferring funds where necessary. This will not only reduce cost of operation, but will place experienced personnel at the disposal of Civil Defense and will allow the permanent personnel thereof to concentrate more of their time and efforts on technical civil defense matters.

The organization pattern as shown must not be considered to be hard and fast. Complete flexibility must be permitted. Until individual localities can determine their requirements and surpluses the higher echelons cannot plan for assistance for them or from them. As the work load increases additions to the organization may have to be made. The work load may become so heavy that dependence must be placed more upon paid than on volunteer employees. Such problems must be left to the Civil Defense Directors of the various echelons and their guide must be the requirements of their office and efficient economy.

National Organization (Chart 12). Coincidental with the setting up of the Office of Civil Defense, there should be established in it a small Transportation Division. Its principal functions would consist of carrying out the policies set forth by the Director and advising him on all transportation matters. It would direct, coordinate and supervise the transportation responsibilities of the entire Civil Defense organization. The Chief of the Division would be responsible to the Director that all transportation requirements of the organization are met, including mobilization, organization and training, and he would be the liaison officer for the Director in all civil defense transportation matters, governmental or otherwise.

The Transportation Division should be as small as possible, and, until additions are justified, should consist of a Division Chief and principal assistants with the necessary administrative and clerical support. This permanent organization should, however, be advised and assisted by a group of technical specialists representing the various modes of transportation, rail, water, highway and air. This group could be either a Technical Branch within the Division or an advisory or consultant group to the Division Chief.

The key people in the Transportation Division must be carefully chosen. While it would be ideal to have individuals who had had experience in all forms of transportation or at least more than one form of transportation such a requirement would be most difficult to meet. Among all the key personnel, broad experience in all forms of transport should be found so that a balanced team will result. The remainder of the personnel in the national organization should have the technical and administrative qualifications to fit them for the various duties assigned.

Regional Organization. The regional offices should be organized along the same lines as those of the National Office. The Chief of the Transportation Division of the Regional Office when established will advise the Regional Coordinator on all transportation matters and will act as Civil Defense Transportation Advisor to the staff of the local Army Commander. He will coordinate all Civil Defense transportation activities in his area and assist in all such activities involving inter-state relationships or action. His most important responsibility, however, will be his liaison and coordinating work with the local Army Headquarters, assuring that at all times civil defense plans are completely coordinated with Army plans. It would be most disastrous and confusing during an emergency to find both the Army and the Civil Defense organization depending upon the same routes of communication, the same supply lines or the same transportation facilities. This tactical coordination must be carried out in the field and with Army Headquarters.

State Organization (Chart 3). The size of the State Organization will depend upon three main factors: size, location with respect to probability of attack, and the degree of participation in the civil defense program undertaken. Whatever its size is should be organized along lines similar to the National and Regional organizations so as to obtain the utmost in uniformity. Broad experience in transportation is the most important requirement for the Chief of the Transportation Division and he may be drawn from Government, the transportation industry itself or he might be the traffic manager of one of the large industries domiciled in the state. In staffing his organization he should take advantage of personnel connected with the trans-

portation industry who have experience in moving large groups of people.

It is in the State organization where the surpluses and deficiencies of transportation facilities and equipment of the various localities must be reconciled and plans for necessary mutual aid between localities formulated. It will be the Transportation Officer, State organization, who will be responsible for the coordination and cooperation in the other than municipal road repair work. Actual responsibility for this work does not lie with the Transportation Division but the closest of working arrangements must be maintained with all concerned. Where interstate movements are concerned the Transportation Officer in the State organization should be responsible for necessary working arrangements with the states concerned, referring any questions which involve national policy to the Regional Co-ordinator with appropriate recommendations.

Local Organization (Chart 4). It is in the local organization that the operational procedures and actions are actually worked out and put to test. This is the training ground, this is where transportation facilities are actually mobilized and organized. This is where the policies and arrangements of the National and State Offices are carried out. The Transportation Officer of the local organization should have the widest possible degree of latitude, discretion, authority and responsibility delegated to him, for while in general he may conform to set policies, the details by which he carries them out may vary widely. He would be responsible that the transportation services available to him are used as efficiently as possible to carry out the requirements placed upon him.

Therefore, extreme care must be exercised in choosing the personnel to staff the Transportation Office of the local organization. The Chief of the local Transportation Division should be a man of technical and administrative experience. He must be familiar with the transportation routes and companies operating into, through and around his locality, and of sufficient ability and prestige to command the respect of the local heads of these companies. In staffing the transportation organization, experienced personnel from all forms of transportation should be sought so that all the verious techniques will be represented. Bus companies, railroads, air lines, street car companies and passenger carrying boat and steamship companies all have personnel skilled in handling large groups of people and full use should be made of them.

The Chief, Transportation Division, local organization, should be a member of the Evacuation Board and would insure that transportation requirements are considered and given weight in all evacuation problems. He would be responsible that a transportation training program is instituted in conformity with civil defense policy and follow through to assure its adequacy and sufficiency particularly as regards operators and dispatchers. In addition, he should set up a Dispatcher Service for the purpose of controlling movement of vehicles and insuring orderly regulation of transportation, and would be responsible for assuring adequate basic and substitute communications throughout his organization with priorities therefor. This should include courier service where necessary. Care should be taken to avoid placing too many vehicles under the control of one dispatcher, and guidance from persons familiar with such operations should be sought.

The Chief of Transportation of the local organization would be further responsible for the compilation of overages and shortages of vehicles as ascertained by vehicle and personnel inventories, reporting through the local Director to the State organization with the proper recommendations. He would also be responsible that timely advice of requirements for additional transportation is made, and that all other transportation requirements of the local Civil Defense organization are met, including traffic management responsibilities, movement of supplies and any other which might be placed upon him by the local Director.

FUNCTIONS AND OPERATIONS OF CIVIL DEFENSE TRANSPORTATION

Federal Operations in Peacetime. Every advantage must be taken during periods of peace to prepare the Civil Defense organization for its ultimate task. The National Office should utilize such time for planning and training purposes, perfeceting the organization and preparing for its mission.

Its work during this period should include the formulation in conjunction with the Training Division of handbooks, training pamphlets and manuals concerned with the various phases of the transportation problem and should insure that the instituted training program is carried out. It should formulate its supply requirements and procedures, develop transportation procedures and techniques and adapt them to civil defense needs, set up criteria for Civil Defenses personnel in transportation to be used as a guide for all echelons of the organization, and attempt to bring to the organization as great a measure of uniformity as possible. It should clearly state the legal restrictions hindering the transportation organization in accomplishing its mission and attempt to have them removed or modified. It should assist in every way possible the State and local organizations in solving their transportation problems.

Federal Operations in Wartime. If the peacetime organization has fulfilled its mission the wartime operations of the Transportation Division will differ only in size and urgency. Whatever [illegible]nsio[illegible]

is necessary should be immediately accomplished and greatest care must be taken that coordination of plans with the military is complete and maintained on a daily basis. It should keep abreast of all emergency legislation affecting transportation, taking advantage thereof wherever possible, and should coordinate with any war transport agency which might be set up. It should keep abreast of all advancements in transportation techniques, passing them on to the Regional, State and local organizations. It should be prepared at all times to immediately bring the Federal research agencies to bear upon civil defense transportation problems. It should constantly keep under review all strategical and tactical concepts and maintain an organization sufficiently flexible to meet all changing conditions. Most important, the Transportation Division of the Office of Civil Defense must be prepared to assist State and local organizations in their problems.

Regional Organization in Peacetoime. The Regional Office actually is an extension of the National Office created to expedite the handling of a huge volume of work. It does, however, have an important duty in addition to the routine administrative work, and that is the tactical liaison with the Army area which is coterminous with the Region. This is a planning task but an important one. It should be maintained in a current status and the results thereof should be promulgated to States and localities and should be coordinated with the National Office.

Regional Operations in Wartime. Too much importance cannot be placed upon the need for liaison work with the military in time of war and it undoubtedly is the most important work of the Transportation Division in the Regional Office. Care must be exercised to see that all echelons of the Civil Defense organization and of the Army are aware of the details and results of this close working relationship. It must be repeated that disaster can result if such coordination breaks down.

State Operations in Peacetime. At the outset the Transportation Division of the State organization should be skeletonized. It cannot function fully until the local organizations have been set up, inventories taken, overages and shortages in vehicles ascertained and requirements set up. Progress of the localities in their work should determine the rate of expansion of the State Transportation Office but in the beginning the States' task would be an administrative one. As the program progresses, however, more and more coordination of local efforts will be necessary and more and more guidance and assistance needed. Complete understanding and coordination of the transportation needs of the Mobile Reserves must be had. Working arrangements with the Highway Department must be set up and emergency road repair work planned. Plans must be agreed upon with the Police Services Division for use and control of highways, (coordinated with the military) and should anticipate evacuation of two or more localities in the same general area. Close working arrangements with the localities and thorough knowledge of their plans is necessary. Inspection of and assistance in local training programs must be a routine matter and it is the State organization's responsibility that such programs fit the areas in which they are used. Arrangements for use of roads interstate should also be worked out along similar lines with proper officials. Extreme confusion can easily result from inadequate planning and coordination in this field and arrangements should be carefully worked out, completely coordinated and known in detail to all concerned.

State Operations in Wartime. At the outbreak of an emergency intensification of efforts should be made to complete any unfinished plans. It may be necessary because of the military situation to change and revise plans already made. This should be accomplished and promulgated with all possible dispatch and care should be exercised to assure that all plans are maintained in a current status. Every aid and assistance should be held out to the local organizations, and the State should assure the carrying out of all policies and procedures of the National Office. It also should be responsible that any hampering legislation be suspended or modified.

Local Operations in Peacetime. It is basic that the Civil Defense organization, in all its echelons, exists for the operation of the local organization. The degree of efficiency with which a local organization handles an incident determines the success of the entire Civil Defense organization. All echelons must be disposed to assist the local organization and all action must be aimed at complementing its operation. Hence requirements must stem from the municipality and the operation must start with the smallest unit at that level, namely, the block.

The locality should at once commence its preparations and it is strongly recommended that there be no delay in developing records of personnel and equipment, mobilizing of transportation facilities, organizing the populace and equipment, and developing detailed plans and training schedules. The quicker this is accomplished, the sooner information can be made available to higher echelons for supplementing facilities and equipment where necessary.

The Warden Service should as soon as appropriate undertake a block by block inventory of vehicles and persons. In this connection "vehicle" should be considered to be any piece of transportation equipment, freight or passenger, capable of moving persons or things and should include all modes of transportation, air, water, highway, or rail. The counting and tabulating of all vehicles domiciled within a block should be accomplished to show the type of vehicle, the number

of persons each can carry sitting, standing and prone and for freight vehicles the tonnage rating and cubic capacity. The tabulation should also show the location of the vehicle during various hours of the day, the name, telephone number, and address of the owner, the name, address, and telephone number of the operator. In the case of operators of fleets of vehicles and the long haul mass transportation companies it should be necessary for the Block Warden to note only the existence of the company in his block and it should be the responsibility of the owner or manager to furnish the necessary information to the Chief of Transportation of the local Civil Defense organization.

The Transportation Division will secure from the Evacuation Division information as to the sex, age and infirmities of all persons, and the hours during which they are normally located in the block and the address. This should be on a block by block and a district by district basis. The District Dispatcher would consolidate the necessary information from the inventories of the blocks within his jurisdiction and forward them to the Central Dispatcher's Office. From these consolidated reports it can be ascertained where extra equipment will be needed in event of an incident and from where it can be secured.

The District Dispatcher should have cognizance of and jurisdiction over all vehicles (including all ambulances) except those indigenous to other services such as police and fire excepting vehicles belonging to fleet operators. He should see that requests for transportation originating from authorized persons within his district are honored and the necessary equipment furnished. He should be responsible that call is made upon the Central Dispatcher when the equipment available to him cannot meet the demands placed upon him. He would be responsible only to the Central Dispatcher and all instructions to him should be transmitted through the Central Dispatcher.

The Central Dispatcher, on the staff of the Transportation Officer, would have cognizance of and jurisdiction over all vehicles in the municipality except vehicles indigenous to other services such as police and fire. Except for vehicles belonging to fleet operators he would exercise his authority through District Dispatchers and in the case of fleet operations would exercise his jurisdiction direct. He alone should be authorized to order vehicles from one district to another and it would be upon his timely recommendation that outside assistance is requested.

The Transportation Chief of the local organization should analyze the transportation capacities of the various forms of long haul mass transportation and fleet operations available to him and their ability to remove people out of his jurisdiction, and to move supplies.

The Transportation Officer should be a member of the Evacuation Board which among other things determines the locations and numbers of Assembly Areas and of Gathering Points.

A "Gathering Point" is a location within an area for the gathering of persons in that area to be evacuated preparatory to their movement to Assembly Areas. Aged, infirm, sick and infants would have to be transported.

An "Assembly Area" is a location on the perimeter of a municipality for assemblage of people preparatory to their evacuation from the city by mass transportation (trains, airplanes, bus or truck convoys, marine equipment). Movement to Assembly Areas should generally be from Gathering Points and by mechanical means. Depending upon the local situation Gathering Points may be eliminated and individuals or groups go direct to Assembly Areas. This determination should be a local one and decided by the Evacuation Board.

Transportation plans cannot be laid too carefully and they cannot be too widely disseminated for the success of civil defense. Every contingency must be anticipated and planned for. Too much emphasis cannot be placed upon the wisdom of securing the best talent available for the solutions of the many problems.

It is the responsibility of the Transportation Division that all emergency transportation plans be developed in detail in conjunction with bus companies, railroads, air lines, and marine operators. Alternate plans should be devised in event one plan becomes inoperable. In conjunction with the Evacuation Division plans and schedules should be worked out according to capabilities and capacities.

Where necessary, arrangements should be worked out between commercial transportation groups, rail, highway, water, and air, so that in the case of an emergency there will be no doubt in the minds of the personnel of the commercial transportation groups in making their equipment and facilities available to and at the direction of the Chief of Transportation Division of the local organization.

Supply of fuel of all kinds must be given serious consideration. While it is not advisable to set up reserve stocks of fuel or other supplies, plans should be developed so that they can be moved in from surrounding areas to depots or dumps which should be set up just outside the critical area where such supplies can be made immediately available. In cases of power failure the usual electrically operated fuel pump will be useless and adequate precaution should be taken to see that sufficient hand pumps are available not only for local gasoline stations but also for use in connection with tank cars and storage tanks.

Routes should be carefully studied and laid out and in conjunction with proper authorities every preparation possible made for their

emergency repair. Traffic control and use of routes should be coordinated with local and state police and with the military, and care exercised to insure that individual routes are not overloaded. It can be expected that many motor vehicles will immediately start for "open country" in the event of an attack or even in anticipation of an attack. Traffic congestion due to too many vehicles, stranded vehicles and damaged vehicles is certain to result if preparation is not make for this eventuality. At all costs streets and highways must be kept clear and consideration should be given to making certain arteries "one-way". Also use of maximum capacity vehicles where possible should be sought so as to reduce the possibility of congestion.

Procurement of transportation services does not present a great problem. In so far as possible such procurement should be on a basis of utilizing commercial facilities, due consideration being given to the coordination of all requirements of a particular echelon so that uneconomical competition for these services is eliminated. Such services include, besides actual transportation service, wrecking and towing service, repair service, conversion work such as required to accommodate litters in conventional type vehicles or as required to convert conventional vehicles to special uses and the like.

During peacetime, procurement of transportation and related supplies will be accomplished in the normal commercial manner. In event of emergency when such normal channels are denied, necessary compensation for acquisition of supplies or services will need to be made in accordance with policies set forth by the National Office.

The Chief of Transportation of the local organization should carefully scrutinize his system of communications for the success of any transportation plan is dependent upon it. Provision for alternate systems which are self-sufficient and not dependent upon public power sources should be made. This should include radio, messenger, and courier service. Alternate maintenance and fueling facilities should be planned and maintained for all types of transportation with particular emphasis on gasoline and oil storages.

Local Operations in Wartime. In event of a pre-arranged evacuation without enemy interference, schedules can be set up, order of movement arranged and the transportation accomplished in a more or less normal way, utilizing available commercial equipment over a period of time.

In event of an evacuation coincident with and following an enemy attack the entire Civil Defense organization must at once swing into action. All who are able would walk to Gathering Points and those who cannot would be furnished transportation upon call by the Block Warden to the District Dispatcher. As soon as possible the District Dispatcher would begin moving transportation toward the Gathering Points, moving loads from there to the designated Municipal Assembly Areas.

Priorities must be established for the transportation group for communications in order to control and operate central dispatch and district dispatch stations, for coordination with other technical services, and regulate the flow of evacuees to designated reception areas so that they can mobilize transportation as required by the number of persons to be received at the reception area.

At the Assembly Areas after screening and care, trains, bus convoys, truck convoys, airplanes and marine equipment would carry the designated persons to their destinations. This may be a matter of days.

District Dispatchers should have jurisdiction generally only over vehicles in their own district and would furnish vehicles to other districts only upon orders from the Central Dispatcher. A static pool of vehicles is to be avoided but a dispatcher must have phone number and address of the driver and alternate driver of each vehicle and be prepared to utilize couriers when other means of communication fail.

If the disaster is of such magnitude that the local organization cannot muster sufficient operative vehicles to carry out its task, then aid should be sought from the State Director of Civil Defense who should direct sufficient vehicles from the reserves available to him into the area needing assistance.

Similarly as soon as the size of the mass movements out of Assembly Areas can be ascertained, the Chief of Transportation of the local Civil Defense organization would, in conjunction with his technical advisors, match facilities with requirements. If facilities available are insufficient, call should be made upon the transportation companies to order in the amount of equipment necessary to make up the deficit by whatever means the movements are to be made.

Confusion may be avoided in the evacuation of people if they are drawn simultaneously in small and equal groups from various sections of the community, rather than try to evacuate total parts of the community at one time, or it may be more practical to evacuate an entire section at one time.

After enemy action, surveys would be conducted by transportation teams assigned to air, water, rail and highway to develop the extent of damage affecting future operation of each division in respect to its future requirements to serve the community.

EMERGENCY AMBULANCE SERVICE

An important problem which should be given particular emphasis is the one involving adequate ambulance capacity. The conventional ambulance is entirely inadequate for the size of the task which would result from a wide scale emergency. It is inadequate because its

capacity is usually designed for one litter patient and because the number of such ambulances available in any city is relatively small. Hence this type of transportation must be considerably augmented.

The conventional ambulances (including those municipally and privately owned) constitute a nucleus around which should be formed a group of improvised ambulances sufficient in number for the estimated requirements. Such "ambulances" could be improvised from either passenger or freight vehicles but cognizance should be taken of the greater capacities possible in such types of motor freight vehicles as the van and the semi-trailer, especially since they can be adapted for multi-tiering if this becomes necessary.

These improvised ambulances can be utilized by forming them into groups earmarked for assignment to various areas within the locality or they can be utilized individually, as needed, upon call through the dispatcher system. Care must be taken, however, that the conversion, when required, of these vehicles or their organization into groups is not so inflexible as to render them unless for anything but ambulance service. The size, extent and nature of the emergency should govern the use to which these vehicles are put and the Transportation Officer of the local Civil Defense organization should be held responsible for their economical use based upon overall transportation requirements and the requirements of the Medical and Health Services Division.

There are in existence today many splendid volunteer ambulance groups that could be utilized in an emergency ambulance service.

PUBLIC INFORMATION

It is essential to the successful operation of any plan for transportation and evacuation that it be as widely disseminated and as clearly understood as possible. To the extent that everyone knows that plans are adequate for him, there will result a corresponding reduction in fear and panic. To this end therefore should be directed not only the public information policies but the training policies as well.

Hand in hand with the technical training program should run a program for the education of the public generally. It cannot be too strongly emphasized that effectual and rapid movement of large groups is dependent upon orderliness and control. Fear and panic render large groups almost unmanageable and could easily destroy the effectiveness of the best laid transportation plan.

Information should therefore be disseminated to the public impressing upon every person the importance of learning and strictly following the evacuation procedures. It should be pointed out that everyone cannot be moved first, that plans are adequate for the emergency and if followed will be the safest and surest course for everyone to follow. Every means possible should be utilized to get this point understood and it should be repeated over and over again.

TRAINING

As soon as the organization has been completed or where possible coincidental with it, training should commence. Personnel experienced in transportation operation and techniques should be instructed in the civil defense program and plans, and should in turn be used as instructors. Immediately classes should be set up to instruct the workers in the transportation organization. It would be well to note here that not only must there be principals for every job but several alternates as well, and individuals should be prepared for more than one job, for the determination of who will or will not be a casualty is unpredictable.

Training should include operation of vehicles, handling and dispatch of vehicles. miscellaneous repair of vehicles, convoy training, map reading, local geography, proper manner of loading freight and passenger vehicles of all kinds, air, highway, rail, and water. Routes of movement should be worked out with the proper traffic regulations and information and should be carefully studied by all concerned. Where water transportation is available the facilities of the Coast Guard or the Captain of the Port should be called upon for training in the peculiarities of the use of water borne transport. In all of the training there should constantly be an emphasis placed upon organization and orderliness. Assistance and coordination should be obtained from the Training Division but actual training should be directed by transportation specialists under the Chief of the Transportation Division.

The National Office should be responsible for the overall training policies and precepts. The Transportation and Training Divisions of the National Office should work together so that the latest in technical procedures and in training techniques can be maintained and disseminated. Every effort should be made to obtain as much uniformity as possible. As much information as possible should be reduced to simple written form and distributed through the medium of pamphlets, booklets, visual aids and the like.

The State organization should where necessary adapt training policies to local conditions and follow through to see that necessary coordination between localities is being maintained.

It is in the local organization, however, where the training is actually performed and its importance cannot be overemphasized. A large number of instructors must first be provided. These must be instructed in the civil defense program, sent to available civil defense schools and should be kept constantly up-to-date by "refresher"

courses. These instructors would therefore carry the training down to the individual according to the system adopted for a particular locality. They not only would have "classes" but would also conduct exercises, demonstrations and practice operations. The lessons learned from the fire drills in schools have their value in maintaining order and reducing fear and can well be used throughout the program. Finally training must be a continuing program, not just a one time job and in this connection it will be found that ingenuities will be taxed to the utmost to maintain interest in the training but somehow it must be maintained and continued.

CIVIL AIR PATROL IN THE CIVIL DEFENSE PROGRAM

Every advantage should be taken of available air transportation in planning the civil defense program. It offers rapid movement, considerable capacity and some flexibility. Drawing experience from World War II, however, it is quite possible that much of the commercial airline equipment would be taken over by the military. Therefore reliance upon these facilities for Civil Defense must keep that possibility in mind.

During World War II the Office of Civilian Defense organized the private "owner-operated" aircraft in the country and made considerable use of them in its program. This group was formally established on December 8, 1941, by the National Director of Civilian Defense as the Civil Air Patrol. During World War II it operated on such missions as pipe line patrol, forest and flooded area patrol, courier service, border patrol, anti-submarine operations and waterways patrol. It was also made available for various emergency missions for other Federal agencies and for state and local governments.

The Civil Air Patrol was taken over by the War Department on April 29, 1943, as a part of the United States Army Air Force. After the United States Air Force came into being as a separate entity the Civil Air Patrol was transferred to it by Public Law 557 on May 26, 1948. Its headquarters is at Bolling Field, Anacostia, D. C., and its approximately 9000 aircraft are organized into 51 wings (one in each state plus one each in the District of Columbia, Alaska and Hawaii). It has its own operational communications system which operates on frequencies assigned to it by the Air Force.

Around that portion of the Civil Air Patrol which is not required for purely military missions, plans should be drawn for its utilization in the civil defense program. The airplanes which comprise the Civil Air Patrol are in most cases single engine and of small capacity, but these have the advantage of being able to fly at low altitudes and in general are not entirely dependent upon conventional airfields. They are adaptable to general reconnaissance missions, rapid movement of key personnel, patrols and general transportation work.

The Civil Air Patrol is prepared to render valuable aid to civil defense and full advantage should be taken of its capabilities. This aid includes, but is not necessarily confined to, such duties as aerial

reconnaissance for control of highway traffic, anti-sabotage work, patrol of pipeline facilities, public utilities, and natural resources, emergency flights of key personnel, material and the like, and evacuation. Necessary planes and personnel will be assigned to Mobile Reserve Battalions and assistance can be rendered to the Mutual Aid and Mobile Reserve program generally. It may be found that in devastated areas or in communications-isolated areas the operational radio communications system of the Civil Air Patrol will prove useful. All possible uses of the organization should be explored and advantage taken of it wherever it can be made available.

The Office of Civil Defense and the Air Force officials commanding the Civil Air Patrol should develop policies and detailed plans for use of planes for civil defense, maintaining liaison and establishing availability of Civil Air Patrol planes and their possible uses. The procedures should include arrangements for their use by state and local Civil Defense organizations.

The State and local organizations should make detailed plans for the use of the Civil Air Patrol wherever it is available and where it is not available should make their requirements known to higher authority so that under general policies arrangements can be made to fill them. Care should be taken, however, that requirements are completely coordinated to insure econmy of use. The Transportation officers of the various echelons of the Civil Defense organization should be charged with this responsibility and they should be the single contact in their respective organizations with the Civil Air Patrol.

MUTUAL AID AND MOBILE RESERVE IN THE CIVIL DEFENSE PROGRAM

Total war which embraces all peoples, all communities, all industries of a nation, creates protective problems which involve both military and civilian capabilities. The line of demarcation in this protective problem between military and civilian, while very finely drawn, indicates that in modern warfare the Armed Forces of the nation must be released to the maximum for their primary mission of offensive combat. As a result, protection of communities against saturation or atomic bombing or other means of destruction becomes a problem. No community in itself is self-sufficient in its protective services to be able to cope with problems brought about by catastrophic destruction which large scale enemy attacks might cause.

The creation of a Civil Defense agency should have as one of its objectives the solution of problems of mutual assistance between municipalities within the State, between municipalities in separate states, and such federal assistance to communities as may be required to help maintain the life of the nation.

A Plan of Action (Chart 13). A well organized civil defense program will have three "Lines of Civil Defense." The first line is self-help, in which the individual and family do all they can for themselves in an emergency, working with such tools and training as they have acquired. The second line of defense is mutual aid, whereby, through prior arrangement and planning, it is agreed that the resources of a community, an area or a state will be sent to the assistance of the stricken community.

To implement any mutual aid program, however, requires organized effort—the third line of Civil Defense—in the form of qualified, trained units equipped for the task. Such units may be the fully established Mobile Reserve Battalions described hereinafter, or they may be such separately organized specialized units as may be developed.

In major disaster, beyond the capabilities of a community or state, there may well be a fourth line of Civil Defense, when the military comes to the support of such community. In total these are the elements of civil defense of people and facilities; a program of Mutual Aid and Mobile Reserves deals with two major segments of that defense.

War Department Civil Defense Board Findings. Recognition of the vital part which mutual aid and mobile reserves must play in a Civil Defense program is contained in the War Department Civil Defense Board report, released February 15, 1948, which declared:

"11c. Since the protective services in any community will be limited, the establishment of mobile fire fighting, rescue, medical and other protective service units as State and Federal Reserves is essential."

"14e. Federal Level:

"(2) (e) Mobile Reserves.

"Organization for Civil Defense requires adequate mobile reserves including: fire-fighting, rescue, police, medical and emergency feeding.

"Normally, municipalities have protective services available only in sufficient quantities for normal peacetime operations. Provision should be made in advance to augment these services in time of war.

"The need for intrastate reserves must be determined and plans developed for their utilization. Necessary legislation should be prepared in advance to give state civil defense officials the authority to move a percentage of municipal units for mutual assistance. Provision should also be made for State Reserve Units to meet additional requirements.

"These would normally be the first reserves employed.

"Provision for directed movement of interstate reserves from one state to another either in furtherance of Mutual Aid Arrangement or by Federal Order, should be planned for and necessary legislative authority granted. Federal Mobile Reserves, either in military or civilian status are essential to support the states in extreme emergency, and to provide maximum flexibility in prompt use of all reserves."

ORGANIZATION FOR MUTUAL AID AND MOBILE RESERVES

Federal Organization (Chart 14). A Mutual Aid and Mobile Reserve Division headed by a chief with a small highly trained staff should be established in the Office of Civil Defense. It would be responsible for developing and administering policies affecting Mobile Reserves in their various forms and for encouraging and assisting in the formation of Mutual Aid pacts; for maintaining close relations with the Armed Forces and with the military departments of the states in connection with Mobile Reserve matters; for aiding in the organization and training of Mobile Reserve units; for planning and supervising supply and equipment phases of the program; for preparation of the necessary material for pamphlets and specialized instructions in the conduct of Mobile Reserves.

The Regional Coordinator of Civil Defense and his staff when established should be responsible for the coordination of all matters pertaining to Mutual Aid and Mobile Reserves within his region. He would aid in effecting and executing Mutual Aid Arrangements and Mobile Support between metropolitan areas which cross state boundary lines. He would coordinate the employment of State Civil Defense Mobile Reserve Units within his area in conjunction with Mutual Aid assistance in time of national disaster on a basis of prior mutual understanding between States. Administrative responsibility for such units would remain with the State Directors concerned.

State Organization (Chart 3). A small highly trained staff should be organized as a Mutual Aid and Mobile Reserve Division of the State Civil Defense organization. Under this division it is suggested that the nucleus for headquarters and headquarters Company Mobile Reserve Force, specifically charged with the operation of Mobile Reserves of the State, be organized. This division should be responsible for promoting Mutual Aid Arrangements. Operation of such arrangements or agreements would be the responsibility of the local Civil Defense organization. The State Director of Civil Defense and his staff should be under the coordinating control of the Regional Coordinator for the operation of Mobile Reserves between states in wartime. When directed by the Governor, he would mobilize and order Mobile Reserves for interstate assistance when the Regional Coordinator called for such assistance in an emergency in accordance with prior mutual arrangement. He would coordinate Mutual Aid arrangements between municipalities within the state. The State Director would be responsible for the employment of Civil Defense Mobile Reserve Units operating within his state.

Local Organization (Chart 4). It should be recognized that the bulk of the organization and training requirements of Mobile Reserves will be accomplished in the local Civil Defense organization. It will, therefore, be necessary that the Mutual Aid and Mobile Reserve Division of the local organization be staffed by men capable of organizing, activating, and training the personnel of all Mobile Reserves. This division should have the responsibility of promulgating all Mutual Aid agreements within its operational area.

SUPPORTING FORCES IN CIVIL DEFENSE

The success of protective capabilities of a civil defense program in great measure will depend on mutual assistance organized in depth—a "four line civil defense" structure (CHART 13). The base of this structure is the principle of self-help. When the principle of local self-help develops into a pooling of the resources of an area and agreements are reached for organized assistance between areas, it then becomes Mutual Aid in Civil Defense. To carry out Mutual Aid efficiently and with maximum economical use of manpower, Civil Defense organizations would provide the necessary patterns whereby local and state governments, public or private agencies and organized facilities can agree and cooperate to their mutual advantage.

a. "*Mutual Aid*"—Applies to all preparations and activities whereby groups of all kinds, including individuals, families, communities, installations, facilities, municipalities, metropolitan areas, districts, states or regions, voluntarily assist each other by preconceived or spontaneous arrangements.

b. "*Mobile Support*"—Is the use of the Protective Services, or parts or combinations thereof, which, upon command of higher authority are dispatched to neighboring or distant areas for operations. In short, "Mobile Support" is authoritatively directed Mutual Aid.

c. "*Mobile Reserve Units*"—Officially established, equipped units, under the command of a capable and responsible officer, which can be dispatched to neighboring or distant areas for civil defense operations upon the command of higher authority. This second element of the "third line of civil defense" is composed of highly trained, specialized fully equipped Class "A" Mobile Units, (federally recognized) which not only support state and local civil defense operations, but give the federal government an effective means of assisting the several states and territories wherever needed in time of war disaster.

d. "*Military Aid*"—A secondary mission of the Armed Forces is the support of the civil defense effort. Such support may range from assistance to local communities, to full command and support under martial rule.

MUTUAL AID

Mutual Aid is not a new concept. All through the pages of history can be found examples where localities and communities went to each other's assistance in time of stress. Mutual Aid agreements exist today between many American localities for a variety of purposes. To meet the needs of war, however, it is essential that these agreements be classified and extended so that there will be full understanding of duties and responsibilities of all concerned.

The purpose of this part of the plan is to furnish a pattern for the coordinated exchange of civil defense forces or equipped units of all civil defense services to quickly and effectively meet emergencies beyond the capabilities of static forces of the community.

Advance planning should be so thorough and complete and well practised that responses to calls (assemblies and dispatch) are accomplished with almost "push button" precision and speed.

Most communities are capable of rendering appreciable assistance to others without unreasonably depleting their own civil defense and other protective services.

The pattern for this plan should include:

a. A full understanding by all concerned of mutual aid in civil defense.

b. The necessary authority to place a mutual aid plan into effect.

c. The adoption of a mutual aid plan based on the above authority to fit the community concerned.

d. The purpose of the plan and what that plan is expected to accomplish.

e. Which personnel shall be sesponsible for the operation of the various parts of such plan.

f. How will the plan operate and when does it go into effect.

g. And, finally the plan should provide means of obtaining supporting assistance from higher echelons of government.

MOBILE RESERVE BATTALIONS CLASS "A"

To make mutual aid effective and to assure prompt and efficient assistance to a stricken community a system of Mobile Reserves is an essential part of the civil defense program. Mobile Reserves means battalions or units of whatever category, with the manpower and equipment essential to speedy and successful operation, organized to operate as an entire unit, or as special self-contained services or teams. These mobile units should be organized and trained with one objective—to be available for duty whenever and wherever needed, in their own locality, in another community or another state in carrying out terms of Mutual Aid pacts.

The Mobile Reserve Battalion would not control or exercise any military authority in any political subdivision. On the contrary, it is incumbent upon the Reserve Battalion Commander, upon reporting to the scene of operations to dispose the component parts of his battalion under the direction of the local Civil Defense Director so as to render the greatest assistance possible to the regular Civil Defense forces.

It is desirable that plans for action on a Command Post Exercise basis be worked out during the organization and training phase between Civil Defense authorities of the regional, state and local areas.

It is proposed that there be set up under state control a limited number of Class "A" Civil Defense Mobile Reserve Battalions, equipped in part by the federal government, when meeting specified requirements. Further, that these battalions be supplemented by Class "B" Mobile Reserve Battalions under state or local sponsorship. In addition, in some localities, there may be Mobile Support Units less completely organized or equipped.

The Class "A" and Class "B" battalions would be known as Mobile Reserve Battalions.

A Mobile Reserve Battalion would be made up in part by a percentage of the personnel of the protective services of a community

(such as police, fire, medical), and would be augmented by volunteer skilled workers in various fields, laborers and others to provide a complete force for rescue, first aid, fire fighting, and other services required in an emergency. (Chart 15) In addition, each battalion would have attached as an integral part of its organization one flight of six planes from the Civil Air Patrol with the mission as indicated later in this chapter.

A Battalion would be organized on a Table of Organization basis, with a personnel of approximately five hundred (500) men. It would be at the disposal of the Governor of the State, and under the operational control of the State Director of Civil Defense; it could be mustered into service and transported speedily to the scene of an emergency. It should be well trained in various specialties, properly equipped and maintained in a state of readiness.

It is proposed that throughout the country there be a minimum of one hundred (100) Class "A" Mobile Reserve Battalions organized and federally recognized under supervision of the Office of Civil Defense. This would make a strength of approximately 50,000 men. It is suggested that during the training phase 85 Battalions be tentatively assigned to States and Territories, subject to action by the States, and that the State Civil Defense organization be responsible for their organization, activation and training.

A Mobile Reserve Battalion, under its commanding officer and staff, would consist of the following services:

Fire Fighting Service. It would be trained in fire fighting methods and be prepared to implement mutual aid assistance for the static fire fighting forces of an area under attack.

Municipal fire officials should have prearranged plans to furnish fire fighting teams for the mobile reserve battalions with such equipment and personnel as will be needed. This can be arranged by utilizing extra equipment available in their departments, together with such Government equipment as may be issued to their departments. It is proposed that for the purpose the fire chiefs utilize off-duty personnel and if necessary emergency firemen, and prepare to become integrated and moved with the mobile reserve battalions to an area under attack.

The composition of the fire teams of the reserve battalion would be in accordance with tables of organization to be issued by the Office of Civil Defense.

Installations Repair Service. This Service, composed of engineers of many types and skills, will be used to take the place of, or to augment the normal engineering force of a city. The City's engineering offices and equipment may be destroyed or seriously damaged, requiring the service of Civil Defense engineers with instruments and equipment. Normally this service would seek volunteers of engineers

of the following specifications: City Engineer Service, Power, Water Supply, Heavy Construction and Sanitary Service.

Food Service. The need for a well integrated mass feeding system is of paramount importance in the planning of the reserve battalions. It entails the development of an economical and expeditious method of feeding a large number of persons in an overwhelmed community under emergency conditions, along routes of evacuation and at reception centers.

Because of the nature of its mission the Food Service section of a reserve battalion should be prepared to handle a minimum of five thousand meals per day for a sustained period. This operation would require a Food Service section composed of three teams organized into units of ten men and team leaders, mobile and self-sufficient to allow for freedom of action in meeting the needs of an emergency.

Detailed composition of the Food Service teams of the reserve battalions would be in accordance with the Table of Organization to be issued.

Medical Services. It would prepare and maintain an emergency plan of action designed to cover any situation likely to be encountered in a serious emergency. Such plans must be made in cooperation with the local hospitals and civilian medical staffs and must consider the limitations of existing facilities as well as supplies available for emergency use. Upon arrival on the scene of operation, this Service would report to the chief medical authority of the community, ascertain the emergency medical needs of the area in conjunction with local authorities and dispose the first aid and litter teams of his service to the best advantage.

Radiological Service. A minimum of three Radiological Defense Technical Service teams should be in this service. Rescue services of a Mobile Reserve battalion entering a stricken area should be accompanied by one or more of these teams which will gather the information necessary to prevent injuries caused by over-exposure to ionizing radiations.

Rescue and Clearance Service. War from the air and widespread bombing of civilian populations brings with it the problem of extricating persons trapped under debris. It would be the primary duty of Rescue Teams of this Service to save them where possible. It requires the ability to remove at times great quantities of material safely and speedily, to tunnel through debris, to work safely in dust or gas-filled spaces.

Police Service. The police personnel in the Mobile Reserve battalion should be comprised of forty-five (45) men and leaders who would be grouped in three (3) squads of fifteen (15), each headed by a squad leader and an assistant. Personnel will normally function

in units of three or five men although individuals may be assigned as conditions indicate.

In general, standard police equipment would be used supplemented by specialized items, such as portable flood lighting, and public address systems.

Primary responsibilities of the police units would be to establish and maintain highway traffic control and regulation, establish a casualty identification center, to identify dead and seriously injured, assign antilooting patrols, guards at sensitive points, and guards at points where valuables or personal property are exposed.

Chemical Decontamination Service. This Service, composed of personnel skilled in war gas identification, anti-gas measures necessary to destroy or otherwise neutralize war gas contamination and equipped with mobile power-driven decontamination equipment, would work with the local Chemical Defense forces in the event of a war gas attack. It would work with the Engineer and Public Works Division of the local organization in the event of types of attack which did not include war gases, complementing the assistance rendered by the other services of the Mobile Reserve Battalion with respect to sanitation, water supply, and rescue work.

Civil Air Patrol (Chart 16). In addition to services described, it is proposed, in cooperation with the National and State Wing Headquarters of the Civil Air Patrol, to attach not less than one flight of six (6) planes and twelve (12) pilots to each Class "A" Reserve Battalion. It is proposed that this flight be given the primary mission indicated below.

a. Be prepared to transport key personnel of the battalion to the area of operation, once the battalion has been put on the road for its destination.

b. Be prepared for aerial reconnaissance prior to arrival of the battalion at its rendezvous.

c. Maintain liaison for personnel and transport equipment between its base of operation and the affected areas.

d. In cases of great need be prepared to shuttle a team or teams of the battalion, such as radiological teams, with limited equipment. When the flight is not needed for such missions, it could be released for other missions.

It is further proposed that when the State Civil Defense Director and the State Wing Commander have agreed to a plan for the attachment of such a flight to each Class "A" Reserve Battalion in the State, such flight be earmarked and carry the same designation as the battalion to which it may be attached.

SUGGESTED BATTALION ASSIGNMENTS (Chart 16). For planning purposes, it is suggested that the Class "A" Civil Defense Mobile Reserve Battalions be assigned to the states, subject to their concurrence, on the following basis. (The proposed Regions are coterminous with the Army Command Areas.)

REGION 1

MASSACHUSETTS (Boston Area):
1st Civil Defense Mobile Reserve Battalion.
2d Civil Defense Mobile Reserve Battalion.
CONNECTICUT (New Haven Area): 3d Civil Defense Mobile Reserve Battalion.
NEW YORK:
(New York Area):
4th Civil Defense Mobile Reserve Battalion.
5th Civil Defense Mobile Reserve Battalion.
(Schenectady Area): 6th Civil Defense Mobile Reserve Battalion.
(Rochester Area): 7th Civil Defense Mobile Reserve Battalion.
NEW JERSEY (Newark Area):
8th Civil Defense Mobile Reserve Battalion.
9th Civil Defense Mobile Reserve Battalion.
MAINE: 10th Civil Defense Mobile Reserve Battalion.
VERMONT: 11th Civil Defense Mobile Reserve Battalion.
NEW HAMPSHIRE: 12th Civil Defense Mobile Reserve Battalion.
RHODE ISLAND: 13th Civil Defense Mobile Reserve Battalion.
DELAWARE: 14th Civil Defense Mobile Reserve Battalion.

REGION 2

PENNSYLVANIA:
(Philadelphia-Camden Area):
15th Civil Defense Mobile Reserve Battalion.
16th Civil Defense Mobile Reserve Battalion.
17th Civil Defense Mobile Reserve Battalion.
(Harrisburg Area): 18th Civil Defense Mobile Reserve Battalion.
(Pittsburgh Area):
19th Civil Defense Mobile Reserve Battalion.
20th Civil Defense Mobile Reserve Battalion.
21st Civil Defense Mobile Reserve Battalion.
MARYLAND (Baltimore Area):
22d Civil Defense Mobile Reserve Battalion.
23d Civil Defense Mobile Reserve Battalion.
DISTRICT OF COLUMBIA: 24th Civil Defense Mobile Reserve Battalion.
VIRGINIA (Richmond-Norfolk Area): 25th Civil Defense Mobile Reserve Battalion.
OHIO:
(Columbus Area): 26th Civil Defense Mobile Reserve Battalion.
(Cleveland Area):
27th Civil Defense Mobile Reserve Battalion.
28th Civil Defense Mobile Reserve Battalion.
(Cincinnati Area):
29th Civil Defense Mobile Reserve Battalion.
30th Civil Defense Mobile Reserve Battalion.
WEST VIRGINIA: 31st Civil Defense Mobile Reserve Battalion.
KENTUCKY: 32d Civil Defense Mobile Reserve Battalion.
INDIANA: 33d Civil Defense Mobile Reserve Battalion.

REGION 3

GEORGIA (Atlanta Area) : 34th Civil Defense Mobile Reserve Battalion.
ALABAMA (Mobile Area) : 35th Civil Defense Mobile Reserve Battalion.
TENNESSEE : 36th Civil Defense Mobile Reserve Battalion.
NORTH CAROLINA : 37th Civil Defense Mobile Reserve Battalion.
SOUTH CAROLINA : 38th Civil Defense Mobile Reserve Battalion.
MISSISSIPPI : 39th Civil Defense Mobile Reserve Battalion.
FLORIDA : 40th Civil Defense Mobile Reserve Battalion.

REGION 4

LOUISIANA (New Orleans Area) :
41st Civil Defense Mobile Reserve Battalion.
42d Civil Defense Mobile Reserve Battalion.
OKLAHOMA (Oklahoma City Area) : 43d Civil Defense Mobile Reserve Battalion.
TEXAS :
(Ft. Worth-Dallas Area) :
44th Civil Defense Mobile Reserve Battalion.
45th Civil Defense Mobile Reserve Battalion.
(Houston Area) : 46th Civil Defense Mobile Reserve Battalion.
(San Antonio Area) : 47th Civil Defense Mobile Reserve Battalion.
ARKANSAS : 48th Civil Defense Mobile Reserve Battalion.
NEW MEXICO : 49th Civil Defense Mobile Reserve Battalion.

REGION 5

MICHIGAN (Detroit Area) :
50th Civil Defense Mobile Reserve Battalion.
51st Civil Defense Mobile Reserve Battalion.
52d Civil Defense Mobile Reserve Battalion.
ILLINOIS (Chicago-Gary Area) :
53d Civil Defense Mobile Reserve Battalion.
54th Civil Defense Mobile Reserve Battalion.
55th Civil Defense Mobile Reserve Battalion.
WISCONSIN (Milwaukee, Racine Area) : 56th Civil Defense Mobile Reserve Battalion.
MISSOURI (St. Louis, E. St. Louis Area) :
57th Civil Defense Mobile Reserve Battalion.
58th Civil Defense Mobile Reserve Battalion.
KANSAS (Kansas City, Kans., Kansas City, Mo., Area) : 59th Civil Defense Mobile Reserve Battalion.
NEBRASKA (Omaha Area) : 60th Civil Defense Mobile Reserve Battalion.
MINNESOTA (Minneapolis-St. Paul Area) :
61st Civil Defense Mobile Reserve Battalion.
62d Civil Defense Mobile Reserve Battalion.
COLORADO (Denver Area) : 63d Civil Defense Mobile Reserve Battalion.
IOWA : 64th Civil Defense Mobile Reserve Battalion.
NORTH DAKOTA : 65th Civil Defense Mobile Reserve Battalion.
SOUTH DAKOTA : 66th Civil Defense Mobile Reserve Battalion.
WYOMING : 67th Civil Defense Mobile Reserve Battalion.

REGION 6

MONTANA (Helena Area) : 68th Civil Defense Mobile Reserve Battalion.
UTAH (Salt Lake City Area) : 69th Civil Defense Mobile Reserve Battalion.
WASHINGTON (Seattle Area) : 70th Civil Defense Mobile Reserve Battalion.
OREGON : 71st Civil Defense Mobile Reserve Battalion.
CALIFORNIA
(San Francisco, Oakland Area) :
72d Civil Defense Mobile Reserve Battalion.
73d Civil Defense Mobile Reserve Battalion.
74th Civil Defense Mobile Reserve Battalion.
(Los Angeles Area) :
75th Civil Defense Mobile Reserve Battalion.
76th Civil Defense Mobile Reserve Battalion.
77th Civil Defense Mobile Reserve Battalion.
78th Civil Defense Mobile Reserve Battalion.
IDAHO : 79th Civil Defense Mobile Reserve Battalion.
NEVADA : 80th Civil Defense Mobile Reserve Battalion.
ARIZONA : 81st Civil Defense Mobile Reserve Battalion.
HAWAII : 82d Civil Defense Mobile Reserve Battalion.
PANAMA CANAL : 83d Civil Defense Mobile Reserve Battalion.
ALASKA : 84th Civil Defense Mobile Reserve Battalion.
PUERTO RICO : 85th Civil Defense Mobile Reserve Battalion.
RESERVE BATTALIONS : 86th–100th Civil Defense Mobile Reserve Battalion.

It is recommended that organization and activation of Battalions be completed as speedily as possible, consistent with the problem of supplying equipment which should be the guiding factor in the recognition of Class "A" Units.

MOBILE RESERVE BATTALIONS, CLASS "B"

An essential part of the "third line of civil defense"—Mobile Reserves—should be the formation of additional Mobile Reserve Battalions normally for service within the state, to carry out mobile support. These Class "B" Battalions should be set up under state supervision, under the control of the State Civil Defense organization, and with such requirements as the State may prescribe.

It is suggested that local Civil Defense organizations develop mobile support units to whatever extent the facilities and man-power of their communities permit. Assuming that a state would be divided into mutual aid destricts as part of the over-all plan for civil defense, the mobile reserve plan contemplates that:

All municipalities with multiple protective service organizations would designate a percentage of their protective services to form a nucleus for the Mobile Support Units.

Such services would be organized into local Mobile Support Units of varying size, known as Class "B" Mobile Reserve Battalions, conforming to the general pattern furnished them by the State Civil Defense organization.

These protective services would be augmented from the available man-power of the municipality as part of the Mobile Support Units on a voluntary basis.

These local units should be capable of prompt assembly and ready to move as ordered at any time.

Each State could organize as many type "B" Units as it deems necessary. When units are organized under direction of the State Director of Civil Defense, each unit would be numbered from a block of numbers allotted to each State as indicated below. When State recognition has been granted, each unit would be classified as Class "B" and automatically becomes a member unit of the State Mobile Reserve Unit pool from which units could be developed into Class "A" status.

SERIES	*SERIES*
100—Alabama	2800—New Jersey
200—Arkansas	2900—New Mexico
300—Arizona	3000—New York
400—California	3100—North Carolina
500—Colorado	3200—North Dakota
600—Connecticut	3300—Ohio
700—Delaware	3400—Oklahoma
800—Florida	3500—Oregon
900—Georgia	3600—Pennsylvania
1000—Idaho	3700—Rhode Island
1100—Illinois	3800—South Carolina
1200—Indiana	3900—South Dakota
1300—Iowa	4000—Tennessee
1400—Kansas	4100—Texas
1500—Kentucky	4200—Utah
1600—Louisiana	4300—Vermont
1700—Maine	4400—Virginia
1800—Maryland	4500—Washington
1900—Massachusetts	4600—West Virginia
2000—Michigan	4700—Wisconsin
2100—Minnesota	4800—Wyoming
2200—Mississippi	4900—Hawaii
2300—Missouri	5000—Dist. of Columbia
2400—Montana	5100—Panama
2500—Nebraska	5200—Alaska
2600—Nevada	5300—Puerto Rico
2700—New Hampshire	5400—Virgin Islands

BASIC POLICIES, MOBILE RESERVE BATTALIONS. The following policies are suggested in organizing and operating Mobile Reserve Battalions:

Supply Policy. Class "A" Civil Defense Mobile Reserve Battalions—Federally recognized State Civil Defense Mobile Reserve Units allotted to states should be equipped by the federal government with certain protective and technical equipment necessary to accomplish their mission.

Class "B" Civil Defense Mobile Reserve Battalions without limit in numbers within each state would not be subsidized by the federal government with any type of equipment unless such units are transferred from a "B" to "A" status after qualifying for such transfer.

Responsibility for Pay, Losses of Equipment, and Death and Disability Claims. Whenever a Mobile Reserve Battalion serves in response to a call by proper authority, the members of such battalions should receive pay, travel and maintenance; and claims for losses of equipment, and death and disability adjusted, as follows:

a. Intra-State Operation. The State should be responsible for claims and payments resulting from the operation of Mobile Reserve Battalions within its own borders. In the case of personnel who are employees of a political subdivision of the State, they should receive their usual pay while serving, and death and disability claims as provided by the political subdivision by which they are employed. The state should reimburse the political subdivision for these amounts and also for any losses of supply and equipment. In the case of personnel who are employees of the State, their pay and privileges should continue unchanged. In the case of other personnel who are not regular employees of the State or its political subdivision their pay should be the same as that of a State Juror, but their rights and immunities should be the same as those of regular State employees.

b. Interstate Operation in Peacetime. It is contemplated that Mobile Reserve Battalions may go to the aid of other States in the event of natural disaster. This should be done upon the orders of the Governor of the State in which the Mobile Reserve Battalion exists and upon the request of the Governor of the State in which the disaster occurs, provided that both States have made mutual aid arrangements to insure the satisfactory functioning of such operation. In these cases, the State that is aided should be responsible for the pay, property losses, and death and disability claims that may arise as a result of rendering such aid, and should reimburse the State rendering aid for all such expenses. The State rendering the aid should, in the first instance, make necessary payment as in the case of intrastate operation of Mobile Reserve Battalions.

c. Interstate Operation in Wartime. In time of war, regional coordinators should coordinate the operations of Mobile Reserve Battalions when employed across State boundaries. It is proposed that the Congress enact the necessary legislation to permit the Federal Government to pay the claims for the interstate operation of Mobile Reserves in time of war, in which case the procedure should

be as in the case of interstate operation in time of peace, except that the State whose Mobile Reserve Battalion has been employed would present its claims to the Federal Government instead of to the State that was aided.

Authority for use of the Civil Defense Mobile Reserve Battalions. Authority for the employment of Mobile Reserve Battalions in time of emergency should rest with the Governor.

Uniform Worn by Personnel on Active Duty. All personnel assigned to Class "A" Civil Defense Mobile Reserve Battalions of the Civil Defense establishment on active or training duty while in an active Reserve status should wear such articles of clothing and insignia as may be prescribed, and in addition, such distinctive shoulder or arm patches or other devices as may be directed by the National Director of Civil Defense.

STATE MOBILE RESERVE FORCE HEADQUARTERS

The organization of a Civil Defense Mobile Reserve Battalion has for its primary objective the use of the bulk of its personnel in Service Teams with a minimum of administrative and housekeeping personnel.

Because a large number of Class "B" Battalions, as well as the Class "A" Battalions may be organized in each state, it is suggested that a State Civil Defense Mobile Reserve Force Headquarters be organized under the State Mutual Aid and Mobile Reserve Division.

In the Headquarters should be a command group, including a force commander, an assistant and an adjutant, together with the following divisions:

Public Information Division. It would prepare all news and radio releases covering matters of public conduct during an emergency insofar as it pertains to the requirements of the Force, or any part thereof, in accordance with policies and directives of the Force Commander.

Personnel and Communications Division. It would assist each Battalion and Division of the Force Staff in the voluntary recruiting program, and assist the Staff Adjutant's Office in keeping the necessary personnel records and rosters. It would organize and maintain a message center and radio telephone net between the Force elements and Mobile Reserve Battalions upon arrival at the scene of operation.

Reconnaissance Division. In an emergency situation it would enter the disaster area speedily to evaluate the situation. It would make detailed study of the area involved.

Force Movement Division. It would prepare emergency movement plans for the Battalions, arrange for suitable rendezvous, plan transportation requirements and generally effect a plan of rapid movement.

Plans and Training Division. It would develop and maintain during the training phase plans for each service within Battalions in order to insure its utmost usefulness under various conditions, review the organization and training of all the services within Battalions and participate in inspections of various services. It would prepare plans for specialized study of each Service within Battalions and arrange the curriculum and program for instruction training and field exercises.

Liaison and Legal Division. It would be responsible for digest of local laws and ordinances, police and traffic regulations, advice on civil and military law, liaison for the staff on all matters affecting civilian authorities, and consideration of claims of inhabitants against the United States or State Government.

Service and Procurement Division. It would investigate the location of suitable supply stocks or services which could be procured subject to emergency requisition, and prepare plans for procurement. It would select suitable points of rendezvous for assembly of all Services and suitable quarters for housing of the various Battalions, both on inactive status and during emergency. It would survey the potential needs of a given city or target area under attack conditions with respect to food, shelter, clothing, bedding, transportation, medical needs, and other related items, and correlate these needs with other sections of the State Civil Defense Organization.

TRAINING FOR MOBILE RESERVE BATTALIONS

Peacetime Training. Supervision of training should be directed by the staff of the Regional Coordinator for Civil Defense within each Regional Area under policies of the Office of Civil Defense.

Detailed training would be planned and conducted for Civil Defense Mobile Reserve Battalions through the State Training and the State Mobile Reserve divisions. Each commander of a Civil Defense Mobile Reserve Unit should prepare and maintain plans for action which will include studies of his normal assigned area. It is contemplated that a maximum number of key personnel from all Mobile Reserve Battalions and Mutual Aid and Mobile Reserve Divisions will take the necessary courses of instruction provided for this purpose.

Instructor Personnel. During the preliminary phase of organization of Civil Defense Mobile Reserve Units within each state, the Regional Coordinator for Civil Defense should be provided with sufficient instructor personnel for duty with State Directors of Civil Defense to meet requirements. In addition to these duties, instruc-

tors should be made available to local governments that organize mobile reserve units.

SUMMARY. The people of America must become civil defense conscious and organized and trained to protect themselves and their property to the extent of their individual abilities. In achieving that goal, comprehensive planning is necessary well in advance of actual hostilities. It follows from the basic policy of military necessity that, so long as hostilities continue, personnel of combat units should not be charged with responsibilities of caring for the needs of the civilian populace affected by enemy action. On the contrary, an adequate system of Mutual Aid and State Civil Defense Mobile Reserve Battalions organized as an integral part of the civil defense program should be assigned the primary mission of aiding civil government and the stricken populace, thus relieving the need for combat units which must be left free to accomplish their primary mission.

The capabilities of a Civil Defense Mobile Reserve Battalion are best exemplified by the extent to which they can assist in preventing fires from spreading, save lives of those trapped in buildings, handle expeditiously the care of casualties, feed homeless and displaced persons, and restore speedily the community to that point of its normal operation that can reasonably be expected under the circumstances. When this mission has been accomplished, the Civil Defense Mobile Reserve Battalion may be withdrawn by the State Director of Civil Defense for that area and returned to its normal everyday functions as individuals within the community. In recognition of the sovereign rights of State Government, it is to be hoped that those states which do not now have in force wartime emergency laws with sufficient power and authority to carry out such a program of Mutual Aid and Mobile Reserves would enact the necessary legislation.

PLANT PROTECTION IN THE CIVIL DEFENSE PROGRAM

Adequate plant protection measures and civil defense organization for manufacturing and non-manufacturing facilities, utilities, institutions and private enterprise are essential to maintaining the efficient productive effort of the nation as well as "round the clock" protection of the people. In order to avoid duplication, overlapping and confusion and to establish a sound, simple and efficient plant protection procedure it is recommended that:

a. The National Security Council or an agency on a comparable level should recommend assignments of plant protection responsibility to the Federal Government Departments or other agencies having primary interest therein. For example, mines might be assigned to the Bureau of Mines, vital military installations to the appropriate department of the armed forces and the like, and all others not so assigned would be the responsibility of Civil Defense.

b. The Munitions Board, in its role of coordinating and analyzing the requirements and programs of Departments of the Military Establishment, should evaluate the facilities engaged in war production and establish the priority of protection for such facilities.

c. Since many plant protection measures are common to all institutions, a plant protection panel should be established. This panel should be composed of top representatives of the agencies referred to in "a" above for the purpose of coordinating and developing the procedures, techniques and measures required in a sound and effective plant protection program.

d. In areas in which plants and industrial facilities are located, adequate civil defense would require the integration of the protective activities in such plants and facilities into the local civil defense plan and program. Such integration should be accomplished by coordination between the local Civil Defense authorities, the plant management and the representative of the protecting agency.

Three things contribute much to the winning of a war: manpower, material, and morale. Civil Defense preparations are being made essentially to afford the maximum protection to people and their property in the homes and in the localities where they live.

However, people do not remain twenty-four hours a day in their homes. They go to work; they go to places for recreation and wor-

ship; and en route there are places of gathering, such as transportation terminals. Civil Defense, therefore, would not be complete unless it prepared for the protection of the people at all times and at all places.

The might and power of the civilians at home, and of their production in industry cannot be discounted. Therefore, careful plans must be developed to protect the worker in his factory, as well as to protect him at home.

In the factory, however, not only is it essential that the people and the property be protected; it is necessary that the productive potential of industry be insured. By affording maximum protection in the home, manpower and morale are conserved; by affording maximum protection in the place of work, manpower, morale, and material are conserved.

However, the protection of material involves certain plant protection measures not considered as coming within the scope of Civil Defense. Thus, Civil Defense is concerned directly with only one phase of plant protection. Inside a facility, all plant protection activities are so interwoven that they reasonably cannot be divided between what is preventive and what is designed to minimize enemy action. Thus, it is necessary to consider, first, plant protection as a whole, and then show how Civil Defense in plant protection can effectively be organized and operated.

The objective of plant protection. The objective of plant protection is to secure all facilities against any enemy action, against the acts of enemy sympathizers, sabotage, accidental disasters caused by war conditions, and natural disasters, the effect of which is aggravated in wartime by the lack or displacement of the personnel of peacetime protective agencies. Civil defense of these facilities is a part of plant protection in that basically civil defense is designed to minimize the effects of any enemy action, by anticipating and preparing for necessary counter measures, in advance of such enemy action, which will be necessary to protect life and property, against successful raids or attacks by an enemy, and to restore the facilities to normal or near-normal operation in a minimum of time.

Any civilian enterprise that contributes to effective production must be protected as far as possible against hazards of war. This protection must extend from raw materials, through transportation stages, manufacturing processes, assembly points, and finally through transportation and ultimate delivery to the Armed Forces or wherever needed.

The term "plant protection" will hereafter be used in this report to refer to civil defense measures and services for manufacturing and non-manufacturing facilities, utilities, institutions and private enterprises.

The contribution of civil defense to plant protection is not limited to the facilities themselves. Manpower, itself, is of vital importance. Human resources are the most valuable asset. Material resources, the essential manufacturing and non-manufacturing facilities of the nation, and the utilities, are of no avail unless there are people; they are valuable only as live beings. Thus the first effort of civil defense as a contribution toward plant protection, must be made with the end in view of protecting people.

In developing the need for plant protection measures and services for the periods before, during and after enemy attack, it is not intended that all protection measures and services apply equally to all facilities or even to types of facilities. Certain protective services may be found in most facilities, while others may be applicable only in rare instances.

It is recognized, then, that sound plant protection measures are needed because: first, the product or service of the facility is of direct importance to the war effort; secondly, because each individual is an asset to the nation's strength, and in preserving him from harm, against the hazards of war, provisions must be made to furnish him with a maximum of protection not only in his home, but during his hours of work and play as well; and thirdly, because the product or service of the facility is necessary to civilian life.

ORGANIZATION FOR PLANT PROTECTION

Assignment of Responsibility. It is proposed that the plan provide, consistent with the capabilities of Civil Defense organizations, protection against air raids and other related emergencies, of all kinds of facilities. It is to be accomplished with no abrogation of the right or privilege of any Federal or other agency to exercise its proper control over its own facilities or functions; and with the distinct proviso that where proper authority assigns a facility or type of facility to some other Federal or internal security agency for purposes of plant protection, the Office of Civil Defense and its corresponding representatives in State or local Civil Defense organizations have solely a mission of support to the agency so assigned.

There are many agencies, federal, quasi-federal, and private, that have an interest in plant protection. Their interests and responsibilities so overlap that it is considered advisable to integrate all of them into an over-all coordinated organization for plant protection.

There are Federal agencies which, to some degree in peacetime and to a considerable degree in wartime, have administrative or supervisory responsibility for certain facility operations, production or continuity of service. In many cases this responsibility was established by law; in other instances, particularly during wartime, this

responsibility was imposed upon the Federal agency by Executive Order of the President.

There exist, also, other Federal agencies which in addition to having administrative or regulatory jurisdiction over certain types of industry, have certain protection responsibility either by statute or, in time of war, by Executive Order. For example: Various agencies of the military establishment have the responsibility for the safeguarding of military information; the Federal Bureau of Investigation is responsible for the investigation of sabotage, espionage and subversive activity; and the Bureau of Mines is responsible for mining safety and for enforcement of the Explosives Act.

There are still other agencies, mostly private, whose interests are allied to the field of plant protection, or who have a strong financial or other interest in preventing loss of life or damage to property. Among these, but not including all, are: the National Board of Fire Underwriters, the National Fire Protection Association, the Mutual Alliance, the Association of American Railroads, State Fire and Insurance Commissions, and local building and sanitary inspection agencies.

All of these agencies, both public and private, can participate in civil defense and plant protection. All should have a share in establishing sound programs for all phases of plant protection; and many may later be assigned as responsible supervising agencies for plant protection. The combined group should comprise the nucleus of the organization for plant protection for planning purposes and for implementation of the plans.

The main problem is one of coordination among all interested agencies. It is proposed that at all times existing agencies will perform the service they are prepared to perform, and which they, in fact, are doing now in many instances. The Civil Defense organization, by planning and working with these other agencies, will supply the technical and organizational pattern for all civil defense activities, and where necessary perform such other plant protection activities in facilities which may be assigned to the Civil Defense organization.

Internal security missions of resisting enemy attack would not be performed by the Civil Defense organization. Those functions are primarily military in nature, federally, and in the state and local communities. Thus, the arming and training of State Guards and other similar forces, for internal security missions, are not the responsibility of the Civil Defense organization, although planning and coordination for combined operations requiring the concerted utilization of civil defense and military forces should be accomplished.

The Civil Defense organization for plant protection makes plans in anticipation of an enemy attack being successful, whereas internal security connotes inclusion of preventive measures designed to keep

an enemy attack from being successful. There is a tenuous line between what is preventive and what is included in preparations for softening the blow of an enemy; it requires further integration and coordination of all agencies interested in plant protection so that there will be no hiatus in preparations for protecting all industry, utilities, institutions and private enterprise.

National Organization (Chart 2). A Plant Protection Division should, therefore, be established in the Office of Civil Defense, and should be concerned with all the various plant protection activities, measures and services which may be necessary in any facility, if war hazards are to have a minimum impact on civilians and civilian enterprise. These plant protection activities include all continuing protection functions designed:

(1) to protect a facility, its product, and its personnel against physical hazards and against damage by people, whether enemy-inspired, wilful, accidental, through carelessness, or sheer stupidity;

(2) to render the facility, its product, and its personnel more secure during times of direct attack by an enemy; and

(3) to provide the emergency protective measures designed to enable the facility to recover from the effects of an enemy attack and to get back into normal operation, in a minimum of time and with minimum loss of life.

State Organization (Chart 3). A state Plant Protection Division should be organized along the same lines as the Plant Protection Division of the National Office. This Division, by derivative authority becomes the implementing agency for the Plant Protection Division of the Office of Civil Defense and will have comparable functions except that it would not duplicate the planning function of the National Office. The Chief of the Division should coordinate all plant protection activities in the state properly the responsibility of the Civil Defense Organization.

Local Organization (Chart 4). A Plant Protection Division should be set up as an integral part of the local Civil Defense Organization. It will supervise plant protection in facilities specifically assigned to it, and will carry out instructions emanating from the State Civil Defense Organization. It will be the focus of coordination of facility Civil Defense organizations with local plans for emergencies.

Relationship of Civil Defense. As a starting point to describe adequately the "concern" that the Office of Civil Defense should have in all facets of plant protection, it is proposed that all facilities be divided into groups of manufacturing plants and facilities, non-manufacturing and utilities facilities, institutions, and those smaller facilities which represent the manifold aspects of other private enterprise, to include all places of public gathering such as theaters and churches. It is practicable so to group facilities, because within types

of industry or for non-industrial facilities, certain common patterns of protective measures or services can be prescribed for the group; informational and training data can be prepared and disseminated to the facilities as a group; implementation of training and other preparatory programs can be simplified by treating of whole "industry" as one "plant"; and in states and localities, plant civil defense operations can more easily be integrated into a workable and acceptable state and local civil defense program.

Within a particular facility in time of war there may be included all or any combination of the numerous plant protection measures or services, including emergency services. While it is true that "internal security" in plants in World War II included all plant protection activities, it is equally true that wherever applicable they were also present in facilities not included under the supervision of "internal security". In others only "passive defense" or air raid emergency services were present. In all facilities employing people, emergency services for civil defense, must be provided.

Coordination of Agencies. There should be a national coordinating group of agencies planning a complete and integrated plant protection program in cooperation with the Office of Civil Defense and in particular with the Plant Protection Division which is concerned with all facilities, because in all facilities there will be need for Civil Defense organizations. The Plant Protection Division should participate with other interested agencies in drafting detailed programs for plant protection, and in formulating procedures and techniques for various types of industries to follow in setting up their internal organizations for protection of the plant and its personnel against all hazards.

In the national coordinating group, there should be assigned to certain of these agencies, the total responsibility for implementation of plans for plant protection, and the supervision and enforcement of plant protection rules, regulations, and procedures. Where such assignment of plant protection responsibility has been made, the Office of Civil Defense has discharged its responsibility when, in connection with other agencies interested in that type of industry, it has participated in drawing up the specifications for complete Civil Defense organization to be placed in effect in the facilities. Thus, in many instances, the Civil Defense organization will not have any responsibility, other than that in the Federal Office, for plant protection or for civil defense, except as hereinafter stated with reference to State and local operations.

The Plant Protection Division should be responsible, however, for civil defense in all facilities not assigned to other agencies, and certain supervisory and enforcement responsibilities will fall upon State and local Civil Defense organizations, particularly with reference to such facilities as places of public gathering, hotels, apartment houses, theaters, and all smaller business establishments.

Certain other types of industrial facilities might, upon occasion, be assigned to the Office of Civil Defense and to the Civil Defense organization, for implementation, supervision and enforcement of plant protection. In certain of the facilities so assigned to the Civil Defense organization, various plant protection activities not normally considered as coming within the scope of civil defense, may have to be placed in effect. Where such is the case, standard plant protection programs as developed by the national organization of participating plant protection agencies will be supervised in accordance with rules or regulations promulgated at the time.

Thus, the Office of Civil Defense is concerned with the formulating and establishing of civil defense patterns for all industry; with only civil defense services in certain types of facilities; and with all plant protection activities applicable in certain types of facilities assigned by proper authority to the Civil Defense organization.

Just as each Federal or other agency becomes the responsible agency for plant protection, by assignment of such responsibility by proper authority, each one in effect becomes the implementing agency for civil defense activities, in its respective sphere of influence; thus, in respect to facilities or types of facilities assigned to the Civil Defense organization, each State, by derivative authority, becomes the implementing agency for the Office of Civil Defense. The Office of Civil Defense, in conjunction and in coordination with the other participating agencies and groups involved in plant protection, must develop a complete program which will then be presented to each State. The complete program should provide for participation by localities and by private agencies.

Under this plan it is intended that there be only one agency designated as being responsible for supervision and enforcement of all of plant protection or of civil defense activities in any particular facility. If multiple agencies should direct and supervise plant management in its protection problems, only duplication, overlapping and confusion would result.

The organization of plant protection agencies suggested herein can as a group devise standard plant protection programs and techniques; can effectively utilize the personnel and services of each agency, can conserve manpower and still provide maximum protection; and can issue uniform regulations. By having higher authority assign responsibility for enforcement and supervision of plant protection activities to the agency in each case most capable of performing that mission, greater coordination can be effected without sacrificing efficiency of plant protection or civil defense operation; in fact, greater coordination and integration between a facility program and

a local civil defense program can be effected for pre-raid, during-raid and post-raid operations.

It should be recognized that adequate civil defense against modern weapons of war cannot be established over night. The plans of all the agencies interested in plant protection cannot be integrated in a short time. Plant protection should be a long-range project, approached in phases, maintained constantly in readiness for implementation when necessary, and capable of rapid expansion into a wartime operation.

OPERATIONS OF PLANT PROTECTION IN CIVIL DEFENSE

Primary responsibility for plant protection rests upon owners and operators of facilities. Plant management fully recognizes this responsibility. It should be fully intended by the Office of Civil Defense that in all planning for civil defense of facilities, maximum reliance will be placed upon plant management. This is in conformance with the principle of self-help. Regardless of the number or combination of the plant protection activities in any one facility, the owner or operator of the facility is primarily responsible for their implementation and effectiveness.

Not only should this theory never be abandoned, but neither should there be departure from the principle of utilizing insofar as is practicable, the normal staff and employees of a facility in providing for its protection. Manpower in total war is itself critical and cannot be wasted. There exists, however, the necessity for organization and training of the maximum population of the plant for participation in some protective service in the event of emergency, and of all personnel in conduct during emergencies. While civil defense duties inside a facility would be performed mainly by people who normally have other duties in plant operation, each member of the plant personnel must assume his share of plant civil defense responsibility. Thus, generally, no heavy demand on manpower is required for the establishment and maintenance of a peacetime plant protection program.

A secondary responsibility for providing protection against the hazards of war and against hazards incident to war rests upon government. Outside the perimeter of a facility, there must be protection furnished against domestic disturbances, organized fifth columns, or even against certain enemy forces making a rear attack, not in a combat area. That defense of the facility, group of facilities, or community may be made by local, State, and eventually Federal military forces. An internal plant protection program must be integrated and coordinated with each agency of government whose forces may be utilized outside the facility.

Planning and Operation Phases. In line with the primary and secondary responsibilities referred to, in establishing plant protection programs so that they will be effective, there are successive planning and operational phases. In the Office of Civil Defense, the first phase is one of coordination of the Federal agencies, in order that policy and detailed outlines for plant protection and civil defense may be developed. The second phase is one of preparation of instructional material in the Office of Civil Defense. The third phase is the wartime period. Inherent in all phases is the fixing, by proper authority, of definite supervisory and enforcement responsibility upon various Federal agencies, for wartime plant protection responsibility.

Contemporaneous with the second and third phases are the plant protection activities of the various States, localities and facilities. As the training and informational material begins to flow from the Office of Civil Defense to the States, and the States in turn disseminate the material to localities and facilities, the internal organization within industry begins to fashion itself for the civil defense of the industry, and the plant personnel starts to train itself. Simultaneously, various agencies assigned specific responsibility for plant protection dissemination to the facilities assigned to them, the same patterns of civil defense which will be channeled through the local Civil Defense organizations. Thus, with standard patterns developed by the Federal Government, the facilities, regardless of assignment, will receive identical organizational patterns, and non-conflicting instructions.

In initiating the first phase, that of development of policy and standard patterns for civil defense of industries, utilities, institutions, and private enterprise, it is believed most practicable to divide facilities into types, according to industry, or utility. Civil Defense measures vary considerably as between types of industry, and the Federal agencies having an interest in one type of industry are not usually the same agencies that have an interest in another type of industry.

Thus, there should be representative panels established, comprised of all agencies, Federal, quasi-Federal, and in some instances public and private agencies, which would meet and jointly establish the policy and procedures under which the protection of facilities within a given industry will be assured, consistent with the capabilities of the civilian population and the support that the Government is able to furnish.

In the establishment of representative panels for each type of industry, the Office of Civil Defense can take the lead; and by participating with other agencies, a detailed pattern for each industry can be prescribed for the industry, regardless of the agency to which ultimate responsibility for the plant protection supervision and enforcement may be assigned. Under this method of procedure, the Office of Civil Defense will participate in the planning for and the pre-

scribing of the details of plant protection so far as they pertain to civil defense, but the Office of Civil Defense should not be responsible for implementation of the plans or for supervision of overall plant protection in those facilities or for that industry which may later be assigned to another Federal agency.

Conversely, where the Civil Defense organization, may be assigned, by higher authority, the responsibility for supervision over a certain type of industry; or where by an act of omission a certain type of facility or industry may not be assigned to any agency, the Office of Civil Defense should have the responsibility for supervision over plant protection measures, which may be necessary or applicable to the facilities, and it would have the advice and assistance of the agencies participating in the panel, in the development of the detailed pattern for civil defense.

The exact details of the organization for civil defense within the facilities themselves are not given at this point. These are matters which will be developed by the representative panels, and which will be prescribed as regulations for the civil defense and for the plant protection of industry. However, the general pattern of operation of protective services suggested for local Civil Defense organization can easily be adapted to plant organization.

Local Operations. In local communities or metropolitan areas, with respect to certain types of facilities, such as theaters, restaurants, churches, apartment houses, department stores and the like, there will be considerable responsibility resting upon the local Plant Protection Division. As local organizations begin to grow and improve their efficiency, it is not improbable that greater responsibility and functions will fall upon them. In the interim, a Plant Protection Division in a locality should restrict its operations to those facilities assigned to it; should plan for local support in the protection of facilities, and should be the focus for coordination of community planning with plans of the facilities assigned to other agencies for plant protection. In either event, the facilities should coordinate their plans with the local Civil Defense organization. This would save time, and would obviate any necessity for local civil defense personnel to enter facilities; the less facilities are visited, particularly during a period of emergency, the less interference with production will ensue. Also, where the facility has been assigned to another agency for plant protection purposes, that agency should be the only agency visiting the facility for plant protection and civil defense purposes. The responsibility for coordinating civil defense plans with the locality rests upon the facility and upon the agency to which that facility is assigned.

The same general type of coordinating authority should rest upon the State Plant Protection Division. As planning progresses, that

Division should become, by derivative authority, the implementing agency of the Office of Civil Defense in respect to facilities assigned to that Office and to the Civil Defense organization for supervising plant protection. Again, the details would follow the formulation of patterns established by the panels.

Organization within a Facility. Essential to effective plant protection operation within a facility is the designation of one individual as being responsible for facility protection operations. Whether this individual has full-time protection assignment or only part-time, depends upon the size and nature of the facility. A suggested title for this individual is "Defense Coordinator". In the peacetime years he would normally operate such peacetime plant protection programs as are dictated by sound business practices, the nature of the plant, its contracts, if any, with the government, or the nature of its commodity or service; he should administer the training program, maintain liaison with civil authorities and with such other agencies as may be necessary, such as the power company servicing the facility, and would apply details of civil defense operational plans as they are promulgated. In time of enemy attack the Defense Coordinator should assume command of Civil Defense forces within the facility, operate the facility control center and direct civil defense emergency services and operations within the facility, and with respect to its support of the local civil defense operation.

Plant Defense Coordinators can help each other by sharing their problems and successes in organization and training. Mutual assistance also concerns arrangements for sharing supplies, equipment, productive capacity, and even personnel in the event of interruptions or damage from enemy action. There are also profitable relationships to be established with the local Civil Defense organization. Any industry is no more than a community of people and facilities within a larger community of personnel and resources.

Facilities serve an industrial purpose, perform essential service, or build and maintain morale; they may have many people within their perimeter, on regular hourly bases, a prescribed number of hours per day or week; or they may have, as theaters, churches or hotels, congregations of people representing unrelated groups; or they may, as a highway bridge or a railroad tunnel, continually service people engaged in other enterprises. However, with rare exception, such as a lighthouse keeper, does the facility have the individual during all hours of work, rest and recreation. The individual who works in a facility has dual responsibilities; in relation to his work and in relation to the community where he resides. In the locality where enemy attack may first be felt, integration of all civil defense aspects must be complete. Within the facility, the Defense Coordinator should normally be responsible for coordination with the locality.

Particularly requiring integration with local civil defense plans are: an evacuation plan for the area; civilian war aid services; plans and training for chemical defense and for radiological defense; and for rescue services.

The emergency plant protection programs would not replace any phase of the routine plant protection work which, of necessity, may have to be increased to meet wartime conditions. On the contrary, this emergency organization should be developed to coordinate and augment the activities of the several protective programs which may normally be present in the facility, and to add additional services for the protection of employees and property during emergency conditions.

In the establishment of the emergency plant protection organization, full use should be made of the service departments within the plants. These departments would continue to function as usual, except in an emergency, at which time they should operate as a unit of the emergency plant protection organization under the control of the Defense Coordinator. The personnel of these units should be augmented, where necessary, and trained to cope with any emergency.

In addition to the regularly organized units, volunteer groups should be organized and trained to function only in an emergency. In selecting these volunteers, preference should be given those whose natural talents and past experience fit them for specific work, and whose duties are such that they could be released in an emergency without interrupting production. Those persons should have no commitment with outside Civil Defense organizations that conflict with their plant assignment. Highly skilled men essential for key operations should not be selected for this type of service. The details of selection should be worked out by the Defense Coordinator in cooperation with local Civil Defense organization.

Plant Control Center. The plant control center would be the most vital part of the plant protection system. It would be the nerve center of the system in action. It should be in a protected room where the Defense Coordinator and his staff of leaders and operators maintain outside telephone and radio communication with the local control center, submit and receive information from the plant observers and wardens and, when the need arises, direct operations during emergencies.

TRAINING

After general coordination of the agencies cooperating and participating in plant protection planning has been effected, the Training Division of the Office of Civil Defense, aided by the Plant Protection Division, should prepare the necessary instructional, informational and training manuals, pamphlets and bulletins concerning civil defense aspects of plant protection, in accordance with the patterns developed by the panels for each type of industry.

Examples of the training needed within a facility are for such groups as auxiliary firemen, fire watchers, wardens, auxiliary police, and nurses' aides and the like.

Training, following preparation of the necessary materials and the development of policy, logically follows a three-way program: the training of the Defense Coordinator for a facility which would mainly be accomplished by the responsible enforcing or supervisory Federal agency, or by a representative of the State or local Plant Protection Division, where the facility is assigned to the Civil Defense organization; the training of the technical chiefs of services in the facilities, by the same agencies, for emergency services; and the training of volunteers within the plant by the Defense Coordinator and his staff working in conjunction with the local Civil Defense organization.

SPECIAL PROBLEMS

Procurement and supply of protective equipment for facilities is considered the responsibility of facility management; also, no Federal funds would be requested for protective construction unless national policy concerning such items as air-raid shelters, camouflage, underground construction or dispersion, requires or directs Federal support for those unusual items of expenditure.

This plan is designed to minimize expenditure of funds during peacetime, both by plant management and by local, State and Federal Government. There need be no disruption or reorganization of normal peacetime plant organization. However, the needs of wartime are recognized and a flexible organization is proposed so that it can be stepped up if war becomes imminent, both in organizational strength and in the availability of funds to augment the plant protection activities of plant management.

A mutual aid plan may have to consider support beyond the limits of localities or metropolitan areas, by utilization of some facility service, if not outside the limits of the locality or metropolitan area, at least to cover the local services in the absence of the local services while aiding some other distant locality. It appears reasonable to anticipate that certain facilities may be of such size that they may, upon occasion, be called upon to support operations requiring the use of mobile civil defense forces. It is undoubtedly true that these mobile forces must upon occasion come to the aid of facilities. Specific details concerning mutual aid would normally be evolved by agreement with local civil defense authorities; policy pertaining to such use should emanate from the Federal Government.

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EVACUATION IN THE CIVIL DEFENSE PROGRAM

If it should become necessary to evacuate the civilian population from areas designated as dangerous because bombing or other military actions are taking place or are imminent, the evacuation decision would be the responsibility of the military authorities in consultation with the Civil Defense organization.

Detailed plans for evacuation in any given community would not mean that such evacuation is scheduled, but only that the civilian populations of certain designated areas must be prepared to participate effectively in an orderly process of evacuation if and when the decision is made that it is necessary in order to preserve the lives and well-being of children, mothers and other civilians; to reduce the burden of providing commodities and services necessary to maintain the community and its essential industries while under attack or threatened with attack; or to facilitate military action.

Planning for the orderly evacuation of the civilian population in any given area involves:

a. The assignment, equipment and training of individuals qualified to give leadership in an emergency.

b. The registration of every individual in the area classified with respect to his priority in the evacuation procedure.

c. The designation of one or more gathering points and assembly areas through which appropriate means of transportation to reception centers can be routed, loaded and dispatched.

d. The formulation of procedures for keeping currently informed as to changes in the address or the status of registered civilians.

e. The coordination of plans with the Police, Transportation, and Medical and Health Services, and Civilian War Aid of the local Civil Defense organization.

f. The integration of the local plan with procedures developed by those responsible for evacuation on a state, regional or national level.

Evacuation is the organized removal of civilians from any given area and it may be of two types:

a. Organized, voluntary evacuation wherein people leave an area under supervision of constituted authority. This usually involves the removal of priority groups.

b. Organized compulsory evacuation which is the mandatory removal of a portion or all of the civilian population from an area.

The voluntary exodus of civilians seeking accommodations elsewhere to be provided by themselves or by relatives or friends in anticipation of enemy attack is not regarded as evacuation. Such movement, however, constitutes an important element in determining the number of persons remaining within an area which may later be subject to an emergency evacuation, and therefore, the decision to encourage the voluntary departure of non-essential civilians is a proper function of civil defense.

ORGANIZATION FOR EVACUATION

In organizing for the emergency evacuation of civilian populations the following assumptions should be made:

a. The organization would be planned for units of population into zones, districts, sectors and blocks and duplicated to the extent required by the size of the community.

b. The civil authorities would be in control unless the military declare the area to be an active theatre of operations, but with the military authorities advising as to the necessity for evacuation.

c. Each community should care for its own population to the limits of its own resources.

d. Mutual aid should be developed for communities through the Regional, State and local Civil Defense organizations.

e. The resources of all local agencies should be coordinated under the direction of the local Civil Defense organization.

The members of the community should be evacuated in the following order:

a. Hospitalized sick and injured.

b. Pre-school age children accompanied by mothers or guardians.

c. School age children up to and including 15 years.

d. Pregnant women, aged and infirm.

e. All others, except those serving in essential capacities.

National Organization (Chart 2). It is proposed to establish an Evacuation Division in the Office of Civil Defense with the following principal staff:

A Chief and Deputy Chief of Evacuation, responsible for the formulation of policies and procedures, the maintenance of liaison with military authorities and others concerned with Civil Defense, and the conduct of evacuation operations when the reception area is in a different region than the evacuation area.

Regional Chiefs of Evacuation, as and when appointed, responsible for the development of effective evacuation organizations, including the designation and plans for equipment of reception areas in designated localities, the maintenance of liaison with the

high command in the corresponding Army areas, and the conduct of evacuation operations where the reception area is in the same region but in a different state than the evacuated area.

The above staff should be employed on a full-time, paid basis and is considered minimum for peacetime planning; of necessity this staff would require expansion in time of war. They should be qualified by administrative experience as well as by specialized skills in organizing and directing mass movement of large numbers of people.

State Organization (Chart 3). The State Director of Civil Defense should appoint a Chief of Evacuation, to develop effective evacuation organization, including the designation and plans for equipment of reception areas in designated localities, and for the conduct of evacuation operations when the reception area is in the same state but in a different community than the evacuated area.

Local Organization (Chart 4). The local Civil Defense Director should appoint a Chief of Evacuation, who would also serve as Chairman of the Evacuation Board, and be responsible for developing an effective organization for the emergency evacuation (or reception) of civilians in general accord with the policies and procedures outlined by the Civil Defense organization. In cooperation with the Warden Services, he should see to it that competent persons are appointed to serve in the capacity of evacuation leaders for each zone, district, sector and block covered by the evacuation plan.

FUNCTIONS AND OPERATIONS

The evacuation of civilian populations would take place in accordance with the following plans and procedures:

The local Chief of Evacuation in cooperation with the Chief of the Police, Transportation, Civilian War Aid, Medical and Health, and the Warden Services should jointly constitute the Local Evacuation Board with such others as they may select. The Evacuation Board should:

a. Designate the gathering points, alternate gathering points and the assembly areas through which appropriate means of transportation to reception areas can be routed, loaded and dispatched.

b. Develop plans so that these gathering points and assembly areas are adequately equipped with such facilities as may be required.

c. Plan with Transportation Services for making available a sufficient number of vehicles to accommodate the registered civilians in accordance with their priority status.

d. Plan with Civilian War Aid and Medical and Health Services for meeting the welfare and the health and medical needs of the evacuees at the gathering points, assembly areas, and enroute to the reception areas.

In those communities that have established a local evacuation board along the lines indicated it will be found desirable to use this same board to coordinate the procedures involved in receiving and providing temporary mass care for any large group of evacuees that may have been allocated to the community from some other locality.

The State Chief of Evacuation, in cooperation with the Regional Chief of Evacuation, should designate the reception areas within a state that may be available to receive evacuees and be responsible for the evacuation, transportation and reception functions within his own state so that the welfare and the health and medical needs of the evacuees will be cared for enroute as well as at the reception area.

When the reception area is in the same region but not in the same state as the evacuated area, the direction of the operation and the coordinating functions would be the responsibility of the Regional Chief of Evacuation.

When the reception area is not in the same region as the evacuated area, the direction of the operation and the coordinating functions would be the responsibility of the Chief of the Evacuation Division, Office of Civil Defense.

The Local Chief of Evacuation should be directly responsible for issuing the regulations and instructions governing the evacuation procedure, selection, training and supervision of the personnel assigned to evacuation duties, and transmitting official instructions with respect to evacuation to the civilian population.

The Block Warden or his aides should, prior to an emergency, visit each family in the block or other jurisdiction assigned to him, for the purpose of:

a. Registering each individual within each family.

b. Classifying each individual with respect to his priority status in the evacuation procedure.

c. Issuing a properly classified registration card to each individual.

d. Disseminating authoritative information.

e. Maintaining a current file of classified registrants.

The carefully selected and fully trained block warden, who has adequately performed the preparedness functions assigned to him, would be a key person in the orderly evacuation of the civilian population on the day of an evacuation.

As soon as the time for an evacuation has been determined, the block warden should be available to the registrants of his area who will naturally turn to him for advice and guidance. His calm assurances that adequate provisions have been made for the transportation of all registrants entitled to priorities to the reception areas prepared for them can do much to allay panic and to insure the cooperation of the civilian population. He should also be prepared to repeat his

verbal instructions to individual registrants as often as might be necessary and to convey the impression to all observers that he is the on-the-spot representative of the governmental agencies that have made the best possible arrangements for the safety, health, and welfare of those who are to be evacuated.

As early as possible on the day of the evacuation, or immediately upon receipt of emergency orders to evacuate, the block warden should be at the gathering point with his registration file and with his location well placarded so that his registrants can readily find their way to him. As the registrants report to him he would verify the priority status of those who are eligible for evacuation, and tag them with the official authorization to depart in one of the vehicles provided by the Transportation Services. He would also record on his file card the fact that the registrant has been authorized to depart. He would issue new registration cards to those registrants who have lost their original cards and to those whose cards indicate that they were formerly ineligible for evacuation but who have since acquired eligibility through previously unrecorded changes in their priority status. He would explain, where applicable, to those registrants who are ineligible for evacuation why he is unable to authorize their departure in government supplied vehicles.

The arrangements for the transportation and for the health and medical care of the evacuees should be provided by the Transportation and the Medical and Health Services, respectively, in accordance with the plans previously developed by the local Evacuation Board. Similarly, provision for the feeding and clothing of evacuees is the responsibility of the local Chief of Civilian War Aid until it can be transferred to the corresponding authority in some other jurisdiction by order of the state or regional evacuation chief responsible for seeing that such services are provided to the evacuees while enroute and upon their arrival at the reception area.

PUBLIC INFORMATION

Well in advance of an evacuation, the public should be given a calm and rational presentation of the following kinds of information through the press and radio and through personal visits by the block wardens:

a. The registration of each individual in a given area and his classification with respect to priority in the evacuation procedure does not mean that evacuation is imminent but is only a precautionary preparedness measure.

b. The authorized order of priority in the evacuation procedure with the explanation that the so-called "non-essential" members of the population are those who are not considered essential to the operation of community services or to the support of the war effort at a time when the community is exposed to enemy attack.

c. The status of each individual with respect to priorities in the evacuation procedure.

d. The location of the gathering points at which the designated registrants will report.

e. The amount and kind of baggage to carry with them.

f. The need for keeping the block warden informed of any change in address or priority status.

g. The need for keeping their individual registration cards always available and bringing them to the gathering point.

h. The need for keeping calm and not congregating at the gathering point until notice has been given through official channels.

The public should be given the following information when an evacuation has been ordered:

a. The time for reporting at the gathering point.

b. The authorized order of priority governing the evacuation.

c. The necessity for acting only on information received through official sources.

TRAINING

Well in advance of an evacuation the block wardens should be assembled in groups of 25 or less to receive detailed instruction as to their duties and responsibilities which include:

a. Initial and follow-up visits to every family in the block, or other area assigned to each block warden.

b. The issuance of registration cards to each individual classified with respect to priority status.

c. The maintenance of a current record file of the copies of all registration cards issued.

d. The personal supervision of the actual evacuation of his priority registrants when an evacuation is ordered and the recording of appropriate data on his copies of the registration cards.

e. The preparation and transmittal of periodic reports to the District Warden covering such items as might be required from the data recorded in his registration file.

GENERAL CONSIDERATIONS

The following considerations are inherent in any plan for the large scale evacuation of the civilian population:

a. The effective coordination of the Warden Service with the specific duties pertaining to the evacuation is a difficult administrative problem.

b. In the event that an organized, compulsory evacuation is ordered by the military, the procedures should be followed insofar

as they can be applied under the prevailing conditions. Obviously, however, the police power necessary to compel evacuation must be exercised through the constituted police authorities.

c. Obviously only a small part of the population of any community can be evacuated to a reception area within the jurisdiction of the local Civil Defense organization. An evacuation of any large size, therefore, must be controlled and directed by a higher Civil Defense authority. The responsibility for the direction of such an evacuation operation should reside in the office of the State, Regional or National Chief of Evacuation at the lowest operating level which includes both the point of origin and the destination of the evacuees. It is highly important, therefore, that the authority of the National, State, and Regional Directors of Evacuation and their relationship to each other and to the local Chief of Evacuation be clearly understood.

d. The conduct of an evacuation operation can only be worked out at this stage on the basis of a general plan. This plan, therefore, contains general principles and procedures for the guidance of those responsible for developing an actual evacuation plan for a specific locality. It is recognized that the varying composition of communities and their geographical setting will require adjustments in the application of these principles.

CIVILIAN WAR AID IN THE CIVIL DEFENSE PROGRAM

Because cities and people in this country cannot count on being immune from enemy attack in the event of war, the various social and economic needs of civilians resulting from enemy action must be effectively met through the establishment of an adequate civilian war aid plan. By careful advance planning and thorough organization, much of the distress from enemy attack can be minimized and the community's facilities and morale quickly restored.

Plan of Action. An organization to provide civilian war aid as a division of the Office of Civil Defense, with corresponding organization in states and localities, sufficiently flexible to meet the manifold human needs created by enemy action, is of utmost importance. Full utilization of the resources of existing agencies, governmental and voluntary, should be provided for in setting up the organization for Civilian War Aid.

As here used, Civilian War Aid embraces those welfare services required to meet the human needs of food, clothing and shelter, medical care, essential household goods, tools and occupational equipment, and information and counseling in personal and family problems that arise from enemy action or the threat of such action. Included is, therefore, not only provision of mass care immediately following attack, but also temporary rehabilitation aid pending transfer of the individual or family requiring further aid to appropriate agencies for permanent rehabilitation.

Responsibility for effective and prompt Civilian War Aid rests with Government. It is proposed that the Office of Civil Defense, when established by legislation, would have the authority and funds to discharge this responsibility on behalf of the Federal Government. In so doing, it will utilize all existing public and private agencies, able and willing to assist. While the Civil Defense organization may assign certain welfare functions to a specific agency or agencies, final responsibility for over-all performance of civilian war aid should rest in the Office of Civil Defense.

ORGANIZATION FOR CIVILIAN WAR AID

National Organization (Chart 2). It is proposed to establish a Civilian War Aid Division in the Office of Civil Defense with the following peacetime staff: a Chief of Civilian War Aid, a Deputy Chief and appropriate assistants. This staff of full-time, salaried persons would form the nucleus for national planning and promotion of this activity; expansion of activities as well as personnel would necessarily occur in the event of war.

The Chief of Civilian War Aid and his staff should be thoroughly qualified and experienced in mass care and rehabilitation aid. Experience in operating a registration and information service, and in the organization and techniques of mass feeding, emergency clothing and shelter should be part of their qualifications. The Chief of Civilian War Aid would be responsible for advisory and supervisory functions, would serve as the consultant in matters of civilian war aid to the Director of Civil Defense and to others, and would in general be the technical guide for all activities in this field.

Regional Organization. When regional offices are established, a Chief of Civilian War Aid and a Deputy Chief should be appointed to serve on a full-time basis with each regional coordinator. Their qualifications should be comparable to those of the staff in the national office.

State Organization (Chart 3). As an essential part of the Civil Defense organization within a state it is proposed that a Civilian War Aid Division be established. The State Chief of Civilian War Aid, appointed by the State Director of Civil Defense, would have advisory and supervisory responsibilities in the conduct of the civilian war aid program within his state. He might well be the head of an existing state agency or comparable person experienced in the operation of welfare services.

Local Organization (Chart 4). As in all phases of Civil Defense, success of the program will be determined by its effective operation in a community which is the victim of enemy attack. Within the local Civil Defense organization, therefore, there should be a Civilian War Aid Division, functioning in close cooperation with other Civil Defense units and utilizing the facilities and services of existing welfare agences, both public and private. It should be established with the specific responsibility of meeting situations growing out of enemy attack, to handle the problems of food, clothing, shelter, and the needs for temporary rehabilitation aid of a population stricken by enemy action.

In the local organization it is suggested there be five branches under the Chief of Civilian War Aid, each assigned one of the major functions—registration and information, mass feeding, emergency clothing, shelter and temporary rehabilitation aid. Each Branch Chief should be assisted by a representative group of qualified men and women from the community. It is assumed that such qualified persons will be available from agencies engaged in related activities and would be assigned to this organization as a part of their normal duties.

FUNCTIONS AND OPERATIONS OF CIVILIAN WAR AID

There are two stages in the relief operation which must be undertaken in the event of enemy attack on a community:

a. The Mass Care Stage, which will arise immediately following an enemy attack (except in cases of precautionary evacuation when mass care will operate in advance of the incident) before community facilities can be restored, or in communities which are so devastated that normal channels of business for the provision of goods and services are inoperative. The principal welfare services needed during this period of acute emergency will consist of mass feeding, clothing and shelter activities for the civilian population affected. To the degree possible, Registration and Information Service should also become operative at this point in order to furnish information, either directly or by referral, on all civil defense services available, to record individuals and families assisted, together with the killed, injured, and missing, for use in answering welfare inquiries received from within or without the affected community.

b. The Temporary Rehabilitation Stage, which follows mass care and in which aid is provided on the basis of particular needs of individuals, families, and special groups. Even though continuing enemy attacks may make necessary extended mass care operations, every effort should nevertheless be made to move as rapidly as possible to individualized treatment of personal or family needs resulting from enemy action. Temporary rehabilitation aid is especially important for those individuals and families with essential tasks to perform but whose ability to work requires return to the community, suitable shelter, proper occupational equipment and similar aid. Civil Defense, therefore, must be concerned with this type of aid which is directed toward the restoration of the individual or family to a condition of self-help and community support on a provisional basis. It assumes that much will still be required for complete and permanent rehabilitation which probably must await cessation of hostilities and the ultimate operation of appropriate agencies responsible for the final reconstruction program.

In general, the five branches of the Civilian War Aid Division of the local Civil Defense Organization would operate as follows:

Registration and Information Service. The basic purpose of Registration and Information Service is to assist civilians affected by enemy action. Operating through a Central Registry, it would obtain, record, and maintain on file information concerning affected civilians, including a listing of the dead (identified and unidentified), separated families, homeless persons, and individuals and families receving mass care and other aid. In addition, the Service would furnish information to individuals, to other Civil Defense divisions, and to cooperating agencies caring for affected civilians; it would answer inquiries from within or outside the area affected concerning the welfare of individuals and families; and it would refer inquiries on other than civilian war aid matters to the appropriate place.

The Registration and Information Service would be an integral part of the Civilian War Aid program. Its proper functioning requires close coordination with the Police and Medical Divisions and the other branches of the Civilian War Aid Division and the development of standard forms adaptable to the needs of the several divisions of Civil Defense concerned.

In large municipalities or metropolitan areas consideration should be given to establishing district centers to expedite registration and information service. The Branch chief and personnel to operate this Service should be enlisted from social work agencies experienced in conducting a Central Registry or Social Service Index. Additional staff, as needed in actual emergencies, should be secured from community volunteers and given necessary training in agreed-upon procedures.

Mass Feeding. In order to meet the food needs of large numbers of persons evacuated from their homes under emergency conditions at assembly areas, en-route, at reception centers, and for persons remaining in an evacuated community, there should be established within the Civilian War Aid Division a Branch responsible for the conduct of mass feeding operations.

Under the Branch chief responsible for mass feeding, assisted by a group of qualified community volunteers, a survey should be conducted throughout the jurisdiction of each local Civil Defense organization to inventory all eating establishments, commercial and private, their normal feeding capacity and possible degree of expansion; all other feeding facilities, including mobile canteens and food trains; available cooking and serving equipment; all food supplies, retail, wholesale, and government issue; and all persons experienced in preparing and serving large quantities of food. Mass feeding menus should be prepared in advance, with particular attention given to the diets of children and sick persons. An additional step should be the negotiation of agreements with owners for the use and expansion, if possible, of their establishments and for the release of supplies and equipment, when needed, for emergency feeding.

Inventories of such facilities, equipment, supplies and personnel, when compiled, together with copies of negotiated agreements, should be made available to the State and Regional offices of Civil Defense for use in mutual aid operations.

Particularly helpful in the conduct of this activity would be hotel managers, restaurant proprietors, nutritionists, dietitians, home demonstration agents, home economics teachers, wholesale and retail grocery merchants, mess sergeants, Red Cross canteen workers, and other persons similarly experienced in quantity feeding.

Emergency Clothing. Any program involving the mass movement and shelter of people under emergency conditions must take into account the possible necessity of quickly obtaining large quantities of essential garments. Sudden enemy attack, especially at night, would result in large numbers of people fleeing their homes, many of whom would require additional garments, as well as complete clothing outfits, in their removal to and reception in shelters.

Preparatory planning by the Branch chief responsible for conducting emergency clothing operations should include inventorying of all available clothing supplies from both retail and wholesale outlets and concluding arrangements for immediate procurement when necessary. Uniform listing of essential garments according to population groupings should be made. Copies of the completed inventory and of negotiated agreements for the release of stocks should be made available to State and Regional Civilian War Aid authorities for mutual aid purposes.

Leadership and personnel for the conduct of this activity should be enlisted from wholesale and retail clothing dealers, Red Cross Production Service workers, home economics teachers, and other community volunteers with comparable experience. Close coordination with the transportation and shelter authorities should be maintained to assure facilities for moving to and warehousing clothing supplies at selected distribution points.

Emergency Shelter. Shelter, as a part of Civilian War Aid, embraces two stages: mass shelter and rehousing on temporary basis. Mass shelter must often be provided during the confusion and pressure immediately following actual attack and is therefore the more difficult shelter operation requiring the greatest degree of advance organization. It is basically an undesirable but essential means of housing the homeless for brief periods of time and should be terminated by rehousing at the earliest practicable moment.

As a first step the Branch chief responsible for shelter, assisted by community volunteers experienced in hotel, camp, real estate and building management, should conduct a survey of all available shelter

facilities, both public and private buildings, urban, suburban and rural. In the conduct of this survey the cooperation of the Warden Service should be enlisted in establishing a record of potential capacity for housing refugees in private homes and apartments of residential areas. In all cases the survey should include arrangements with the owners for the use of fixed and movable shelter facilities when the emergency occurs.

In addition to inventorying the kind, location and capacity of available buildings, other characteristics to be noted include structural soundness, degree of safety from possible enemy attack, adequacy of potable water, heating, lighting, cooking, serving, and storage facilities. When required, arrangements should be made for installation of necessary equipment, including cots, blankets, emergency lighting, toilet and sewage disposal facilities, and general maintenance items.

Mass shelter would have to be provided for sound persons as well as for the ill and injured forced from their homes. Shelter facilities for the latter group, however, should be selected and set up in cooperation with the Medical and Health Division. In all cases the Branch of Civilian War Aid responsible for shelter must be prepared to cooperate with Civil Defense organizations of other communities when requested by constituted authority under mutual aid arrangements. To this end copies of inventories of available shelter facilities and agreements for their use should be forwarded to state and regional offices of Civil Defense.

Rehousing of homeless individuals and families in homes of friends and relatives in the affected community, in homes of others who volunteer space, in unoccupied or partially occupied houses and buildings, either undamaged or repaired after attack, constitutes the second stage of shelter operations. The length of time during which such rehousing may continue will vary, depending on the course of war and the initiation of permanent reconstruction programs by the appropriate agencies of Government. Even though only temporary, rehousing is a necessary function of Civilian War Aid to bring about termination of mass shelter arrangements at the earliest moment consistent with provisional rehabilitation of the family.

Rehabilitation Aid. The purpose of Rehabilitation Aid is to provide assistance from all sources on an individualized basis to the needs of persons and families affected in order to restore at the earliest practical moment a condition of self-support in the family unit. Rehabilitation Aid is considered the second phase in any program of Civilian War Aid, and is distinguished from the first phase, when aid is extended on a mass care basis, not so much in point of time as in the methods used. Rehabilitation aid is made available to civilians suffering losses from enemy attack on the basis of their individual and family needs. Case work processes are used to determine, in consultation with the family, the extent of need and the degree and type of assistance required.

Rehabilitation aid to victims of enemy attack must be considered in its temporary as well as permanent aspects. Permanent rehabilitation, involving long-time care of individuals and complete reconstruction of destroyed property, including homes, would most probably not be undertaken until after cessation of hostilities. It will involve assistance of all kinds, based on need, including benefits available from Government-inaugurated insurance and indemnity programs. It is not contemplated that the Office of Civil Defense will assume responsibility for permanent rehabilitation; this should be a function to be discharged by the cooperation of all agencies having assigned responsibilities for the final reconstruction program.

Civil Defense is concerned only with temporary rehabilitation aid involving assistance to the individual or family on a provisional basis, pending permanent rehabilitation. This type of aid is particularly important in bringing about the desired, early termination of mass care and returning the family to a condition of self-help and community support.

Based on the individual needs of the family, it may include, in addition to basic maintenance items, family counseling and personal services, aid in returning the family to the community, medical, nursing and hospital care, rehousing, essential household furnishings, tools and occupational equipment, and other special services. The responsibility of Civil Defense for aid of this character should terminate with the transfer of all such cases at the earliest date agreed upon by Civil Defense and the agencies responsible for the permanent rehabilitation program.

Because services and assistance must be individualized to particular family situations, the Branch chief and personnel assisting him in the conduct of temporary rehabilitation aid should be skilled in accepted family case work practices and have a good knowledge of all resources which may be applied in such rehabilitation. Existing social work agencies and their staffs of professionally trained workers should be looked to for the personnel required to conduct this activity. Every effort should be made to coordinate closely the services and assistance rendered as a part of temporary rehabilitation with the aid extended during the mass care period.

TRAINING

Mass care relief covering the organization and operation of a registration and information service, mass feeding, emergency clothing and shelter will require as a minimum the preparation of informational material for those responsible for these activities in the local

organization. Considerable material of this nature already exists and has been in use for the guidance of local committees responsible for relief in natural disasters. The selection of personnel to conduct these welfare services needed during the mass care stage from among qualified and experienced community leaders will reduce the need to conduct formal training courses in these fields. Test drills and practice problems are recommended.

It is assumed that temporary rehabilitation aid will be extended under the supervision of professional social workers in most Civil Defense jurisdictions. Other than necessary information on policies governing rehabilitation aid of this kind, it is not anticipated that the Office of Civil Defense would be required to institute any formal training courses for social work personnel. At the same time it is recognized that the emergency may create conditions requiring the services of all available fully trained social workers and, in addition, partially trained and untrained personnel. It is recommended, therefore, that there be developed during peacetime training methods and course material for such supplementary staff so that it will be readily available for distribution when the emergency occurs.

SPECIAL PROBLEMS

It is proposed that the Civil Defense organization be established as an operating as well as a coordinating agency in time of enemy caused emergencies. It is further proposed that any program of civilian war aid undertaken by this organization operate through the state and local Civil Defense organizations, making use of appropriate resources of governmental and non-governmental agencies.

It is essential that clear lines of command authority and proper administrative and fiscal procedures be established so as to enable the Office of Civil Defense to have at its disposal the resources of other national, state and local governmental agencies for effective use when enemy caused emergencies arise. It will also be necessary that the resources of appropriate non-governmental agencies, considered necessary by the Civil Defense agency in the conduct of a program of civilian aid, be made available either through such legislation or by advance agreements negotiated in writing.

The use of federal appropriations to finance civilian war aid expenditures by state and local Civil Defense organizations should be controlled by the Office of Civil Defense under procedures to be established.

The indispensable place of the volunteer citizen in making effective a program of civilian war aid is one that will require full and complete consideration. Particularly the mass care operations will require great numbers of volunteer assistants. The assistance of agencies experienced in the recruitment, training and supervision of volunteers should be enlisted in these operations.

AIR RAID WARNING AND AIRCRAFT OBSERVERS IN THE CIVIL DEFENSE PROGRAM

The people of the United States will expect and are entitled to receive to the extent practicable, prompt and adequate air raid warning information in the event of any enemy air attack. This is an essential requirement of a civil defense program.

Federal, state and local air raid warning systems should be devised so that civil authorities and the public in areas in the path of approaching enemy aircraft will be alerted as to the probability of attack, time when the attack may be expected and, if possible, its potential effectiveness. Given the required warning, timely action may be initiated by the organized civil defense forces to achieve the fundamental purposes of civil defense to safeguard lives and property and to minimize the effects of enemy action.

It should be recognized that no system of air raid warning and air defense, however carefully planned and operated, will insure protection and guaranty of warning of a specific air attack. The conduct of modern warfare and strategy of an enemy may, therefore, result in areas of the United States and its possessions and territories being subjected to initial surprise air raids in efforts to cripple vital installations and destroy the will and ability of the people to resist.

The United States Air Force, in fulfilling its responsibility for air defense, will establish a number of Air Defense Control Centers and operate the basic facilities for detecting the approach of hostile aircraft, for identifying any such aircraft and evaluating their potential threat.

An organized system of aircraft observers for reporting to Air Defense Control Centers will be required to augment the aircraft activity information which the United States Air Force will secure with electronic detection equipment. Furthermore, to obtain nationwide air raid warning coverage, it may be expedient in some areas to depend exclusively upon a civilian aircraft observer system.

Aircraft observation posts should be established and maintained on a standby basis with the required number of volunteers fully organized and trained, ready for immediate activation in the event of an emergency.

Planning the number and location of aircraft observation posts should be coordinated between the United States Air Force and the Office of Civil Defense. Establishing and organizing the observation posts, administering the activity and supervising the civilian aircraft observers should be the responsibility of the Office of Civil Defense, while the manner of collecting and evaluating the information generally should be the responsibility of the Air Force.

The dissemination of air raid warning information to civil authorities and the public through pre-established communications channels should be the responsibility of the Civil Defense organizations. The operational procedures should be coordinated by the Office of Civil Defense with those of the United States Air Force.

The operation of air raid warning and aircraft observer systems by Civil Defense will necessitate cooperation on the part of State and local Civil Defense organizations in establishing civilian aircraft observation posts, the extensive provision and use of communications facilities, competent staff, and complete coordination and integration with the Air Force.

ORGANIZATION FOR AIR RAID WARNING AND AIRCRAFT OBSERVER SYSTEMS

National Organization (Chart 17). An Air Raid Warning and Aircraft Observers Division with a Chief and a small staff should be established in the Office of Civil Defense. This Division should be organized into two branches; an Air Raid Warning Branch, and an Aircraft Observers Branch. They would be responsible for the administration of civil defense field organizations in the Air Defense Control Centers, and Air Defense Control Areas respectively. The communications engineering and service aspects of air raid warning systems should be the responsibility of the Communications Division of the Office of Civil Defense. In cooperation with the Headquarters of the United States Air Force these two divisions should develop the operational procedures and the training techniques for the civil defense personnel at Air Defense Control Centers and for volunteer civilian aircraft observers.

Under the National Organization it will be necessary to establish field operating personnel as follows:

a. A Civil Defense Air Raid Warning Chief should be stationed in each Air Defense Control Center, with sufficient assistants for continuous 24-hour operation. The personnel should be recruited, trained, and administered by the Office of Civil Defense with the Air Force assisting in the necessary training. A source of available personnel would be former military officers no longer subject to recall and civilians who have had experience in air warning systems.

b. A Civil Defense Aircraft Observers Chief should be stationed in the headquarters of the administrative staff of the Air Defense Commander, operating in close coordination with the Air Force administrative staff. This Chief, with a small staff and with the cooperation of state and local Civil Defense organizations and the United States Air Force, should be responsible for establishing and organizing observation posts and for supervising the recruiting and training of the volunteer civilian personnel to serve as aircraft observers at each observation post.

These activities should proceed as rapidly as the Air Force establishes its Air Defense Control Centers.

Regional Organization. When regional offices of Civil Defense are established, a representative of the Air Raid Warning and Aircraft Observers Division should be included on the staff of the Regional Coordinator and made responsible for the general supervision and coordination of the air raid warning and aircraft observer systems. He should be in general charge of the administrative functions including such details as arranging, if necessary, for gasoline, and other priorities and services which are essential to the civilian volunteers for the performance of their official duties.

State Organization (Chart 3). An Air Raid Warning and Aircraft Observers Division should be a part of the State Civil Defense organization for the purpose of coordinating and integrating the operations of air raid warning systems within the State. This Division should cooperate closely with the Communications Division in determining the State's communications requirements for air raid warning. This Division should also be responsible for organizing through the local Civil Defense organizations, the aircraft observer posts and the necessary civilian observers.

Local Organization (Chart 4). An Air Raid Warning and Aircraft Observers Division should be a part of the local Civil Defense organization, responsible for relaying air raid warning information. In addition, this division should be prepared to organize aircraft observation posts, recruit and assist in the training of volunteer aircraft observers when requested to do so by the State Civil Defense organization. The Chief of the Communications Division should be responsible for the necessary communications for the local air raid warning system, the type, power and number of sirens, or other devices as approved by the Office of Civil Defense for public warning, and for public loud speaker equipment if it should be provided.

AIR RAID WARNING SYSTEMS

Air Defense Control Areas. The United States Air Force has established an Air Defense Command charged with the responsibility of air defense of the United States. Under this Command there will

be established a number of Air Defense Control Areas varying in size from less than a state to several states, but together will cover all of the United States.

Air Defense Control Centers. Within each Air Defense Control Area the Air Force will set up an Air Defense Control Center in charge of an Area Air Defense Commander who will be responsible for the air defense of the area. The control center will be operated by personnel of the Air Force. It should also be the operating center for a Civil Defense Air Raid Warning Chief, in order to assure prompt utilization of air raid information gathered by the Air Force and for its transmission for use of Civil Defense organizations. Alternate centers may be established or radar installations in the control area may be designated for emergency use as an Air Defense control center in the event the primary center is made inoperative. Civil Defense operational plans should be sufficiently flexible to meet such arrangements.

Each Air Defense Control Center will be interconnected by appropriate communications facilities with all the available and necessary sources, so as to receive all information concerning air activity in the area. This information will be posted as received, probably graphically, in the Air Defense Control Center.

Operation of Air Defense Control Centers. The Armed Forces in conjunction with the Office of Civil Defense will establish broad policies for the guidance of the Area Air Defense Commanders and the Civil Defense Air Raid Warning Chiefs in formulating "Standing Orders" for the control centers.

Each Area Commander will formulate a set of "Standing Orders" for the guidance of the military and civil defense personnel operating the control center. The Civil Defense Air Raid Warning Chief would function in accordance with the "Standing Orders". For example, if an enemy airplane approaches the boundaries of the control area the "Standing Orders" would govern the action he is required to take in issuing air raid warnings. Under raid conditions, the Area Air Defense Commander may find it necessary or desirable to depart from the "Standing Orders" which may require the Civil Defense Air Raid Warning Chief to take other appropriate action.

Dissemination of Air Raid Warnings. The Civil Defense Air Raid Warning Chief, in the execution of the "Standing Orders" for an Air Defense Control Center, would transmit air raid warning information to Civil Defense Control Centers in pre-determined cities, key point Air Raid Warning Centers, and to key point radio broadcasting station or stations within the control area. The State Civil Defense authorities within the control area, the National Office and the regional Civil Defense offices concerned should receive immediate notification of air raid warnings.

Key Point Air Raid Warning Centers. Within each Air Defense Control Area, Civil Defense Control Centers should be selected and designated as key point Air Raid Warning Centers to receive air raid warning information direct from the Civil Defense Air Raid Warning Chief. These centers will be responsible for relaying the warning information to prescribed Sub-Air Raid Warning Centers and authorizing locally the alerting of the public and the notification to other local agencies. The Office of Civil Defense, through coordination with Headquarters of the United States Air Force, should determine the general pattern for selecting such key points. The basis for selection will be the location and boundaries of the control area, military considerations, and the efficient use of communications facilities.

Sub-Air Raid Warning Centers. The establishment and operation of state air raid warning systems beyond the key point centers should be the responsibility of the Civil Defense organization in each state. The Office of Civil Defense would provide technical assistance.

The states should determine the Sub-Air Raid Warning Centers (cities and counties) which should be alerted by the key point Air Raid Warning Centers, and should provide and pay for the necessary communications facilities. The plan for grouping of communities into warning areas, each of which would be served by an individual key point center, should be carefully reviewed with the common carrier communications companies which would furnish the communications facilities.

Key Point Radio Broadcasting Stations. The Office of Civil Defense, with the cooperation of other Government agencies concerned, should select specific radio broadcasting stations throughout the nation to serve as master stations for operational guidance of all other radio broadcasting stations within each of the Air Defense Control Areas. Under this arrangement the key radio broadcasting stations would accept information and instructions only from such authorities as the Civil Defense Air Raid Warning Chiefs and possibly the local Civil Defense Control Centers. Other radio broadcasting stations which would become satellites in emergency conditions would by direct line connection or monitoring of a special carrier or by other means be prepared to hear any signal which would indicate impending attack and the prescribed action to be taken by them. Only in the event of proper codified instructions to the satellite radio broadcasting stations would they join with the key radio stations in broadcasting civil defense information.

Time Elements of Warning. The increasing speed, altitude and range of aircraft and guided missiles affect the time elements for air raid warning and increase the difficulty of determining the areas to be alerted. The possibility of a surprise attack may preclude any warning. The period of warning which can be given a specific loca-

tion may vary from zero to more than one hour, depending upon the area and the situation. Different degrees of air raid warning should be established, based primarily on time intervals. These degrees of air raid warning would be incorporated in the "Standing Orders" for each control area.

Equipment and Communications Facilities. Space and operating equipment, including a situation map of the control area for use of the Civil Defense Air Raid Warning Chief at each Air Defense Control Center should be provided by the United States Air Force. The Communications Division of the Office of Civil Defense should be responsible for planning and arranging for the air raid warning communications network, extending from the Air Defense Control Centers to pre-determined cities and key points. The latter can best be accomplished through arrangements with common carrier communications companies for the establishment of private line communications networks.

During World War II, the common carrier private line telephone and commercial facilities, utilized for air raid warnings, were found to be flexible and dependable. Other communications facilities and alternate methods which should receive careful study by the Communications Division of the Office of Civil Defense are:

a. Telegraph printer equipment at each control center which would include a distributor-transmitter, a perforator and prepunched tapes with the desired code warnings. Warning information would be transmitted by inserting the proper tape in the transmitter and broadcasting the signals to designated points within the control area. The same circuits would provide for acknowledgments.

b. Alert radio broadcast system which superimposes on existing radio broadcast transmitters sub-audible frequencies as a means of rapid secret signaling to designated points which would be equipped with proper receiver for the purpose. (The extent and conditions under which radio silence may be imposed for military security is now being studied. When resolved, the Office of Civil Defense should determine the utilization of broadcasting facilities for disseminating air raid warnings to the public.)

The United States Air Force is planning to provide emergency radio-telephone communications from Air Defense Control Centers to pre-selected telephone company central offices. These channels would be used in the event of interruption of normal facilities provided for the control center installation, to re-establish communication promptly from the Air Defense Control Center to its private line system. Indications are that one or more of these channels may be made available for the emergency use of the Civil Defense Air Raid Warning Chief.

The accompanying schematic diagram (Page 242) shaws the routing of air raid information from Air Defense Control Center and from a typical key point warning center.

AIRCRAFT OBSERVER SYSTEM

Even with radar and other devices, a system of civilian aircraft observers is necessary for providing additional aircraft activity information for effective air defense and air raid warning operations.

Aircraft observers, operating from carefully selected locations, would keep constant watch for approaching aircraft and through rapid means of communication, would transmit information promptly to pre-designated centers in the Air Defense System. These observers should be volunteers, working in their own areas, at authorized observation posts, recruited and trained by Civil Defense, using techniques developed with the assistance of the United States Air Force. They would not only fill any gaps in the radar system, but would be a second line of observers in various inland areas. Their reports would be utilized to provide air raid warning information.

Locating Observation Posts. The Air Defense Commander of each control area, in conjunction with the Civil Defense organization should establish the requirements for civilian aircraft observation posts. Knowing the capabilities of the radar system in his area, each Area Commander, jointly with the Civil Defense Aircraft Observers Chief, should determine the desired locations of the necessary observation posts for the area. The exact location of each observation post will have to be examined in detail, to insure that the best possible combination of all round visual coverage is secured, consistent with the communications facilities available. A large number of observation posts will be necessary throughout the nation and during a period of emergency thousands of civilian volunteers will be required to serve as aircraft observers. To secure the most efficient coverage, consideration should be given to the use in the aircraft observer system of existing observation installations such as those of the United States Coast Guard and the United States Forest Service. Obtaining a suitable overlap with adjacent observation posts will be necessary and will probably require the use of friendly aircraft to test such overlaps.

Reports from Observers. Aircraft observers at the officially designated observation posts should immediately transmit over the system of communications provided, pertinent information of aircraft seen or heard in accordance with instructions prescribed by the Office of Civil Defense. Precautionary measures should be adopted to assure protection against misinformation from unauthorized sources. Observer calls routed over the regular telephone system facilities should receive proper priority handling to insure the prompt establish-

ment of connections. To identify these calls they should be given a special classification such as "Aircraft Flash". Arrangements for the necessary operating practices and billing procedures involving the calls made by the observers should be coordinated through the Office of Civil Defense with the communications companies.

ROUTING OF AIR RAID WARNING INFORMATION FROM UNITED STATES AIR FORCE AIR DEFENSE CONTROL CENTER

PROCEDURE AT AIR DEFENSE CONTROL CENTER

PROCEDURE AT TYPICAL KEY POINT AIR RAID WARNING CENTER

CONTROL CENTERS IN THE CIVIL DEFENSE PROGRAM

As a community sets up its Civil Defense organization and prepares for possible enemy attack, a properly equipped control center will be an all-important part of the plan if Civil Defense is to act speedily and effectively in an emergency. The control center would be the place from which operations are directed, and would be the source of information and of instructions to the operating personnel.

To control centers would come official word of impending attack, and to it would turn the entire Civil Defense organization as it prepares for action. Therefore, when an emergency develops it must be well equipped and manned, in a constant state of readiness.

Location. The Control Center should be located so that it can function effectively and efficiently. Since its operation is dependent on communications, it should be located where there are existing satisfactory means of communications and where communications additions can readily be made if necessary. Further, its location and design should be such as to give the maximum protection against interruptions to its operation. The paramount consideration is efficiency of operations since that is its purpose; protection is to insure continuance of operations.

In metropolitan areas or large localities there should be established one or more alternate Centers. They may also be established in smaller localities if deemed advisable. The alternate Center should be interconnected with the main Control Center by means of adequate communication facilities, and if for any reason the main Control Center becomes inoperative, would take over its functions. In addition, it may be desirable to establish sub-Control Centers for decentralizing control of local operation.

Equipment. The equipment of a Control Center will vary with the number of personnel at the Center and depending on the scope of activities grouped at the Control Center as well as the area over which it operates. There should always be included a large scale map on which may be indicated those essential items of Civil Defense interest such as fire stations, hospitals and reserve units to assist the Director and his staff in formulating their operational plans during an emergency. When the incident occurs, the map becomes an action portrayal of the area or areas of enemy damage, location of fires, and the movement and employment of Civil Defense units to overcome the damage, undertake repairs and restore as far as practicable normal conditions of living. There should be a good lighting system, with provision for an independent auxiliary source of power should the main power service become inoperative. Consideration should also be given to proper ventilating means for safeguarding personnel as far as practicable from contaminated air. The personnel in the Center should be so placed as to insure coordinated staff work and to facilitate rapid operation. Provision should be made for emergency rations and drinking water and for heating both food and water. Toilet facilities should be arranged and (where practicable) temporary sleeping arrangements provided.

Communications. Since the Control Center would be the place from which civil defense operations are directed in an emergency, its communication system must be of the best in reliability and efficiency and should be adequate to carry on all phases of operation. It should be particularly well prepared to receive air warning information and to retransmit this information or to alert the public as the case may be. Dependence should not be placed solely on one means of communications since under attack it may become inoperative in part or in its entirety. Alternate means, including messengers, must be provided.

Transportation. The Control Center should be provided with adequate transportation; the amount and type will depend on the size of the Center and the scope of its activities.

Personnel. The Civil Defense Director would designate the services and utilities to be represented at the Control Center. The representatives of these services would furnish the Director information regarding all phases of their services and recommend to him the proper utilization of their services. Under the direction of the Director, representatives would issue instructions pertaining to the operation of their services.

The Director should be assisted by the deputies in the local organization who are responsible for the administrative supervision of their divisions. During emergency operation they would assist the Director in such manner as he may designate. In the absence of the Director, a designated Deputy should act in his stead. If the situation warrants, the Director may dispatch a Deputy Director to the scene of the disaster to direct and coordinate Civil Defense activities.

In addition to service representatives, there may also be present at the Control Center any special representatives selected by the Director to assist and cooperate with service representatives in Civil Defense.

The personnel at the Control Center must be thoroughly conversant with all phases pertaining to the service they represent. Further, they should be trained to operate as a team. Training exercises and tests should be conducted for this purpose. This training may consist of a map exercise played in the Control Center and may be extended to cover the area over which the Center has control with the utilization of all communication facilities. An attempt should be made to visualize actual conditions in these exercises and to bring about practical solutions to the problems presented. The exercises should be followed by a full discussion and corrections should be made in equipment or operations found to be deficient.

In an emergency the Center should be manned in accordance with the needs of the situation as it applies to the particular Center. Should an attack be imminent the Center should be fully manned. If this is not the case, one person may be on constant duty at the Center to insure its being placed in operation in the briefest possible time. A complete plan should be made to get the personnel quickly to the Center. This should include transportation and other details. An occasional exercise to test the rapidity with which they can assemble should be held. The Center personnel must keep themselves in a state of constant readiness to respond to a call and should keep themselves abreast of any change or development of their service. Communications should be frequently checked.

Operating Procedures. The Civil Defense Control Centers, state and local, enable the Directors to control and direct Civil Defense operations. Selected Control Centers would serve as key points to which air warning information is transmitted. They should be in an established communications network for air warning information, equipped to re-transmit this information in accordance with prescribed plan to other Control Centers. The local Control Center must be prepared to take prompt action to alert the public by prearranged air warning signals.

The local Control Center would receive information regarding an incident from various sources such as Incident Officers, reconnaissance teams, fire services, police, wardens and other Civil Defense services at the scene. Service representatives would chart information pertaining to their service on their maps, and the map plotter would put such information on the Director's map to give him a picture of the scope and extent of the incident. Likewise, he would indicate on the Director's map the operations that are being undertaken to minimize the incident. Service representatives would recommend to the Director action to be taken, and he would confer with them in directing the operations. There must be a standard plan of procedure within the Control Center to be put in effect when the incident takes place to be followed by instructions from the Director as the incident situation develops.

The next higher level in the Civil Defense organization and, when desirable, adjacent Control Centers should be kept informed of the situation in order that they may be able to act intelligently in a situation covering several incidents, or to be of assistance by utilization of reserves or other resources.

INCIDENT OFFICERS IN THE CIVIL DEFENSE PROGRAM

When the damage caused by enemy action at a specific location is so extensive that a number of services, such as fire, police, medical, and rescue, may be required, and where there might be confusion unless some one in authority exercises coordination and control, the local Director of Civil Defense would dispatch to the incident a representative designated as Incident Officer.

At the scene of the incident he would exercise coordination and control over the separate services to the same extent that the Director would exercise if he were present. He would not direct the technical services but he would coordinate their activities. He would assign wardens in the area to specific duties, determine priorities of operations, and resolve conflicts between services. He would establish and operate an Incident Officer's Post at or near the scene of the incident to serve as a rendezvous and reporting point of services and personnel, make necessary reports to the Control Center, maintain liaison between the Services and the Control Center, and, in behalf of the various services, request whatever supplementary aid is needed.

The local Deputy Directors of Civil Defense would, in all probability, be the persons dispatched as Incident Officers. These men would be especially well qualified for such service as they would be of the same caliber as the Director, and have equivalent qualities of leadership, knowledge, training, and experience. During periods of actual operations their chief duty should be to assist or represent the Director at the Control Center or to represent the Director at the scene of major incidents.

Other persons might be selected from the Warden Service, Police Service, Fire Service, or other sources to serve as Incident Officers because of proven qualities of leadership. Those so selected should be given thorough training in the specific duties of the Incident Officer.

MANPOWER REQUIREMENTS IN THE CIVIL DEFENSE PROGRAM

In determining manpower requirements for civil defense, consideration must first be given to the assignments in which it is necessary to place personnel, either in units or as individuals, in order to carry out the functions of civil defense. It immediately becomes apparent that, except for particular occasions during an emergency, a great proportion will be engaged only part time in civil defense operations. There will be a few that will serve full time, but most participants will be performing their normal tasks though trained and ready to undertake full time civil defense functions when the emergency requires.

Some continue their normal occupations when diverted to civil defense work, as for instance, the firemen, police and doctors. Others temporarily change from their normal occupations to act, for instance, as wardens. For obvious reasons it is desirable to use personnel in civil defense work in their normal occupations. This applies to unit organizations as well as individuals and every effort should be made to accomplish this.

Personnel will be required for civil defense purposes in three main groupings—Federal, State and local. The Federal organization will require a small group of full time employees and in addition will have part time assistance of personnel from other government or private agencies. In an emergency this permanent group should be expanded as necessary.

In peacetime the State Civil Defense organization will require a small staff of full time employees, and they will be assisted by existing agencies of the state government. In emergencies both will need to be augmented. In addition, there should be organized State mobile reserve units to be called for duty when the emergency requires.

The local organization may have a small group for full time civil defense work. Many Civil Defense units will utilize and be built around existing agencies; some new special units may be formed, and all would be augmented by large numbers of volunteer workers.

Industrial plants, institutions and the like should have completely organized civil defense forces and in general the utilization of full time personnel and volunteer workers will be similar to that of the locality.

A very important part of the manpower problem is the determination of the classes of personnel available for civil defense work. Most civil defense workers can be expected to make themselves available by volunteering. There will, however, be a conflict with the requirements of the Armed Forces in certain categories of key personnel as well as in age groups. To reconcile those requirements and establish a personnel policy will require a careful analysis of the duties and functions of civil defense and the Armed Forces, as well as an estimate of the probable enemy action in light of existing conditions and the effect of such action on the national life.

There are no accurate World War II statistics of the total number of persons engaged in civil defense either in the United States or Great Britain. It has been estimated, however, that the maximum total so employed, full and part time, in Great Britain was approximately 8,000,000 and for the United States approximately 10,000,000. Based on present population figures of the United States the total in a grave emergency may well run to 15,000,000 or more. The Office of Civilian Defense in World War II asked for no deferments from military service. Great Britain operating under national service laws had certain provisions for Civil Defense workers, which made persons not engaged in specified activities subject to call for civil defense work.

In the event of a future emergency, the United States may place on call for service all persons in the country, both men and women. Should this be the case, the classes of personnel available to the Armed Forces and those available for civil defense should be outlined in the over-all manpower policies.

On the other hand, manpower for the Armed Forces may be procured as in World War II by selective service. However, in either case the manpower requirements of Civil Defense and the Armed Forces will overlap in certain categories. Particularly, peacetime agencies which have a part in civil defense operations in an emergency such as the fire department and the police will suffer losses of trained personnel to the Armed Forces unless they are given exemptions, or at least deferments until replacements can be trained. Should the United States suffer from enemy action, the allocation of personnel to Civil Defense who are subject to selective service for the Armed Forces will become an important manpower policy decision. Under any conditions it can be expected that a considerable number of firemen, police and other personnel important to civil defense will volunteer for service with the Armed Forces and this in itself may pose a serious personnel problem in many localities.

The sources of personnel for Civil Defense, the allocation of manpower for this purpose and deferments from selective service are only a part of the manpower problem of the country in a national emergency. It must be considered in the light of the part that civil defense is to play in national defense, as well as the needs of the Armed Forces and the requirements of industry, and must be evaluated in terms of the emergency. Personnel considerations for civil defense must be based on these factors and on a study of the over-all needs of the country for the best utilization of its manpower to meet the emergency.

Far-sighted planning for an emergency, whether by management or government, would include analysis of personnel in terms of planning for replacements in the event of call to duty in the Armed Forces.

The Civil Defense organization should in the main base its manpower requirements on personnel exempt from or not otherwise eligible for military service.

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SUPPLY SYSTEM IN THE CIVIL DEFENSE PROGRAM

Civil Defense requires a system of supply whereby the material requirements for the operation of civil defense can be properly determined and effective arrangements made for providing these requirements in proper quantities when and where needed. The details of planning require successively the determination of the system, the details of its operation, the coordination with other agencies, the selection of the required supply items, the determination of quantities and the time that they should be furnished. This procedure for supply planning would follow closely the organizational and operational planning for civil defense as it develops.

Although in the main the responsibility for the operation of civil defense is to be placed in the states, such operations must be coordinated in a plan national in scope. Each state provides for its own protection and also has a definite responsibility in the civil defense of the country as a whole. It assists in protecting other parts of the country and in return receives assistance when it is required. The determination of material requirements and allocations must be fitted into this over-all plan.

Elements of Supply System. The system of supply for civil defense is made up of a number of successive steps. The first step, after the requirements have been determined based on civil defense needs and reconciled with Civil Defense appropriations, is the procurement. The question arises by what means this procurement should be undertaken, whether independently by Civil Defense or through the facilities of the Armed Forces on allocations made by the Munitions Board. After full consideration it has been concluded that since the latter method is in existence on a sound and efficient operating basis it would simplify procurement for civil defense and should result in economical and effective use of funds and manpower.

The next step in the system is storage, which is the holding for temporary periods of certain items for a particular purpose to be later issued at a specified time. This is usually in the nature of items held in reserve which are additional to the needs of the moment. The existing depots and storage facilities of the Armed Forces should be used for this purpose insofar as practicable.

The third step is the issue or distribution of items, and here again the existing facilities should be utilized for this purpose.

Also included in the system of supply based on procurement, storage, and distribution is a procedure for accounting for all the items purchased by federally appropriated funds. In order that the expenditures of these funds may be justified, it must be clearly shown that the items purchased are properly placed.

ORGANIZATION

Federal (Chart 2). Procurement and supply in the Office of Civil Defense will be under the Manpower and Matériel Division established for this purpose. This Division should be headed by a Chief who would have under him a Matériel Branch composed of two sections: the Requirements Section and the Procurement and Distribution Section. In the Regional Office, when established and when it becomes necessary to decentralize supply, there should be a Manpower and Matériel Division similarly organized.

State. The major portion of the supplies procured for Civil Defense will be shipped to specified localities within a state for organized Civil Defense units or for use by the locality. The state office, therefore, becomes a vital link in the Civil Defense system of supply. The Director of Civil Defense in a state would designate a property officer who would be bonded and charged with all Civil Defense property, both State and Federal. He would handle the administrative details in connection with supply and maintain a record of all property. Since supply within the state should be a state responsibility, the utmost use should be made of existing State and Federal facilities.

Local. The local Civil Defense Director would designate a property officer who would handle the administrative details in connection with Civil Defense supply and maintain a record of all property. He would be accountable to the State Civil Defense property officer for supplies issued to the locality by the State.

SUPPLY REQUIREMENTS

Supply procedures discussed here deal only with supplies purchased by appropriated federal funds. Authorizations to purchase may become very important if materials or items became scarce. States or municipalities may have funds to purchase but unable to procure scarce items to fill their needs. The Office of Civil Defense then may be called on to determine essential priority requirements and assist in securing authorizations.

As a basic preliminary to determining an appropriate system of supply for Civil Defense it is essential that an estimate be made of the quantities that the Civil Defense system will require. An addi-

tional factor next in importance to quantities is the timing—that is when will the items be required. These estimates are essential to a determination of the assistance of the Armed Forces to Civil Defense in procuring, storing and distributing supplies.

Consistent with the proposed organizational structure for Civil Defense the overall supply plan should be placed in six main groupings. These groupings while they may be given separate consideration must, of course, be coordinated into the overall plan. These groupings are supply for: mobile units; states and localities; plant protection; reserve storage; training purposes; and office supplies.

Supply for Mobile Units. The civil defense program provides for organizing mobile units under the direction and supervision of the states in accordance with plans developed by the Office of Civil Defense. The supply for organized mobile units would be based on tables of equipment and supply for such units. From these tables the supply requirements for mobile units can readily be computed.

The extent to which the Federal Government will contribute items of equipment and supply to the organization of mobile units will be determined by the Office of Civil Defense pursuant to appropriations by Congress. It should partially supply specified and qualified (Class A) mobile units. The states will provide the supplies for such additional (Class B) mobile units as they may organize.

Supply to States and Localities. This type of supply would be in addition to that which might be furnished States for mobile units. It is expected that the states will be supplied with insignia and other identification for Civil Defense workers; certain radiological, chemical, and other technical defense apparatus and supplies; training manuals, instructional material and other specialized items for a training program.

Since the responsibility for operation of civil defense is appropriately placed in the states and localities it is expected that the main portion of necessary supplies needed for civil defense operations will be acquired and furnished by them. In times of emergency an expansion of supplies furnished the states by the Office of Civil Defense will undoubtedly occur.

Supply for Plant Protection. Plants in organizing for civil defense protection will find it necessary to provide themselves with additional equipment and supply for this purpose. This equipment and supply will, in general, be similar to that required by the communities. The part that the Federal Government should play in providing this supply will be relatively minor. It is expected that these supplies will be paid for by the plant and that the Civil Defense organization should assist the plant in obtaining authorization to purchase these supplies.

Supply for Reserve Storage. In the overall plan for civil defense of the United States, it will be desirable to include in the supply planning the arrangements for the storage of certain items of supplies strategically located so that they may be quickly moved to a disaster area. The locations for reserve storage and the amount and kind of items to be stored will be fitted into the national plan based on an estimate of the probable needs.

The ability of the Armed Forces to support Civil Defense operations in emergency situations will have a direct effect on the reserve storage requirements of the civil defense program. Coordination with the Armed Forces must be carefully and continuously effected.

Supply for Training Purposes. Supply for training purposes will consist of special training equipment together with equipment normally issued for use in civil defense. The supply for mobile units will be used in training and replaced as it becomes unserviceable.

Another important item of supply aside from equipment for training will be manuals and literature for training Civil Defense personnel and the public. This will be very extensive, covering the field of the many civil defense activities.

A determination of the supply requirements for training purposes will require a very careful analysis of the training needs for civil defense. Since after organization the next most important step in civil defense will be the development and the implementation of a training program, it is essential that the training requirements be established at the earliest date after completion of the organization.

There will be established certain Civil Defense training courses and facilities for the training of key personnel in civil defense technique and operations. These will require both special and normal items of supply used in civil defense.

Office Supplies. Office supplies will consist of furniture and office equipment such as desks, chairs, typewriters, filing cabinets, stationery, and other similar items. The determination for the requirements for office supplies for national and regional personnel will be based on the approved table of organization for the Office of Civil Defense and the regional offices. In general, states and localities will be expected to provide their own office space, supplies and equipment.

SUPPLY PROCEDURE

The supply requirements for civil defense should be consolidated in the National Office based on the needs for the main groupings as outlined under Supply Requirements.

The request for supplies to meet the needs of localities and local organizations should be consolidated by the State Director for Civil Defense. In his office these needs will be assembled, the state require-

ments added and an analysis made of the total supply requirements for the state.

The state office would in turn make recommendations for supplies to be furnished by the Office of Civil Defense and the priority of those that they recommend. This report would be forwarded from the state office to the Office of the Regional Coordinator for his comments, to be forwarded to the national office.

The National Office would review and analyze the supply requests from the states and from the regional office, and based on existing policies determine which supply requests should be filled and their order of priority. It will prepare and submit an overall supply program for civil defense that is sound in all its aspects and based on the overall plan for civil defense. Based on appropriations and allocations of supply made for civil defense purposes, the National Office would then determine the allotment of supplies to the Regional Office and to the states and in appropriate cases specify the purpose for which the supplies are to be used. States would reallot to localities supplies based on established national policies.

Supply Items. Most of the supply items required for civil defense operations will be similar to those used by the Armed Forces, with very little special equipment for civil defense that will differ materially.

In general, important items will be equipment such as portable pumpers and fire hose, gas masks, protective clothing and detectors, both radiological and chemical. Also depending on the determination for reserve storage, there may be a requirement for considerable quantities of medical equipment and supplies. There will, of course, be other items but it appears now that the quantities will be of a minor nature.

Cataloging. It is important that the supply items used by Civil Defense be similar to items used by the Armed Forces as far as practicable. This simplifies procurement as well as a mutual exchange of supply in an emergency. A catalog is now being prepared by the Army, Navy and Air Force for the use of all of the Armed Forces. Civil Defense should, as far as practicable, select its supply from this catalog.

Research and Development. Since many of the new items of equipment and supply required by Civil Defense will be similar to those used by the Armed Forces, the Office of Civil Defense should follow closely research on such items in which it has an interest and initiate research on other items for the civilian population which are of special use for civil defense purposes.

OTHER SUPPLY CONSIDERATIONS

The transition from peacetime to emergency operations will make a great difference in the volume of civil defense supply requirements.

In planning for civil defense supply it is necessary to outline the supply requirements for an emergency. With this objective, the peacetime procurement can be filled in as appropriations are available and conditions permit. The supply plan, however, in peacetime should always have in mind the ultimate objective of civil defense. It can be expected that in an emergency many of the supply items for civil defense will be scarce articles. It may not be possible to fill the full requirements for civil defense operations. It is essential, therefore, to conserve items of supply. They should be allotted in accordance with pressing needs based on the overall plan for the civil defense of the country.

TRAINING IN THE CIVIL DEFENSE PROGRAM

The proposed plan for the civil defense of the United States embraces a wide range of diverse activities and services. Some of these activities and services are unique to a war-created emergency; others are common to any disaster situation. Some are entirely foreign to normal civilian experience; others are modifications or expansions of the peacetime functions of established agencies.

Advance Preparation Needed. Orderly and effective operation of these diverse civil defense activities and services requires a sound training and personnel utilization program. Such a program involves (1) procedures for the selection and assignment of civil defense personnel, (2) the preparation and instruction of individual civil defense workers and (3) the general education of the public. The various aspects of the program must, of necessity, be planned and initiated well in advance of an enemy attack, in order that the civil defense organization will be ready and prepared for prompt action in an emergency and that each individual will understand and accept his responsibilities and the necessity for cooperative action. The program should be so designed and integrated that both civil defense workers and the general public will be able to perform such services and to take such steps as will achieve the objectives of civil defense.

To provide adequate protection of life and property against the exigencies of enemy attack, as many as fifteen million civilians should be prepared to participate in the performance of the various civil defense activities and services. Most of them will be volunteer workers who pursue other, unrelated full-time occupations for a livelihood. Others will be employees of existing public and private agencies who will be called upon to perform not only their regular work but also supplementary functions which are necessary in a war-created situation. A relatively small proportion will be staff members of the civil defense organizations.

Personnel Utilization. A systematic plan for the selection of individual workers and their assignment to specific tasks for which they are best fitted is essential for the most effective utilization of the fifteen million civilians participating in civil defense. Those responsible for the recruitment and placement of personnel, especially in the local organization, should employ techniques and procedures which will put the right person in the right place. Similarly, in the allocation of responsibilities and in the organization of the various services, full consideration must be given to the knowledge, abilities and skills essential for efficient performance.

To this end, comprehensive functional analyses must be made of the various civil defense activities and services, as well as detailed job analyses of all types of positions to be filled in the local, state and federal organizations by both volunteer workers and professional personnel. Such analyses should include the responsibilities to be assumed in an emergency, their relation to the total civil defense operation and the cooperative relations of individuals and of services. Determination should be made of the aptitude, education, physical qualities, emotional stability, experience and training necessary for the successful performance of the tasks involved. The National Office should make the basic studies, prepare the techniques of selection and placement, and provide guidance to the state and local organizations in the selection and placement procedures necessary to secure uniform and maximum utilization of civil defense personnel.

Training Requirements. All civil defense personnel will require both general and specific training and guidance in their civil defense responsibilities and duties, to enable them to learn new techniques, to adjust and reorient previously developed skills and to cooperate with others in the execution of specific tasks to which they are assigned.

An estimated 500,000 civilians, principally volunteers, selected for positions of administrative and technical leadership throughout the entire civil defense activity, will need, in addition to specific instruction in their respective responsibilities and duties, general orientation in the over-all structure and operation of civil defense and the interrelation of the various services. They must also be kept advised of changing procedures and revisions in civil defense measures in order that they may be able to maintain at a high level of efficiency the functions and the personnel under their jurisdiction.

In addition, there will be thousands of other volunteers serving as training officers and technical specialists who will participate in the organization of training programs and the actual instruction of civil defense workers in the states and local communities. On them will rest the burden of providing the individual workers with the necessary information and developing their proficiency for the proper execution of civil defense operations. While these training officers and technical instructors will be selected for their professional competence, they will themselves become more effective in their efforts through well-planned orientation and training.

General Education of the Public. As war of the future will directly affect our total civilian as well as our military resources, the

entire civilian population must be made aware of the problems and hazards, as well as the limitations, of an enemy attack which might employ unconventional as well as conventional weapons. Each individual citizen must be impressed with the need for civil defense and must understand its operations. He must be informed of the precautionary and remedial measures provided under civil defense to avoid injury, alleviate suffering, and minimize damage. He will also need instruction in individual and family self-help, including first aid, and guidance in giving and receiving mutual aid, as elements of self-protection.

Individual citizens and families must be prepared to exercise maximum self-protection before expecting help from others. They must be so informed and instructed that they will be able to act with assurance and self-confidence. Such knowledge and ability to take the proper action in an emergency will dispel fear, prevent panic and confusion, minimize loss, and maintain morale.

In preparation for a total war it is vital to the safety and welfare of the country that the importance of civil defense be brought forcefully and repeatedly to the attention of every person. He must know how to react quickly and courageously in a war-created emergency situation, without fear or confusion. He must recognize authority and accept direction when exercised by the responsible members of the various civil defense services. For civil defense to function effectively every family and every member within the family must be prepared to cooperate with the efforts of the Civil Defense organization.

For this purpose all available media, including the press, radio, stage and screen as well as the school and the public forum, should be utilized. Public gatherings, demonstrations, drills, and field exercises simulating possible emergency situations should be used to provide opportunities for enlisting public support of and ready participation in the civil defense program.

Training Responsibilities. Responsibility for the actual conduct of courses of instruction in the various aspects of civil defense, both for the volunteer workers needed for civil defense activities in the local communities and for the general public, would rest with the local Civil Defense organization, with such supervision and coordination by the state organization and such guidance and assistance from the National Office as may be required.

In addition to formulating the overall civil defense training program, the National Office should provide the state and local Civil Defense organizations:

a. Guidance and assistance in the organization and operation of training programs;

b. Techniques for the selection and assignment of civil defense personnel;

c. An integrated set of operating procedures for the training of the various types of civil defense workers;

d. Patterns for courses of study for participants in the various civil defense activities and services;

e. Manuals, guides, visual aids, training equipment, and other instructional materials for use in the training courses to be given both to the civil defense workers and to the general public;

f. Techniques for the testing and evaluation of the effectiveness of the training; and

g. Basic background materials on civil defense, its structure, objectives and operation, and on self-protection measures, for use in establishing and maintaining public confidence and interest in the program.

The National Office would also maintain national training facilities at which would be held general orientation courses, institutes and conferences for key administrative personnel, technical specialists and training officers on problems of leadership in the various aspects of the Federal, State and local civil defense programs. It is recommended that a national training center be established for this purpose, preferably in close proximity to the National Office, and also that an itinerant faculty offer similar training programs in the field, preferably on a regional basis.

Through these national training facilities opportunity would be provided for developing uniform patterns of operation and training by the state and local organizations throughout the entire country. State and local directors of civil defense and other key personnel would be offered instruction in civil defense activities, specific training for the administration of the various services, and guidance in the coordination and integration of civil defense operations. They would receive such basic preparation as they will need to establish and direct the particular phases of civil defense for which they are responsible and to organize state and local training programs for service personnel. Those responsible for training activities in the state and local organizations would be given both general and professional training to enable them to set up and conduct their own training programs, both for civil defense workers and for the general public.

The technical personnel of the National Office would be called upon not only to assist in the formulation of the courses of study but also to participate in the actual instruction in their respective fields. This will enable them to work with the responsible service heads from state and local organizations, to develop close liaison and operating arrangements with them and to use the leadership training program as a proving ground for the testing of civil defense plans. Formal instruction, demonstrations and field exercises, involving both military and civil defense participants, would be employed

The overall civil defense training program, the various specialized courses of study and the training manuals and other instructional material would be under constant review with a view to their improvement and modification in the light of new developments in enemy tactics, public reaction and appraisal of effectiveness gained through experience.

In all aspects of the training program full use would be made of the personnel and facilities of existing agencies, both public and private, that can contribute to the program. Established educational agencies, including colleges and universities, secondary and elementary schools, government agencies, professional societies, civic groups and other organizations would be utilized wherever practicable, through the expansion of their regular programs and the introduction of new courses or discussions bearing on civil defense problems. These agencies would be encouraged to give both general and technical instruction in conformance with the patterns formulated by the National Office.

In each regional office, when established, there should be a regional training officer who would coordinate and expedite the development of state and local training programs, be available to interpret the training material and instructional patterns formulated and issued by the National Office, and assist in the organization and development of state and local training programs. In all training matters he would serve as field liaison between the National Office, the military authorities and the state organizations within his region, and would also report on the progress of training activities.

As the operations of civil defense will be decentralized, with the state organization controlling and directing activities within the state boundaries, the training division of the state organization would generally supervise, assist and coordinate the local training programs. This division would be responsible for seeing that the necessary instruction is given to meet not only local needs but also the civil defense requirements of the state. It would also plan, organize and conduct such state training programs as may be necessary and would arrange for the full utilization of the educational facilities of both public and private institutions and agencies within the state.

There should be in the local Civil Defense organization a training and personnel utilization division which would be responsible for supervising personnel selection and placement activities, for planning the general training program, and for coordinating the various courses given, including those related to and conducted by other divisions of the local Civil Defense organization.

It is recommended that each community organize as part of its general civil defense program civil defense schools in which the training would be given. Such schools should be maintained by and under the control of the local civil defense authorities, and should be organized to suit the needs of the community, with special regard for available training facilities and personnel.

In most communities there will be many persons capable of undertaking these activities and assisting in their effective prosecution. They will be found not only in schools, colleges, universities and other educational organizations, but also in civic groups, industrial plants, local welfare agencies and fire, police and other municipal departments, as well as among the other personnel in the local Civil Defense organization.

Sequence of Operations. In the initiation of the proposed program for the general education of the public and for the training and effective utilization of the personnel required to man and operate civil defense, the following steps should be taken by the National Office:

a. Comprehensive functional analyses should be made of the various civil defense activities and services;

b. Detailed job analyses should be made of the positions to be filled in the local, State and Federal organizations by both volunteer workers and professional personnel;

c. Techniques should be developed for the selection and assignment of the personnel required for civil defense;

d. Studies should be made to determine the minimum essentials and the time elements involved in the training of personnel for each civil defense position;

e. Determination should be made as to which services should be given priority in the training program;

f. Instructional programs and patterns of individual training courses should be formulated, based upon the above-mentioned analyses;

g. Determination should be made of the manuals, guides, visual aids, equipment, and other instructional material required and the basic data should be assembled for their preparation;

h. Evaluation techniques for determining the effectiveness of the training program, especially with respect to the technical and cooperative aspects of civil defense operations, should be developed;

i. Research and development projects should be initiated to determine the most effective procedures to be followed in the uses to be made of training and general education of the public;

j. Arrangements should be made for the establishment of a national training center;

k. General orientation and technical courses should be developed for State Directors of Civil Defense and other key personnel;

l. Training officers and instructors should be selected and given general orientation on the overall civil defense plan and on the responsibilities they will assume in the training program; and

m. Liaison should be maintained through subsequent conferences, refresher courses and correspondence with those who have completed these courses, as well as those in outside agencies concerned with civil defense, to keep them abreast of new developments and civil defense planning.

As the situation develops and as soon as State and local Civil Defense organizations are established and the required personnel selected and assigned to specific tasks, the training program would be accelerated and steps taken to provide for the extension of operations into the local community. This would involve:

a. The initiation of a program of general education through which the public would be informed of the problems and hazards to the civilian population under conditions of modern warfare, of the need for civil defense, its character, operations and organization, of the techniques and skills required in self-help and mutual aid, and of the overall civil defense plan;

b. The launching of state and local training programs, the establishment of local civil defense schools and the encouragement of in-service training programs in industry, governmental agencies and other organizations;

c. Training officers and specialized technical instructors should be given such training as will qualify them for the most effective performance of their responsibilities;

d. Training manuals, guides, equipment, and other instructional material should be made available;

e. The effectiveness of the training program, especially with respect to the technical and cooperative aspects of civil defense operations, should be tested and evaluated in accordance with previously developed evaluation techniques; and

f. Training programs for first aid, individual and family self-help and mutual aid should be organized for the general public.

Not later than the actual beginning of hostilities and preferably at least a reasonable period in advance of an anticipated state of war, the training program should be accelerated to include:

a. Increased training activity and drill, reaching into the home as well as the local community;

b. Critical evaluation of existing training and other operational procedures through the use of field tests and exercises and, where indicated, improvements and refinements recommended to those concerned;

c. Refresher courses and conferences for the sharing of experiences and discussion of problems encountered by those engaged in civil defense activities;

d. Provision for both basic and advanced training of replacements for casualties and other losses;

e. Utilization and application of the results of investigations of psychological problems related to the maintenance of public morale and the prevention of panic; and

f. Continuing intensive education of the general public on the civil defense program and its services and benefits to the individual citizen, including training in self-protection measures.

National Training Organization (Chart 2). Under the Deputy Director for Civil Defense Training there should be five divisions whose activities would cover the following areas of operations and responsibility: leadership training, methods and materials preparation, school and college relations, field service activities and the general education of the public.

The Leadership Training Division would be responsible for:

a. The planning, organization and conduct of short-term national training and orientation courses, institutes, and conferences for key administrative personnel, technical specialists and training officers on problems of leadership in the various aspects of the Federal, State, and local civil defense programs;

b. The selection and use of national training facilities;

c. The planning and coordination of other similar training and orientation programs conducted in cooperation with established educational institutions and other agencies and organizations, both public and private; and

d. The planning, organization and conduct of training and orientation programs for special groups such as industrial and public utilities protection personnel.

The Methods and Materials Division would be responsible for:

a. The development of training methods and preparation of manuals, guides, visual aids and other instructional materials for state and local training programs;

b. The development of such other training methods and instructional materials as may be required for the several training programs and the general education of the public;

c. The development of methods and techniques for the selection and assignment of civil defense personnel in the field; and

d. Control of the allocation of training equipment and instructional materials.

The School and College Division would be responsible for:

a. The determination and utilization of facilities and personnel in universities and colleges, secondary and elementary schools, and other established educational agencies and professional organizations;

b. Guidance and assistance to such educational agencies and professional groups in the planning, organization and conduct of their training programs; and

c. Liaison with educational, professional and other organizations in the furtherance of civil defense objectives.

The Field Service Division would be responsible for:

a. Advising and counseling state and local officials on training plans and materials, and on plans and procedures for the selection and assignment of civil defense personnel;

b. The planning of tests and field exercises for regional, state, and local use;

c. Cooperating with state officials, industries and utilities in the supervision and correlation of tests and field exercises;

d. Cooperation with the Armed Forces in the planning and conduct of combined field exercises for military and civil defense units; and

e. Analysis and evaluation of the various phases of the training program and recommendation of modifications and improvements.

The General Education Division would be responsible for:

a. The development of programs and materials for the orientation and guidance of the general public on individual and family self-protection and mutual aid;

b. Organization, planning and sponsorship of programs of general education and, with the assistance of the Public Information Officer, utilization of suitable media;

c. Development of programs for the establishment of public confidence;

d. Utilization and application of the results of investigations of psychological and sociological problems related to emergency action and panic prevention; and

e. The conduct and appraisal of continuing studies of the reaction of the general public and of civil defense personnel to the various factors involved in civil defense.

PUBLIC INFORMATION IN THE CIVIL DEFENSE PROGRAM

Civil Defense, in the event of national emergency, would become a matter of vital concern to every man, woman and child in the United States, its territories and possessions.

Widespread interest in the subject, as evidenced by the flood of inquiries received during the planning stage, calls for inclusion of a public information division within the proposed Office of Civil Defense.

As soon as contents of the program have been released to the press, radio and other channels of public information, organizing activity undoubtedly will start in States and their subdivisions.

Millions of patriotic Americans now want to know "What is the new civil defense plan and where do I fit into immediate or future operations?" It is important that these citizens have one central agency to which they can turn for needed guidance.

Most of the State and local organizations should designate an information source to assist newspapers, radio stations and other media in presenting an accurate picture of developments.

Particularly during the early formative period, the public information arms of the participating organizations will ask for and should receive every assistance that can be rendered from the Office of Civil Defense.

The success of the entire program depends upon public acceptance which can only follow public understanding.

There are thousands of patriotic, civic and business organizations whose members have a valid interest in the objectives of civil defense.

It is necessary that information be promptly supplied when requested by publications reaching a technical or otherwise specialized audience. Misconceptions can be avoided to a large extent through the availability of a positive type of information.

Major concern of the American people today centers around questions relating to the possible use of atomic weapons. There is no field in which irresponsible statements have been so recklessly pyramided to cause confused public thinking.

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Radiological defense measures need to be explained to all segments of the population. It is a public information problem and a large one for Civil Defense.

The catastrophic confusion which might be imagined as resulting from a sudden enemy stroke in the absence of any defensive organization for the civilian population can become less of a problem as the people understand what is wanted and volunteer for essential tasks.

Panic prevention and control is an underlying part of civil defense.

It is recognized that the public information officer working with and through the States in peacetime would mainly be carrying out a service function delegated by the Director of Civil Defense.

Should this country ever be attacked, the task of supplying information to the public imposes a responsibility of tremendous proportions.

Civil Defense units at the scene of a disaster would have access to facts concerning conditions that could contribute to the maintenance of morale.

With a previously organized network of information sources, the problem of allaying public fears during an emergency period could be met in orderly fashion.

Regional offices when established in the Civil Defense organization, should include the function of public information. In peacetime, the positions might not be filled. Should an attack occur, the function is as important in civil defense operations as that of the highly trained technical personnel.

In envisioning possible enemy assault on American communities, it must be assumed that the public information officer operating in an affected area would occupy a post of high responsibility in his own civil defense organization. He should be capable of ferreting out facts from an avalanche of rumors. He should be a person of sound judgment who would assist the local director of civil defense in utilization of all available mass communication facilities as a means of resisting panic tendencies.

Radio broadcasting stations could be employed most effectively because their services assure comprehensive coverage in a minimum of time. This has been demonstrated many times during natural disasters such as floods and fires.

When called upon to assist in restoration of normal community life, the broadcasting stations could—

Reassure the civilian population with timely bulletins released by Civil Defense.

Assist in mobilizing Civil Defense workers.

Inform the public of areas to be avoided because of radiological activity or other contamination.

Prepare those who have taken shelter for conditions to be faced when the all-clear signal is sounded.

Explain any plans for emergency evacuation.

Summon assistance from unaffected areas.

Transmit personal messages to reassure separated members of family groups.

Contemplation of the emergency functions of public information in civil defense suggests an immediate kinship with operations of the Communications Division. Similar relationships must be maintained with all of the other Divisions.

During the organizational stages the Public Information Officer should be working in the closest harmony with the Training Division. Both will be seeking the widest possible understanding of civil defense through separate approaches to those who will determine its effectiveness—the American people.

RESEARCH AND DEVELOPMENT IN THE CIVIL DEFENSE PROGRAM

Modern science is busily engaged throughout the world inventing the weapons which can destroy mankind. Modern American science, applying its wealth of research talent, must be a front-runner in a civil defense program to be certain that lives are saved if this nation should be the victim of enemy attack.

New weapons, new planes and other carriers of weapons, and new ways of destroying the industrial and social well-being of a nation are the objectives of offensive warfare and get top consideration in a world that sees a possible war in the offing.

But it would be a short-sighted nation which would devote its research and development resources only to the development of offensive weapons for use against an attacking enemy. Equal emphasis must be given to defensive warfare—weapons to protect the people, means of preventing enemy weapons from being effective, and measures which will reduce to a minimum the death, suffering and destruction which could come with any of the various mechanisms of modern war.

Thus real civil defense is more than an organization of the people to protect themselves or to restore their communities and facilities after attack. In this changing world there is no subject, no matter how simple it appears, that may not be affected by new conditions, new modes of attack, new methods of treatment. Therefore, a fundamental part of a civil defense program should be a thoroughly competent research operation alert to the problems, and skilled in their solution, if civil defense is to keep abreast and is to be effective.

Awareness of the need for research in this field is generally accepted. For example, the Research and Development Board in reviewing the total defense needs has listed civil defense among the important responsibilities for research and development. After a recent study of the situation, one of the advisory panels of the Board (the Panel on Human Relations and Morale) has expressed opinions such as the following:

> "Since civilian defense in a total war will be inextricably related to military operations, the research and development necessary to ensure maximum protection, morale and productivity of the home-front are of clear military concern.

> "The Panel's recommendations for this technical field are based on:
>
> 1. The importance of adequate civil defense for national security.
> 2. The present responsibility of the military establishment for civil defense.
> 3. The present almost complete neglect of this field in Research and Development budgets.
> 4. The favorable prospects of realizing important gains for civil defense planning from research and development."

Research must be continuous; it must keep step with new weapon designs, new defenses, new problems in the offensive field. It must be concerned with the forces which may destroy life, or tear down production facilities, or break the morale of people.

Research for civil defense must be correlated with research for war and research for peace. It must be at the heart of the whole problem, if civil defense is to be really successful.

A Plan for Research and Development. It is proposed that:

Research and development be established as an integral part of the civil defense program, with a Coordinator for Research and Development in the Office of Civil Defense.

The Office of Civil Defense be represented on the Research and Development Board on a basis similar to that of existing departments of the Military Establishment.

Research and development be conducted under contract arrangements with the Nation's experts in many fields, and in cooperation with research of the Armed Forces.

Research and development extend to any subject which may mean the saving of civilian lives in the event of war.

ORGANIZATION FOR CIVIL DEFENSE RESEARCH AND DEVELOPMENT

In general, research and development in the field of civil defense should be supervised by the Office of Civil Defense, working in cooperation with the Research and Development Board and the Armed Forces.

To avoid duplication of effort, and to utilize to the maximum the diverse talents of many scientists and other specialists, it is proposed that the Office of Civil Defense have a Coordinator for Research and Development, working directly under the Director of Civil Defense. The Coordinator should represent the Office of Civil Defense in its relationships with the Research and Development Board, with the research and development officials of the Armed Forces, and with all others who are actually involved in pertinent research and development activities.

Consideration should be given to the most effective means of coordination with the activities of the Research and Development Board and with the research and development programs of the three Departments in the Military Establishment. This will involve the determination of how the present agency can benefit from the committee and panel structure of the Research and Development Board; from existing funds and personnel resources available for research and development in the Army, Navy, and Air Force; and from resources outside the Military Establishment.

It is proposed that operating responsibility for research and development programs rest in the Office of Civil Defense and that the actual project work be performed in one of four ways: (a) by the agency staff, (b) by research and development staff groups of the Armed Forces, working in close coordination with the civil defense staff, (c) by contract personnel of the Armed Forces, working in close coordination with the civil defense staff, or (d) by contract personnel working under contract with the Office of Civil Defense and in close cooperation with its staff.

It is anticipated that the largest portion of the research will be conducted according to the last of the four plans ("d" above) and that very little of it will be conducted on the first plan (that is, by the civil defense staff).

It is indicated from previous experience of the Military Establishment with research in related fields that only specialists of first-rank ability are capable of guiding such research. It is indicated, furthermore, that there is a definite shortage of both personnel and facilities in some of the important specialties.

The shortage of specialized personnel of high quality and the difficulty of recruiting such personnel for government employment argues for the recommendation that a large proportion of the actual research be carried on by specialists recruited on a contract basis rather than as members of the Civil Defense staff.

It further indicates the need for full utilization of the research personnel and facilities of the Armed Forces and the elimination of any duplication of contract work sponsored by the Office of Civil Defense and by the Armed Forces.

RESEARCH AND DEVELOPMENT FUNCTIONS IN CIVIL DEFENSE

Planning, operations and research must be carried on in parallel. Already in each area of civil defense definite and specific plans are being formulated on the basis of available experience. However, in each area there are problems of a continuing nature on which research and development are needed. As these problems are solved it will be possible to readjust the plans and to increase the effectiveness of civil defense operations.

A description of the functions of a research activity in civil defense would inevitably be a description of everything that civil defense attempts to do. There is probably no area on which research cannot shed new light, furnish new guides, aids, or materials for the improvement of the program.

No list of projects for research could be complete, and no list compiled today would necessarily be correct at any particular period in the future. The solution for one type of attack may be completely different from the solution under other circumstances or with other weapons, yet each must be studied and the best possible answer provided. Each weapon (using weapon in its broadest meaning to include any form of attack) will cause different injuries or illness, so each requires its own treatment or first aid method.

There are a number of clearly identified problem areas which serve to illustrate the scope and the opportunity of research for this program. The broad fields in which such research and development are indicated as an immediate requirement include:

a. Technical developments which will minimize damage and injury from enemy attack.

b. Methods and materials to protect personnel and facilities of industrial plants, utilities, and public buildings.

c. Techniques for organizing state and community for handling disasters.

d. Methods for training and effective utilization of civilian personnel for civil defense.

e. Preparation of the general public for participation in civil defense.

Listed below are specific examples of questions and problems for research and development. It will be recognized that the illustrations can not be typical. The most vital research needs are so closely related to weapons research that they cannot be mentioned in an unclassified report. For this reason some of the illustrations tend to represent the unsolved problems carried over from the past war rather than those which will be unique to any future war which may threaten.

Are bomb shelters necessary? Other nations improved their shelters as World War II developed. But what kind of shelters would serve to protect against atomic bombs, against other modern weapons of war? With what should a home-builder provide himself in constructing a new home or making plans to protect himself and his family in his present home?

How handle contamination? If war gas is used, or some other form of weapon which contaminates the air, the water or the clothing, what detectors are required to determine the fact quickly to avoid injury and death? The senses are not enough for detection. Quick and accurate measurement would be required before an area

could be entered for rescue or first aid, before any objects could be handled by civil defense workers. And by what means is the contamination to be most quickly and safely removed?

If blackouts are indicated, how should it be done? New methods of detection create new problems for blackouts and dim-outs. There may be more losses in efficiency and morale than there are gains from blackout. What substitutes for normal light can be developed if it is determined that need exists?

How to reduce fire hazards? Some of the worst raids of World War II caused great damage and loss of life by fire, and it is likely that fire will continue to be a major war threat. Ways must be found not only to fight such fires more effectively, but to make them more difficult to start, by use of fire resistant materials and other means. Normal means are no longer adequate, with the superheated atmosphere induced by some of the new weapons of warfare.

How can the householder improvise protective measures? Are there protective devices which can be improvised at reasonable cost and from available materials? Can the unskilled householder construct such devices for himself? What plans and specifications should be provided to guide him in construction?

Protection of water supply. Are the water supplies of American cities adequately assured in the event of mass attack? Would there be uncontaminated water for domestic use, and would supply be available for fighting fires?

Suppose evacuation were necessary. In some parts of Europe it was necessary to move entire populations—mass evacuations. Should it happen in this country, where would they be moved, what transportation means, what system for handling the people and their possessions, what housing—these and countless other questions. Perhaps a typical city would be selected as a basis for further study of this problem, a form of research that would produce a guide and make possible improvements of plans for handling such an emergency.

What happens to the people? Suppose a dozen atomic bombs were dropped on a dozen American cities. What would the effect be on the rest of the country? How would the people best help themselves . . . how would they best be conditioned to face such an event and be ready to carry on? Hysteria and panic would be a weapon in the hands of the enemy as potent as any in his arsenal. This is a psychological problem that calls for a different kind of specialist than the medical or chemical scientist, but yet a problem of research.

As indicated above, it is anticipated that some weapons of modern warfare will create problems which are more important and difficult than the examples cited. These problems are illustrated in a classified technical report which has been filed with the Research and Development Board.

When some of the projects which are unique to civil defense are considered carefully, it is recognized that they involve very difficult problems of method and technique. This is due, in the first place, to the complexity of the problems themselves and to the fact that they require coordination of the experience and the research methodology of experts in more than one field of specialization. In the second place, the complexity is due in part to the fact that it is difficult to provide either real or simulated test situations for research which involve the actions of human beings under emergency conditions. Thirdly, the complexity is partly due to the fact that our leading experts previously have not given large measures of attention to such problems and to the related methods and techniques.

For these reasons, it seems desirable to enlist the service of a group of research specialists who can work actively together on a sequence of projects.

The combination of specialists should be committed for substantial amounts of service over a period of years. They should be oriented to the plans for civil defense, to the organization and methods, to the technical background, and to some of the organizational and technical problems involved in the total program. Then they should be assigned a continuous series of projects which would be given priority according to their importance to the operating program of civil defense.

Thus will the various research specialties be coordinated with one another and with the practical requirements of civil defense. Furthermore, the methods and techniques will be refined to a point where maximum dividends will be guaranteed from funds invested in such projects.

RESPONSIBILITY FOR PLANNING PROJECTS AND FOR THE UTILIZATION OF FINDINGS

It will be the responsibility of the total staff of the Office of Civil Defense to recommend research and development projects and to cooperate with the Coordinator for Research and Development in the preparation of research and development programs.

It will be the responsibility of every member of the staff to make full utilization of research and development outcomes. This is a principle of self-evident importance but one which is easily ignored. It is so important as to be singled out for special attention in the *Annual Report* of the Panel on Human Relations and Morale of the Research and Development Board:

"It has become recognized that scientific knowledge is useless unless techniques and mechanisms for its utilization are developed. During the past war, much new was learned about this matter in connection with the effective utilization of physical science knowledge. The utilization of psychological and sociological research, however, is in its early infancy. The use of experts in these fields, the application of research results to military problems, and the operations' evaluation of such application must be greatly improved if the gains from research are to be realized in terms of military worth. * * *"

To encourage full utilization of the products of research and development, the Coordinator will arrange such associations of research specialists and operating personnel as will encourage a free flow of ideas while research is in progress. When a project is advanced to the point where it will be profitable to do so, he will initiate joint planning by research specialists and operating personnel looking toward the full utilization of the product.

ESTABLISHING PRIORITIES ON RESEARCH AND DEVELOPMENT PROGRAMS

A tentative incomplete list of research and development needs has been prepared which represents a larger program than can be undertaken immediately. Early selection should be made of high priority programs and work on them expedited.

Several factors should be considered in the recommendation of projects for high priority. The following are particularly important:

a. The significance of the project in relation to the total mission of civil defense.

b. The significance in relation to the initial demands which will be made on the Office of Civil Defense during the organization period.

c. The relationship to on-going research of the Armed Forces and the possibility of achieving economies and an improved product by coordinating with on-going projects.

d. The extent to which the research can be carried to satisfactory completion previous to the completion of other research and development projects (including the extent to which it depends upon the development of new weapons and new hazards which cannot be fully anticipated at this time).

As soon as priorities are assigned, steps will be taken to develop detailed project plans for each item of high priority.

LEGISLATIVE REQUIREMENTS TO IMPLEMENT THE CIVIL DEFENSE PROGRAM

One of the functions of the Office of Civil Defense Planning is the drafting of any legislation required to implement the proposed civil defense program. Full implementation of the civil defense plan and program set forth herein will require legislative action by the Congress and the legislative bodies of most, if not all of the States, Territories and Possessions of the United States. Local ordinances will also be required in political subdivisions in which local organizations for civil defense are created. A number of state and local governments have, with commendable foresight, already appreciated the need for civil defense, and have adopted legislation to implement civil defense plans and programs. However, those governments which have already acted should review their present legislative provisions, as it may reasonably be expected that revisions to a greater or lesser extent may be required in order to bring their civil defense laws into harmony with the proposed plan.

The legislative proposals contained herein are insufficient to provide complete legislative authority for all the civil defense activities described in the plan. The proposals have been limited to those essential to getting the plan and program into operation and the necessary Civil Defense organization established. There is no provision for additional legislation related more or less closely to civil defense—such as legislation granting special emergency wartime authority to the executive, as would be necessary to permit the emergency acquisition of vehicles as described in the Transportation Section of this report; blackout legislation and the like.

FEDERAL LEGISLATION

Drafts of proposed legislation have been drawn up to implement the Federal aspects of the plan as recommended. These drafts are available to the proper Federal officials for approval and presentation to the Congress.

STATE LEGISLATION

It would far exceed the purposes of the Office of Civil Defense Planning to prepare in detail proposed bills to be enacted by each

State. Rather, the approach has been to attempt to provide recommendations for legislation to the extent that has seemed reasonable under the circumstances. It was thought feasible to prepare a model State Civil Defense Act, which, although not intended to be acceptable verbatim in any State, is designed to suggest the substantive provisions and language that should be a part of any State civil defense legislation that is in accord with this plan. The interpretive statement and text of this Act follow.

Interpretive Statement. This Model Act is designed to provide for the establishment of the necessary State and local Civil Defense organizations in a State, and to furnish the requisite authority to the Governor and to the heads of local government to implement the civil defense program. It is not intended to cover the whole field of emergency wartime legislation that would be necessary to the proper functioning of a State in total war.

The legislation provides for the necessary organizations to deal with potential enemy-caused disasters as well as natural disasters, such as floods, fires, explosions and the like. It would be unnecessary duplication to provide separate organizations with separate enabling legislation for carrying on of essential protective activities against disaster in peacetime and in time of war, when substantially all of the peacetime functions are included in the more comprehensive wartime functions of these organizations.

The Model Act has been prepared in accordance with the over-all concept of the general plan which provides that the administrative and operational channels shall be from the Federal Government to the State governments, and from the States to their political subdivisions.

Briefly outlined, the Act provides for the establishment of a Civil Defense agency in the executive branch of the State Government. This agency would be headed by a Director who would be responsible to the Governor and who would execute the Governor's civil defense responsibilities. An Advisory Council of representative citizens with special qualifications to advise the Governor and Director is provided for. The Governor is granted the necessary authority to implement civil defense and, by provision for the delegation of administrative authority and direct enabling provisions, to provide the necessary authority to empower the heads of local governments to implement their civil defense plans and organization.

In the case of a given state, it may be entirely practicable for metropolitan area directors to be appointed by the Governor, and an optional authorization is included in the Model Act.

Provision is made for the establishment in the political subdivisions of the State of Civil Defense organizations that would be patterned along the same lines as the State organization and would, in general, be consistent with the plans for civil defense.

The State Civil Defense Mobile Reserve Battalions represent an entirely new concept in civil defense planning. The model law provides that these battalions should be organized under the direction of the State in accordance with the civil defense plan, and should be available to serve on call of the Governor whenever a disaster in a particular area is so great that local civil defense cannot cope with it. Since they are under State control when operating, provision is made for the State to assume their expenses (including pay, compensation for losses and assumption of liability). Special provision is included for the compensation, powers, rights and immunities of personnel when serving in Mobile Reserve Battalions. Provision is also made for these battalions to serve in other States when, by similar legislation, such other States have assumed corresponding obligations to render out-of-state aid.

The Act also includes provisions authorizing mutual aid arrangements between political subdivisions within the State and, when coordinated with the Governor, by political subdivisions across State lines. The Federal legislative proposals will probably include provision for congressional action to authorize mutual aid arrangements that may be developed between States.

The immunity provisions in the Model Act protect Civil Defense organizations and workers from liability to others and also preclude any rights to recover for death or injury by civil defense workers, other than by paid Civil Defense employees and personnel of Mobile Reserve Battalions. Some States may wish to modify these provisions.

In the interest of avoiding duplication and excessive expense, a provision for maximum utilization of existing agencies and personnel in civil defense is included.

The form used in the Model Act is not adapted to any particular State, and each State should adjust this form to its local practices. These proposals should not be introduced into any State Legislature until after careful consideration of local conditions and existing statutes.

MODEL STATE CIVIL DEFENSE ACT

AN ACT relating to the establishment of a civil defense agency and other organizations for civil defense within this State; granting certain executive powers with respect thereto, and for related purposes.

BE IT ENACTED * * *

SECTION 1. *SHORT TITLE.* This Act may be cited as the "(Name of State) Civil Defense Act of 1949".

SECTION 2. *POLICY AND PURPOSE.* (a) Because of the existing and increasing possibility of the occurrence of disasters of unprecedented size and destructiveness resulting from enemy attack, sabotage or other hostile action, or from fire, flood, earthquake, or other natural causes, and in order to insure that preparations of this State will be adequate to deal with such disasters, and generally to provide for the common defense and to protect the public peace, health, and safety, and to preserve the lives and property of the people of the State, it is hereby found and declared to be necessary: (1) to create a State Civil Defense Agency, and to authorize the creation of local organizations for civil defense in the political subdivisions of the State; (2) to confer upon the Governor and upon the executive heads or governing bodies of the political subdivisions of the State the emergency powers provided herein; and (3) to provide for the rendering of mutual aid among the political subdivisions of the State and with other States with respect to the carrying out of civil defense functions.

(b) It is further declared to be the purpose of this Act and the policy of the State that all civil defense functions of this State be coordinated to the maximum extent with the comparable functions of the Federal Government including its various departments and agencies, of other States and localities, and of private agencies of every type, to the end that the most effective preparation and use may be made of the nation's manpower, resources, and facilities for dealing with any disaster that may occur.

SECTION 3. *DEFINITIONS.* As used in this Act:

(a) "Civil Defense" shall mean the preparation for and the carrying out of all emergency functions, other than functions for which military forces are primarily responsible, to minimize and repair injury and damage resulting from disasters caused by enemy attack, sabotage or other hostile action, or by fire, flood, earthquake, or other natural causes. These functions include, without limitation, fire fighting services, police services, medical and health services, rescue, engineering, air raid warning services, communications, radiological, chemical and other special weapons defense, evacuation of persons from stricken areas, emergency welfare services (civilian war aid), emergency transportation, existing or properly assigned functions of plant protection, temporary restoration of public utility services, and other functions related to civilian protection, together with all other activities necessary or incidental to the preparation for any carrying out of the foregoing functions.

(b) "Local Organization for Civil Defense" shall mean an organization created in accordance with the provisions of this Act by State or local authority to perform local civil defense functions.

(c) "Mobile Reserve Battalion" shall mean an organization for civil defense created in accordance with the provisions of this Act by State or local authority to be dispatched by the Governor to supplement local organizations for civil defense in a stricken area.

(d) "Political Subdivision" shall mean (here insert appropriate definition to include those political subdivisions in which a local organization for civil defense is desired).

SECTION 4. *STATE CIVIL DEFENSE AGENCY.* (a) There is hereby created within the executive branch of the State Government a department (division) of Civil Defense (hereinafter called the "Civil Defense Agency") and a Director of Civil Defense (hereinafter called the "Director") who shall be the head thereof. The Director shall be appointed by the Governor with the advice and consent of the (usual ratifying body); he shall not hold any other State office; he shall hold office during the pleasure of the Governor and shall be compensated at the ate of $—— per annum (if he is to be compensated).

(b) The (Governor) (Director) may employ such technical, clerical, stenographic and other personnel (and fix their compensation) (when they are to be compensated) and may make such expenditures within the appropriation therefor, or from other funds made available to him for purposes of civil defense, as may be necessary to carry out the purposes of this Act.

(c) The Director and other personnel of the Civil Defense Agency shall be provided with appropriate office space, furniture, equipment, supplies, stationery and printing in the same manner as provided for personnel of other State agencies.

(d) The Director, subject to the direction and control of the Governor, shall be the executive head of the Civil Defense Agency and shall be responsible to the Governor for carrying out the program for civil defense of this State. He shall coordinate the activities of all organizations for civil defense within the State, and shall maintain liaison with and cooperate with civil defense agencies and organizations of other states and of the Federal Government, and shall have such additional authority, duties, and responsibilities authorized by this act as may be prescribed by the Governor.

SECTION 5. *CIVIL DEFENSE ADVISORY COUNCIL.* There is hereby created a Civil Defense Advisory Council (hereinafter called the "Council"), the members of which shall be appointed by the Governor. (Here insert further provisions as to membership, including number, and provisions for ratification as desired.) The Council shall advise the Governor and the Director on all matters pertaining to civil defense. The Governor shall serve as Chairman of the Council, and the members thereof shall serve without compensation, but may be reimbursed for the reasonable and necessary expenses incurred in the performance of their duties.

SECTION 6. *CIVIL DEFENSE POWERS OF THE GOVERNOR.* (a) The Governor shall have general direction and control of the Civil Defense Agency, and shall be responsible for the carrying out of the provisions of this Act, and in the event of disaster beyond local control, may assume direct operational control over all or any part of the civil defense functions within this State.

(b) In performing his duties under this Act, the Governor is authorized to cooperate with the Federal Government, with other states, and with private agencies in all matters pertaining to the civil defense of this State and of the Nation.

(c) In performing his duties under this Act, the Governor is further authorized and empowered:

(1) To make, amend, and rescind the necessary orders, rules, and regulations to carry out the provisions of this Act within the limits of the authority conferred upon him herein, with due consideration of the plans of the Federal Government.

(2) To prepare a comprehensive plan and program for the civil defense of this State, such plan and program to be integrated into and coordinated with the civil defense plans of the Federal Government and of other states to the fullest possible extent, and to coordi-

nate the preparation of plans and programs for civil defense by the political subdivisions of this State, such plans to be integrated into and coordinated with the civil defense plan and program of this State to the fullest possible extent;

(3) In accordance with such plan and program for the civil defense of this State, to procure supplies and equipment, to institute training programs and public information programs, and to take all other preparatory steps including the partial or full mobilization of civil defense organizations in advance of actual disaster, to insure the furnishing of adequately trained and equipped forces of civil defense personnel in time of need.

(4) To make such studies and surveys of the industries, resources, and facilities in this State as may be necessary to ascertain the capabilities of the State for civil defense, and to plan for the most efficient emergency use therefor.

(5) On behalf of this State, to enter into mutual aid arrangements with other states and to coordinate mutual aid plans between political subdivisions of this State.

(6) To delegate any administrative authority vested in him under this Act. and to provide for the sub-delegation of any such authority.

(*Optional Provision:* To appoint, in cooperation with local authorities, metropolitan area directors when practicable.)

SECTION 7. *MOBILE RESERVE BATTALIONS.* (a) The Governor or his duly authorized representative is authorized to create and establish such number of Mobile Reserve Battalions as may be necessary to reinforce civil defense organizations in stricken areas and with due consideration of the plans of the Federal Government and of other States. He shall appoint a commander for each such battalion who shall have primary responsibility for the organization, administration and operation of such battalion. Mobile Reserve Battalions shall be called to duty upon orders of the Governor and shall perform their functions in any part of the State, or, upon the conditions specified in this section, in other States.

(b) Personnel of Mobile Reserve Battalions while on duty, whether within or without the State, shall: (1) if they are employees of the State, have the powers, duties, rights, privileges and immunities and receive the compensation incidental to their employment; (2) if they are employees of a political subdivision of the State, and whether serving within or without such political subdivision, have the powers, duties, rights, privileges and immunities and receive the compensation incidental to their employment; and (3) if they are not employees of the State or a political subdivision thereof, be entitled to compensation by the State at $——— per day (suggested rate to be equivalent to rate of compensation paid to jurors in State courts) and to the same rights and immunities as are provided by law for the employees of this State. All personnel of Mobile Reserve Battalions shall, while on duty, be subject to the operational control of the authority in charge of civil defense activities in the area in which they are serving, and shall be reimbursed for all actual and necessary travel and subsistence expenses.

(c) The State shall reimburse a political subdivision for the compensation paid and actual and necessary travel, subsistence and maintenance expenses of employees of such political subdivision while serving as members of a Mobile Reserve Battalion, and for all payments for death, disability or injury of such employees incurred in the course of such duty, and for all losses of or damage to supplies and equipment of such political subdivision resulting from the operation of such Mobile Reserve Battalion.

(d) Whenever a Mobile Reserve Battalion of another State shall render aid in this State pursuant to the orders of the Governor of its home State and upon the request of the Governor of this State, this State shall reimburse such other State for the compensation paid and actual and necessary travel, subsistence and maintenance expenses of the personnel of such Mobile Reserve Battalion while rendering such aid, and for all payments for death, disability or injury of such personnel incurred in the course of rendering such aid, and for all losses of or damage to supplies and equipment of such other State or a political subdivision thereof resulting from the rendering of such aid; PROVIDED, that the laws of such other State contain provisions substantially similar to this section.

(e) No personnel of Mobile Reserve Battalions of this State shall be ordered by the Governor to operate in any other State unless the laws of such other State contain provisions substantially similar to this section.

SECTION 8. *LOCAL ORGANIZATIONS FOR CIVIL DEFENSE.* Each political subdivision of this State is hereby authorized and directed to establish a local organization for civil defense in accordance with the State civil defense plan and program. Each local organization for civil defense shall have a Director who shall be appointed by the executive officer or governing body of the political subdivision, and who shall have direct responsibility for the organization, administration and operation of such local organization for civil defense, subject to the direction and control of such executive officer or governing body. Each local organization for civil defense shall perform civil defense functions within the territorial limits of the political subdivision within which it is organized, and, in addition, shall conduct such functions outside of such territorial limits as may be required pursuant to the provisions of Section 9 of this Act.

(In carrying out the provisions of this Act each political subdivision in which any disaster as described in Section 2 hereof occurs, shall have the power to enter into contracts and incur obligations necessary to combat such disaster, protecting the health and safety of persons and property, and providing emergency assistance to the victims of such disaster. Each political subdivision is authorized to exercise the powers vested under this section in the light of the exigencies of the extreme emergency situation without regard to time-consuming procedures and formalities prescribed by law (excepting mandatory constitutional requirements) pertaining to the performance of public work, entering into contracts, the incurring of obligations, the employment of temporary workers, the rental of equipment, the purchase of supplies and materials, the levying of taxes, and the appropriation and expenditure of public funds.)

SECTION 9. *MUTUAL AID ARRANGEMENTS.* (a) The Director of each local organization for civil defense may, in collaboration with other public and private agencies within this State, develop or cause to be developed mutual aid arrangements for reciprocal civil defense aid and assistance in case of disaster too great to be dealt with unassisted. Such arrangements shall be consistent with the State civil defense plan and program, and in time of emergency it shall be the duty of each local organization for civil defense to render assistance in accordance with the provisions of such mutual aid arrangements.

(b) The Director of each local organization for civil defense may, subject to the approval of the Governor, enter into mutual aid arrangements with civil defense agencies or organizations in other States for reciprocal civil defense aid and assistance in case of disaster too great to be dealt with unassisted.

SECTION 10. *IMMUNITY.* Neither the State nor any political subdivision thereof, nor other agencies, nor, except in cases of willful misconduct, the agents, employees, or representatives of any of them, engaged in any civil defense activities, while complying with or attempting to comply with this Act or any

other rule or regulation promulgated pursuant to the provisions of this Act, shall be liable for the death of or any injury to persons, or damage to property, as a result of such activity. The provisions of this section shall not affect the right of any person to receive benefits to which he would otherwise be entitled under this Act, or under the Workmen's Compensation Law, or under any pension law, nor the right of any such person to receive any benefits or compensation under any act of Congress.

SECTION 11. *APPROPRIATIONS AND AUTHORITY TO ACCEPT SERVICES, GIFTS, GRANTS, AND LOANS.* (a) Each political subdivision shall have the power to make appropriations in the manner provided by law for making appropriations for the ordinary expenses of such political subdivision for the payment of expenses of its local organization for civil defense. (Provide for levies and budgets in states where necessary.)

(b) Whenever the Federal Government or any agency or officer thereof or any person, firm or corporation shall offer to the State or to any political subdivision thereof, services, equipment, supplies, materials, or funds by way of gift, grant or loan, for purposes of civil defense, the State, acting through the Governor, or such political subdivision, acting through its executive officer or governing body, may accept such offer and upon such acceptance the Governor of the State or executive officer or governing body of such political subdivision may authorize any officer of the State or of the political subdivision, as the case may be, to receive such services, equipment, supplies, materials or funds on behalf of the State or such political subdivision, and subject to the terms of the offer and the rules and regulations, if any, of the agency making the offer.

SECTION 12. *UTILIZATION OF EXISTING SERVICES AND FACILITIES.* In carrying out the provisions of this Act, the Governor and the executive officers or governing bodies of the political subdivisions of the State are directed to utilize the services, equipment, supplies and facilities of existing departments, offices, and agencies of the State and of the political subdivisions thereof to the maximum extent practicable, and the officers and personnel of all such departments, offices, and agencies are directed to cooperate with an extend such services and facilities to the Governor and to the civil defense organizations of the State upon request.

SECTION 13. *POLITICAL ACTIVITY PROHIBITED.* No organization for civil defense established under the authority of this Act shall participate in any form of political activity, nor shall it be employed directly or indirectly for political purposes.

SECTION 14. *CIVIL DEFENSE PERSONNEL.* (a) No person shall be employed or associated in any capacity in any civil defense organization established under this Act who advocates or has advocated a change by force or violence in the constitutional form of the Government of the United States or in this State or the overthrow of any government in the United States by force or violence, or who has been convicted of or is under indictment of information charging any subversive act against the United States. Each person who is appointed to serve in an organization for civil defense shall, before entering upon his duties, take an oath, in writing, before a person authorized to administer oaths in this State, which oath shall be substantially as follows:

"I _____, do solemnly swear (or affirm) that I will support and defend the constitution of the United States and the constitution of the State of _____, against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties on which I am about to enter.

"And I do further swear (or affirm) that I do not advocate, nor am I a member of any political party or organization that advocates the overthrow of the Government of the United States or of this State by force or violence; and that during such time as I am a member of the (name of civil defense organization), I will not advocate nor become a member of any political party or organization that advocates the overthrow of the Government of the United States or of this State by force or violence."

SECTION 15. (Insert repealing clause.)

SECTION 16. *SEVERABILITY.* If any provision of this Act or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or application of the Act which can be given effect without the invalid provision or application, and to this end the provisions of this Act are declared to be severable.

SECTION 17. *ENFORCEMENT.* It shall be the duty of every organization for civil defense established pursuant to this Act and of the officers thereof to execute and enforce such orders, rules and regulations as may be made by the Governor under authority of this Act. Each such organization shall have available for inspection at its office all orders, rules and regulations made by the Governor, or under his authority.

SECTION 18. (*AUTHORIZATION FOR*) *APPROPRIATION.* (Here provide for necessary appropriation.)

SECTION 19. *EFFECTIVE DATE.* (Insert appropriate phrase to make Act effective upon passage and approval.)

LOCAL LEGISLATION

No attempt has been made to prepare a model municipal ordinance complete in every detail which might serve as a guide for local governments in adopting suitable measures to carry out this plan and program. Because of the variety of types of local government that will need to adopt local legislation for civil defense, and because of the variations among the laws governing the actions of local governments, it would be very difficult to prepare a complete model ordinance that could be adopted by any given community without first undergoing substantial adaptation. In view of this situation, the approach, in the case of the preparation of local legislative proposals, has been to outline those matters of substance which should be considered in the preparation of local legislation by any community in which a Civil Defense organization is to be established. The outline follows:

1. Enabling Legislation. The Model State Civil Defense Act includes many enabling provisions which would increase the authority of local governments with respect to civil defense matters. It is the intention of the Model Act to enable local governments establishing local organizations for civil defense, to make provisions, subject to certain limitations, for the following specific objectives, some or all of which might otherwise be beyond the scope of their authority:

a. The establishment of local organizations for civil defense.

b. The administration and operation of the local organization subject to State coordination and in accordance with the general civil defense plans.

c. Special authority with respect to mutual aid arrangements.

d. Special provisions with respect to immunity of the political subdivisions, civil defense agencies, and individuals from liability.

e. Authority to appropriate money for ordinary expenses of the local organization.

f. Optional special provisions for additional authority in emergency.

g. Authority to accept services, equipment, supplies, materials and funds upon the conditions offered. (Comment: Services of outstanding citizens without compensation should be encouraged.)

h. Power to employ the services and facilities of existing local agencies for civil defense purposes.

i. Provision for enforcement of rules and regulations.

j. Reimbursement for expenses of local government employees when utilized by the State in Mobile Reserve Battalions.

The solution of most of the drafting problems involved in local civil defense legislation will depend upon the enabling action taken by the States. State legislative action should, therefore, be carefully followed. Much of the language in the State law should prove adaptable to local legislation.

2. Conformance with the Civil Defense Plan. Before preparing any civil defense ordinance, an understanding of the whole civil defense plan and program, and its various parts, is essential; particularly with respect to those phases of it that relate to local plans and organizations.

3. Preamble or Statement of Purposes. Any recitation of the reasons for adopting a civil defense ordinance or local law at this time should include recognition of the possibility of the occurrence of large-scale disaster resulting from enemy action against this country or from natural causes, and the essentiality of integration and coordination among all public and private agencies concerned with civil defense.

4. Responsibility for Civil Defense. Although it might be assumed without being stated, it nevertheless is advisable to include a provision fixing the responsibility for civil defense functions within the political subdivision on the chief executive or governing body—whatever his or its title may be—of the government of the political subdivision for which the legislation is to be adopted.

5. Advisory Council. An essential part of any Civil Defense organization is a group of experienced people to advise the executive on civil defense matters; the fundamental purposes being to insure the best possible administration of the civil defense plan and program and to demonstrate, by the example of outstanding members of the community, the importance of civil defense. Within these objectives, the details of the organization of the Council are matters of local preference.

6. Local Civil Defense Director. The provision for setting up of the Civil Defense director and his office is an essential provision of any municipal ordinance. Such an organization would permit of rapid expansion in time of emergency as contemplated by the plan. Generally speaking, whatever provisions are inserted should be adequate to cover the following requirements:

a. The local Civil Defense Director should be an individual of outstanding ability; his job should be nonpolitical; he should be responsible to the head of local government, and his regular status should correspond to that of established department heads in the particular local government. In actual emergency, he would, under the head of the government, exercise local control of all civil defense activities.

b. The provisions should be so designed as to insure that the civil defense functions (as referred to in paragraph 8, below) will be adequately performed. Except in the smallest communities, this requires provisions for an office organization and the employment of additional personnel for the civil defense staff or office. Any provision of this nature, however, should be related to another provision specifying that existing governmental facilities and services are to be used to the greatest possible extent, and that new offices and additional personnel be limited to a minimum.

7. Civil Defense Workers. The plan contemplates the build-up in emergency of the extensive voluntary organization without which civil defense functions could not be performed. Therefore, any local ordinance requires provisions regarding volunteer workers and their status. Provisions should be made for the method of recruiting volunteers, prescribing their organization, setting forth the qualifications for enrollment in the organization (including the requirement of taking an oath), and stating the rights, privileges, duties and liabilities that apply to these volunteers. The personnel requirements outlined in the model State Act can be used as a guide with such supplementary provisions as may be desired.

8. Civil Defense Functions. It is essential to provide in any ordinance a clear and concise statement of what functions belong to civil defense and what functions do not belong to civil defense. For this purpose, it is suggested that the definition of "civil defense" in the Model State Act provides such a statement which could be readily adapted to local use.

9. Performance of Civil Defense Functions. In making provision for the carrying out of civil defense functions, adequate provisions should be included for the following:

a. Procurement, storage and distribution of supplies and equipment, (including necessary authorizations to accept gifts or special

offers of materials or facilities made by individuals or organizations).

b. Establishment of headquarters, office space communications and other facilities for Civil Defense organization and operations.

c. Development and execution of mutual aid arrangements, (including, as appropriate, particular provisions for mutual aid arrangements with private enterprises in the locality).

d. Conduct of training programs and training operations for the Civil Defense organization, as well as public information programs.

e. Partial or complete mobilization of the Civil Defense organization in anticipation of emergency.

f. Appropriation of necessary funds.

10. Implementing Provisions. It is the intent of the plan that legislative action be taken at the earliest possible date, and provision should, therefore, be made for emergency implementation, if the status of the State enabling legislation permits. Since the legislation relates to natural disaster as well as war-caused disaster, it should be permanent legislation.

APPENDIX

THE SECRETARY OF DEFENSE

WASHINGTON

27 MARCH 1948

MEMORANDUM FOR: THE SECRETARY OF THE ARMY
THE SECRETARY OF THE NAVY
THE SECRETARY OF THE AIR FORCE
THE JOINT CHIEFS OF STAFF
CHAIRMAN, MUNITIONS BOARD
CHAIRMAN, RESEARCH AND DEVELOPMENT BOARD
THE MILITARY LIAISON COMMITTEE
DIRECTOR, OFFICE OF CIVIL DEFENSE PLANNING

Subject: Office of Civil Defense Planning.

1. In order (a) to provide for the development of detailed plans for, and the establishment of, an integrated national program of civil defense; (b) to secure proper coordination and direction of all civil defense matters affecting the National Military Establishment; and (c) to provide an effective means of liaison between the National Military Establishment and other governmental and private agencies on questions of civil defense, an Office of Civil Defense Planning is hereby established in the Office of the Secretary of Defense. This Office will be headed by a Director who will, at the same time, also serve as personal advisor and deputy to the Secretary of Defense on civil defense matters.

2. The Office of Civil Defense Planning will have the following functions:

(a) To prepare, and to submit to the Secretary of Defense, a program of civil defense for the United States, including a plan for a permanent federal civil defense agency which, in conjunction with the several States and their subdivisions, can undertake those peacetime preparations which are necessary to assure an adequate civil defense system in the event of a war;

(b) Within the National Military Establishment, to coordinate all current activities in the field of civil defense;

(c) On matters of civil defense, to provide liaison between the National Miliary Establishment and other governmental and private agencies;

(d) To the extent which is possible and desirable before the actual adoption of the permanent program of civil defense referred to in (a) above, and consistent with the probable character of any such program:

(1) To initiate interim measures which may seem necessary or appropriate in furtherance of an adequate system of civil defense;

(2) To provide the several states and their subdivisions with guidance and assistance in civil defense matters; and

(3) To furnish necessary information and assistance on civil defense matters to the departments and agencies of the National Military Establishment, to other agencies of the Federal Government, and to private individuals or organizations concerned with civil defense matters.

(e) To draft any legislation required to implement the civil defense program developed under (a) above.

3. In formulating plans for a civil defense program and in preparing implementing legislation therefor, the following factors are to be taken into account:

(a) The various situations which might be created in communities of the United States as a result of an enemy attack;

(b) The tasks to be performed in order adequately to handle the various situations developed under (a) above;

(c) The extent to which each of the tasks developed under (b) above could and should be performed by a civil defense organization, and the extent to which they should be performed by military forces (both regular and reserve);

(d) The extent to which those tasks which should be performed by a civil defense organization (as developed under (c) above) should be carried out, supervised or controlled by the Federal Government, and the extent to which they should be undertaken by states or their subdivisions;

(e) From the standpoint of assuring the coordinated and adequate performance by all groups of the tasks developed under (b) above, the most effective forms of organizational and working relationships:

(1) Between a civil defense organization (at the national, state and local levels) and the military forces (both regular and reserve);

(2) Between a federal civil defense agency and any civil defense groups established in the several states and their subdivisions;

(3) Between a federal civil defense agency and other agencies of the Federal Government which may be concerned with, or affected by, civil defense activities; and

(4) Between a civil defense organization and non-governmental organizations which may be concerned with, or affected by, civil defense activities.

(f) The extent to which the adequate performance of civil defense tasks in wartime depends upon advance peacetime preparations therefor, the character of such advance preparations, and the most appropriate assignment of responsibilities therefor;

(g) The kind of peacetime civil defense organization which is best adapted (1) to undertake those civil defense preparations which must be undertaken in advance of any war (as developed in (f) above), and (2) to be converted, in the event of a war, into an organization capable of performing wartime civil defense tasks (as developed in (c) above);

(h) Peacetime and wartime requirements for personnel for a civil defense organization, and methods for obtaining and training such personnel;

(i) The inter-relation of internal security problems and problems of civil defense, and the extent to which, if any, such problems could and should be handled through, or in conjunction with, a civil defense organization.

4. The Office of Civil Defense Planning is authorized, in the performance of the functions herein described, to consult with such persons within the National Military Establishment as it may wish, to call upon any agency of the National Military Establishment for information and assistance which it may require, and to solicit the help of other individuals or agencies, both governmental and private, wherever it deems this to be appropriate. In addition, it is authorized to establish such advisory committees as may be necessary to carry out its duties.

5. In order to provide for the effective coordination of civil defense planning activities with other activities of the National Military Establishment—

(a) The Office of Civil Defense Planning will:

(1) Keep all agencies of the National Military Establishment generally apprised of its plans and activities;

(2) Advise the Joint Chiefs of Staff with respect to the possible effect of civil defense problems, or plans for civil defense, on matters coming within the cognizance of the Joint Chiefs of Staff;

(3) Inform the Munitions Board from time to time of the requirements for materials and manpower in the conduct of a civil defense program in time of war;

(4) Advise the Research and Development Board of any problems relating to civil defense in which research and development programs should be undertaken.

(b) The Joint Chiefs of Staff will provide the Office of Civil Defense Planning with general guidance on the probable character of any future war as it might affect the formulation of a program for civil defense, including (1) its views as to those tasks which could and should be performed by a civil defense organization and those for which military forces would be required, (2) its appraisal of the probable extent and character of damage as a result of enemy action, and of those areas or activities which would be the most likely targets thereof, and (3) its views concerning the relation of a civil defense program to the military defense of the United States;

(c) The Research and Development Board will keep the Office of Civil Defense Planning apprised of any progress in the field of research and development which may affect the preparation of plans for a civil defense program;

(d) The Munitions Board will advise the Office of Civil Defense Planning of any anticipated shortages in materials and manpower which might affect the formation of a civil defense program;

(e) The Military Liaison Committee to the Atomic Energy Commission will provide the Office of Civil Defense Planning with any information concerning atomic energy matters which may be necessary in the development of a program of civil defense.

7. For purposes of this memorandum the following definitions will obtain:

(a) The term "United States" includes continental United States and its territories and possessions;

(b) The term "civil defense" is generally used to denote the organized activities of the civilian population (1) to minimize the effects of any enemy action directed against the United States and (2) to maintain or restore those facilities and services which are essential to civil life and which are affected by such enemy action. It does not in general include internal security or active defense measures, such as aircraft warning, which, although they may utilize civilian volunteers, are a responsibility of the Armed Forces. However, the extent to which, if any, and the manner in which, a civil defense program should in fact cover any such matters, or be related thereto, are questions which the Office of Civil Defense Planning, in conjunction with other appropriate agencies, should consider in the preparation of its program. Similarly, the term "civil defense" does not in general include matters having to do with the strategic relocation of industries, services, government, and economic activities in anticipation of any future emergency (a responsibility of the National Security Resources Board under subsection 103 (c) (6) of the National Security Act of 1947), but the Office of Civil Defense Planning will advise the National Security Resources Board of the relation of such matters to a civil defense program, and will, to the extent requested, work closely with such Board (1) in the development of policies and the solution of problems having to do with strategic relocation, and (2) in the implementation, where appropriate and when requested by the Board, of any such policies which may be directly related to a civil defense program;

(c) The terms "civil defense program", and "civil defense organization", except when specifically modified, respectively have reference to an overall program and to an overall organization for the civil defense of the United States, and not merely to the federal aspects thereof.

JAMES FORRESTAL.

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BINGER, Walter D., New York City, National Technological Advisory Committee, American Society of Civil Engineers.
JORDAN, Harry E., New York City, National Technological Advisory Committee, American Water Works Association.
McCALLUM, Gordon E., Washington, Senior Sanitary Engineer, United States Public Health Service.
RAY, Arthur B., Ph. D., New York City, National Technological Advisory Committee, American Institute of Chemical Engineers.
TURNER, Scott, New York City, National Technological Advisory Committee, American Institute of Mining and Metallurgical Engineers.
WOLMAN, Abel, D. Sc., Baltimore, Md., National Technological Advisory Committee, American Public Health Association.

Transportation Services

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BOGAN, R. A. L., Chicago, Ill., Executive Vice President, Greyhound Corp. Representing National Association of Motor Bus Operators.
BRION, A. N., Boston, Mass., President, New England Greyhound Lines, Representing National Association of Motor Bus Operators.
EMMONS, S. E., Washington, General Manager, Capital Transit Co. Representing American Transit Association.
FAIRBANK, H. S., Washington, Deputy Commissioner, Public Roads Administration.
GLASGOW, Ralph I., Washington, Colonel, Transportation Corps, United States Army.
HOOD, J. M., Washington, President, American Short Line Railroad Association.
KING, Homer C., Washington, Deputy Director, Office of Defense Transportation.
LAWRENCE, John V., Washington, Managing Director, American Trucking Association, Incorporated.
MacDONALD, Thomas, Washington, Commissioner, Public Roads Administration, Federal Works Administration.
MERRILL, E. D., Washington, President, Capital Transit Co., Representing American Transit Association.
PERRIN, Frank, Washington, Executive Assistant, Office of Defense Transportation.
REDFERN, M. F., Washington, Vice President, Traffic, Air Transport Association of America.
SCHELL, S. D., Washington, Vice President, National Federation of American Shipping, Inc.
SPENCER, Lyndon, Cleveland, Ohio, Admiral, Vice President, Lake Carriers Association.
THOMPSON, Chester, Washington, President, American Waterway's Operators.

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BONDY, Robert E., New York City, Director, National Social Welfare Assembly.

FOLLIN, James W., Washington, Assistant Administrator, Federal Works Agency.
HERTEL, Frank J., New York City, General Director, Family Services Association of America.
HOEY, Jane M., Washington, Director, Bureau of Public Assistance, Federal Security Agency.
LENROOT, Katharine F., Washington, Chief, Children's Bureau, Federal Security Agency.
RUSSELL, Howard L., Chicago, Ill., Director, American Public Welfare Association.
SMITH, DeWitt C., Washington, Vice President for Social Welfare Services, American National Red Cross.
TAYLOR, R. B., Washington, Lieutenant Colonel, Quartermaster Corps, United States Army.
WEBBER, Milan G., Washington, Lieutenant Colonel, General Staff Corps, United States Army.

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BENTLEY, Richard, Chicago, Ill., Member of Law Firm of Cassels, Potter and Bentley.
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GALLAGHER, Hubert R., Chicago, Ill., The Council of State Governments.
GEWIRTZ, Stanley, Washington, Member of Law Firm of Gewirtz and MacClay.
HARTSON, Nelson T., Washington, Member of Law Firm of Hogan and Hartson.
KING, William H., Jr., Chicago, Ill., Member of Law Firm of Cassels, Potter and Bentley.
MacCRACKEN, William P., Washington, Member of Law Firm of MacCracken and O'Rourke.
ROBERTS, Thomas H., Providence, R. I., Member of Law Firm of Roberts, McGarry and Orme.
SIMMONS, David A., Houston, Tex., Member of Law Firm of Simmons, Smyth & Much.
STEPHENSEN, Irvin L., Schenectady, N. Y., General Electric Co.
TEASDALE, Kenneth, St. Louis, Mo., American Bar Association.

OFFICE OF CIVIL DEFENSE PLANNING
OFFICE OF SECRETARY OF DEFENSE

CHART I

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Lewis O. Goas
Leif Gilstad
CONSULTANT
Philip F. Kobbe
LIAISON
James J. Hatt
STAFF ANALYST
Roger Delaney

Coordination, mutual assistance, and integration of plans and activities with other OSD agencies as follows: Joint Chiefs of Staff, War Council, Munitions Board, Research and Development Board, Military Liaison Committee.

DIRECTOR
Russell J. Hopley

DEPUTY DIRECTOR
Clement D. Johnston

EXECUTIVE ASSISTANT
Barnet W. Beers

Liaison and coordination of other governmental, quasi-official, and private agencies.

Administrative and special facilities of the Office of the Secretary of Defense: Clerical—Personnel Procurement—Filing—Transportation and Travel—Legal Advice—Public Relations—Etc.

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ASST. CHIEF: James L. McCrory
ASST. CHIEF: Thomas A. Donnelly
CONSULTANT: Kenneth L. Heaton

ORGANIZATIONAL PLANNING DIVISION
CHIEF: Clement D. Johnston
CONSULTANTS: Frank A. McNamee
William B. Brainard Jr.

PUBLIC INFORMATION DIVISION
CHIEF: Osgood Roberts
CONSULTANT: Kenneth L. Heaton

TECHNICAL DIVISION
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CONSULTANT: Walter D. Binger

LEGAL AND LEGISLATIVE DIVISION
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STATE AND LOCAL GOVERNMENT BRANCH
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Milton W. Buffington
ASSISTANT CHIEF:
William B. Blanchet

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CHIEF:
Weldon T. Ellis Jr.

INDUSTRIAL AND UTILITIES BRANCH
CHIEF:
Alton G. Miller
ASSISTANT CHIEF:
Frank H. Norby

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CHIEF:
Jack C. Gault
CONSULTANT
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ASSOCIATE ADVISOR:
Norvin Kelfer, M.D.

CHEMICAL DEFENSE ADVISOR
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RADIOLOGICAL DEFENSE ADVISOR
George M. Lyon, M.D.
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Richard Gerstell
Jack Leckie

FIRE SERVICES ADVISOR
Frank C. McAuliffe

POLICE SERVICES ADVISOR
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Mathew J. Gunner

OTHER SPECIAL WEAPONS
Charles E. Minarik
CONSULTANTS:
Oram C. Woolpert, M.D.
Keith H. Lewis

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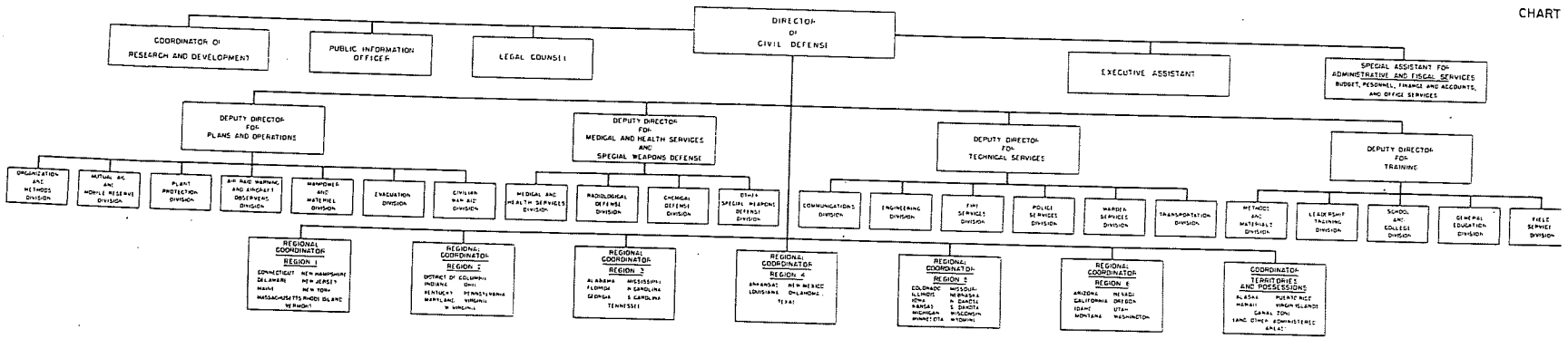
CHART

PROPOSED FEDERAL ORGANIZATION FOR CIVIL DEFENSE



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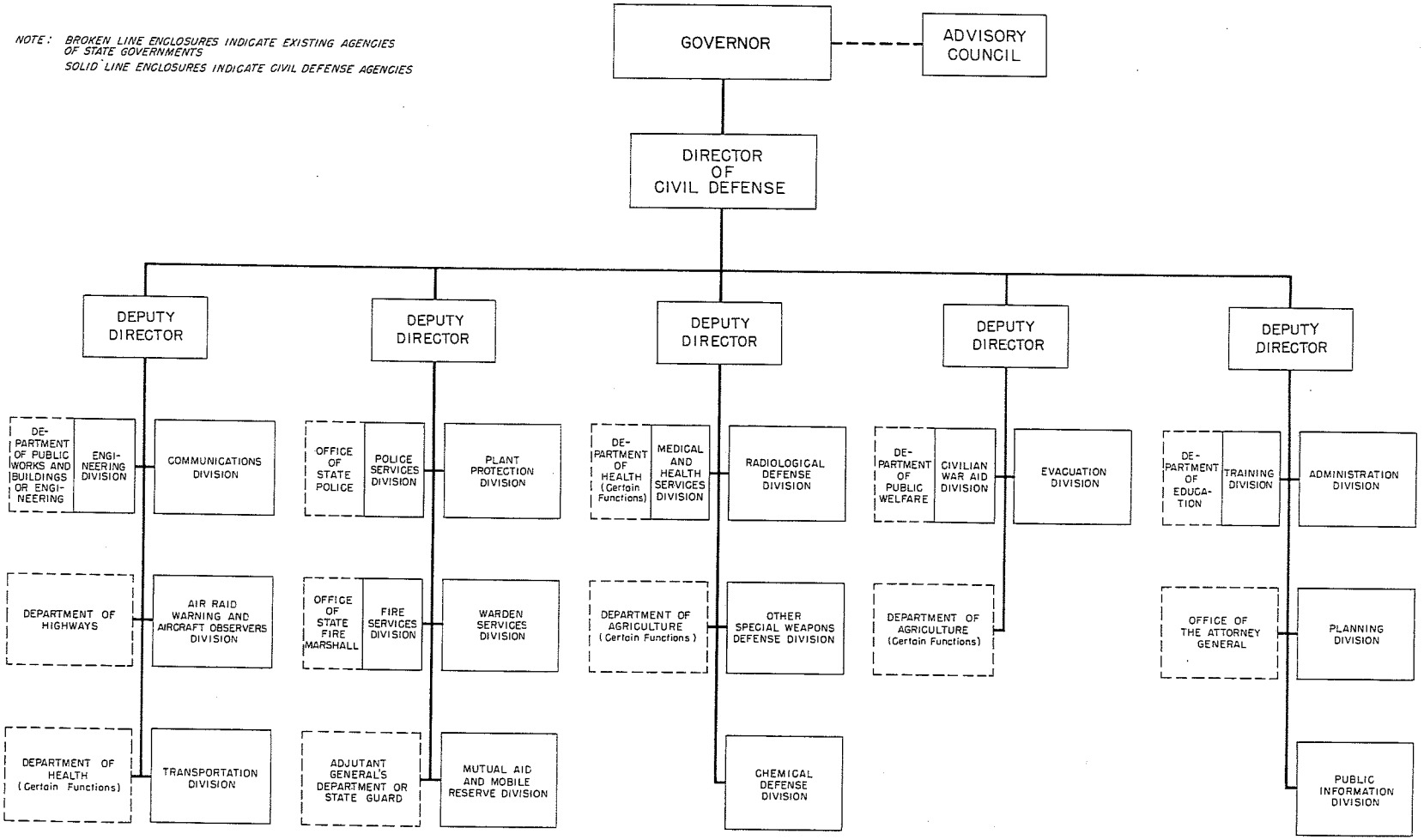
SUGGESTED MODEL FOR STATE ORGANIZATION OF CIVIL DEFENSE

CHART 3



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SUGGESTED MODEL FOR LOCAL ORGANIZATION OF CIVIL DEFENSE

CHART 4

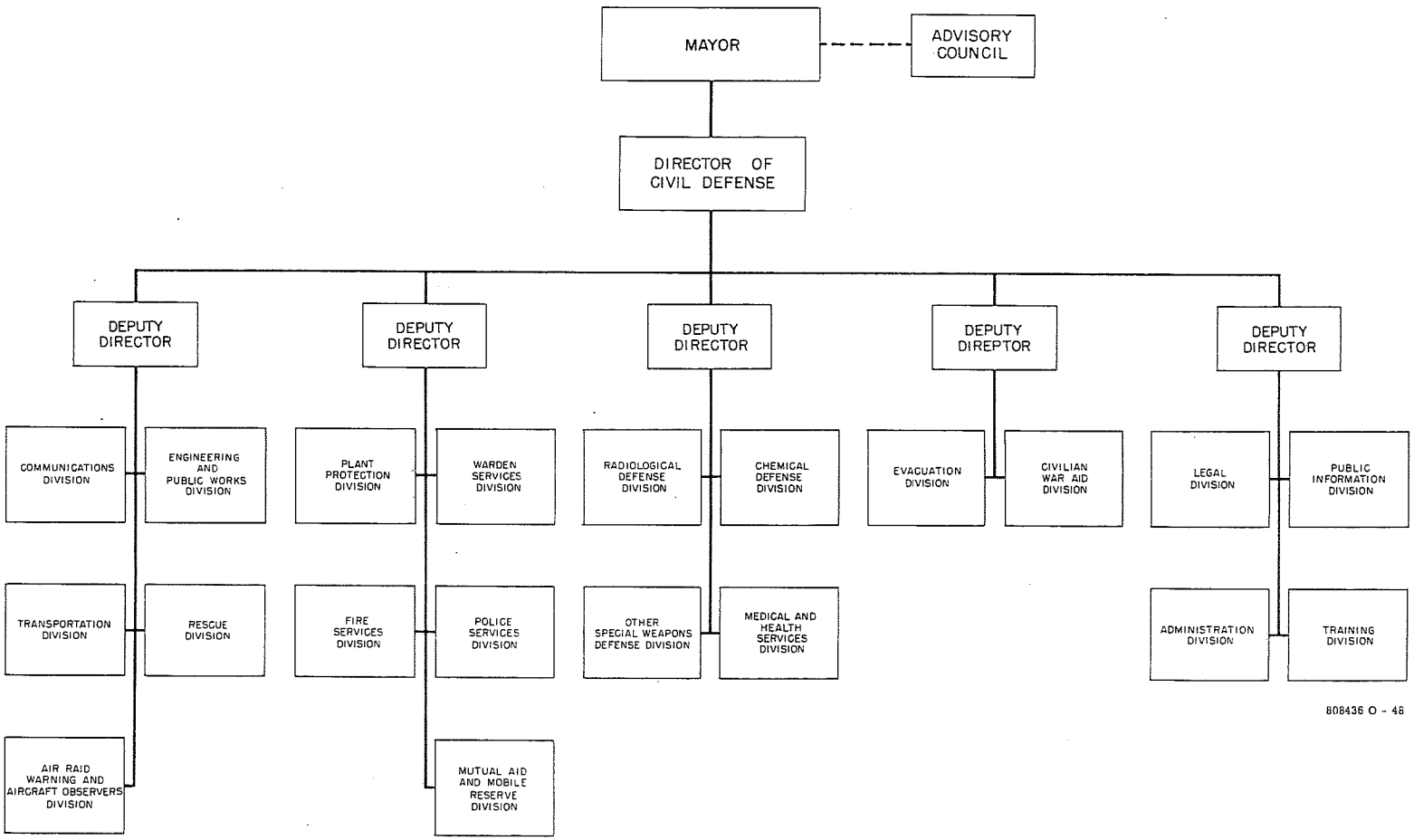

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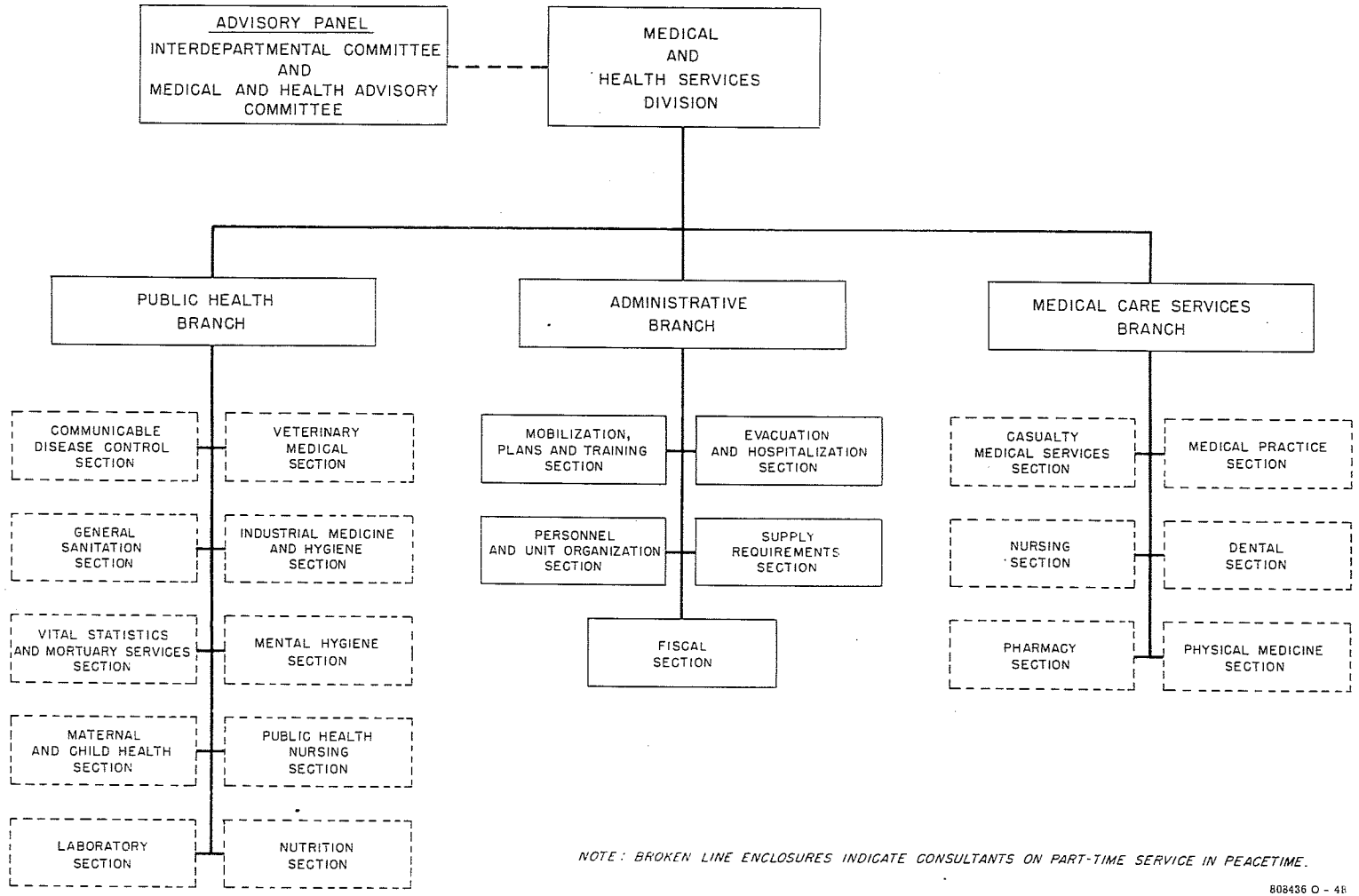
CHART 5

PROPOSED ORGANIZATION FOR

MEDICAL AND HEALTH SERVICES DIVISION

OFFICE OF CIVIL DEFENSE



NOTE: BROKEN LINE ENCLOSURES INDICATE CONSULTANTS ON PART-TIME SERVICE IN PEACETIME.

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PROPOSED ORGANIZATION FOR
RADIOLOGICAL DEFENSE DIVISION
OFFICE OF CIVIL DEFENSE

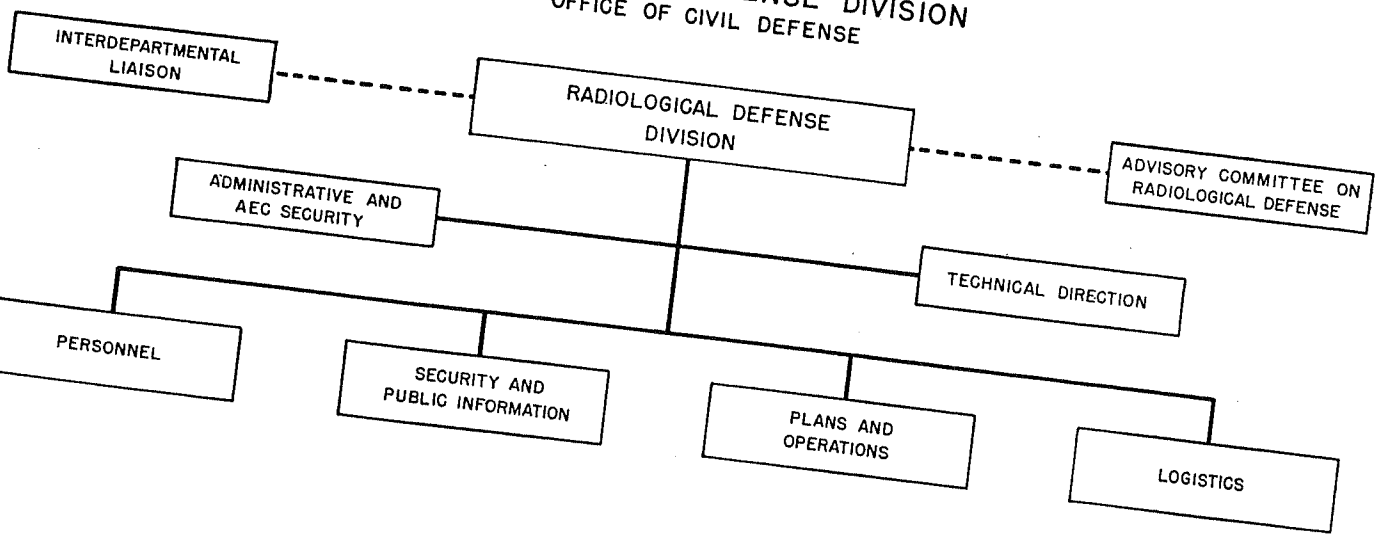
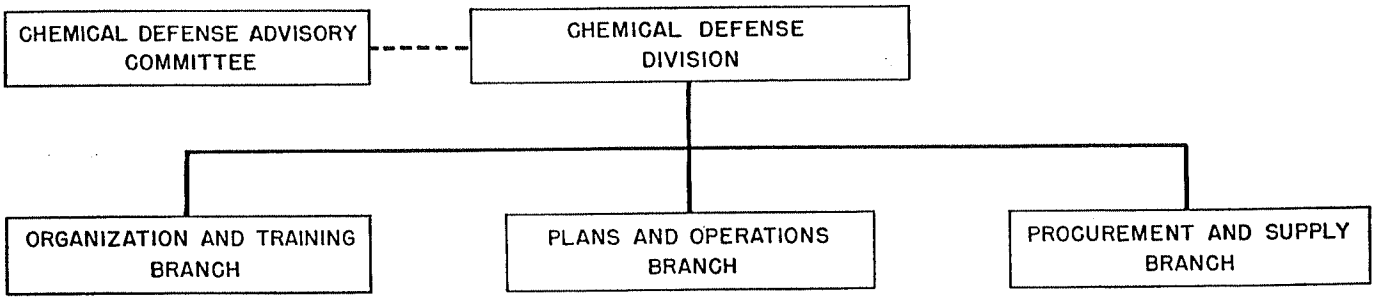


CHART 6

CHART 7

PROPOSED ORGANIZATION FOR
CHEMICAL DEFENSE DIVISION
OFFICE OF CIVIL DEFENSE



PROPOSED ORGANIZATION FOR
COMMUNICATIONS DIVISION
OFFICE OF CIVIL DEFENSE

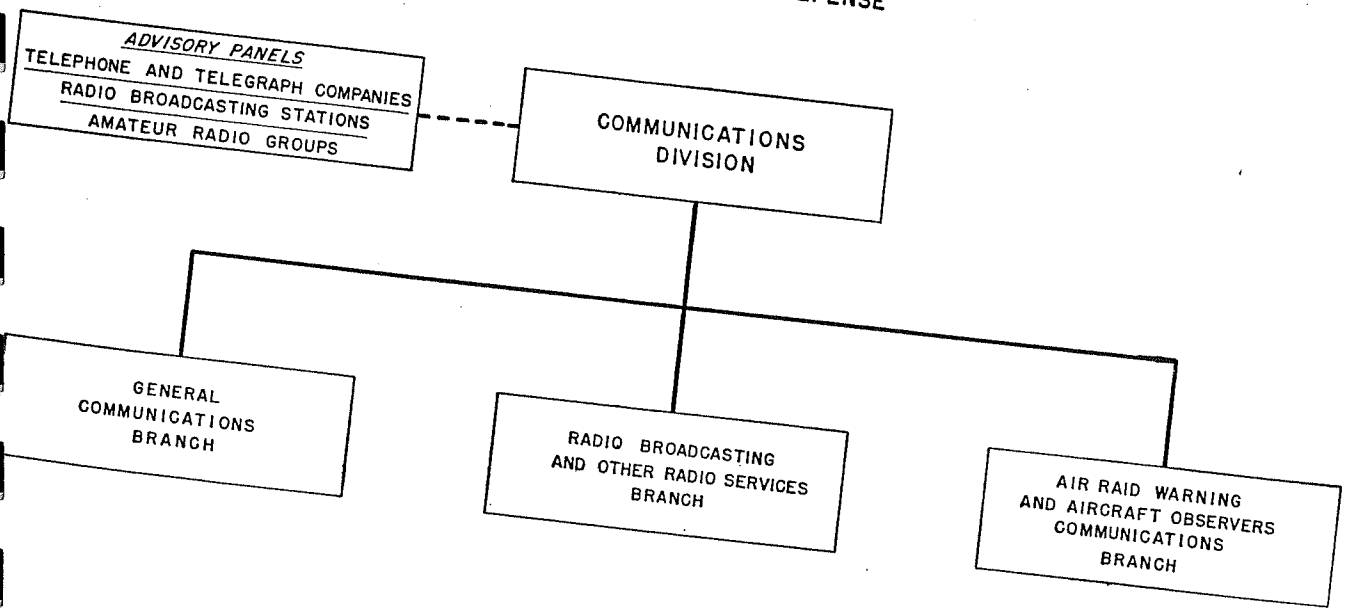
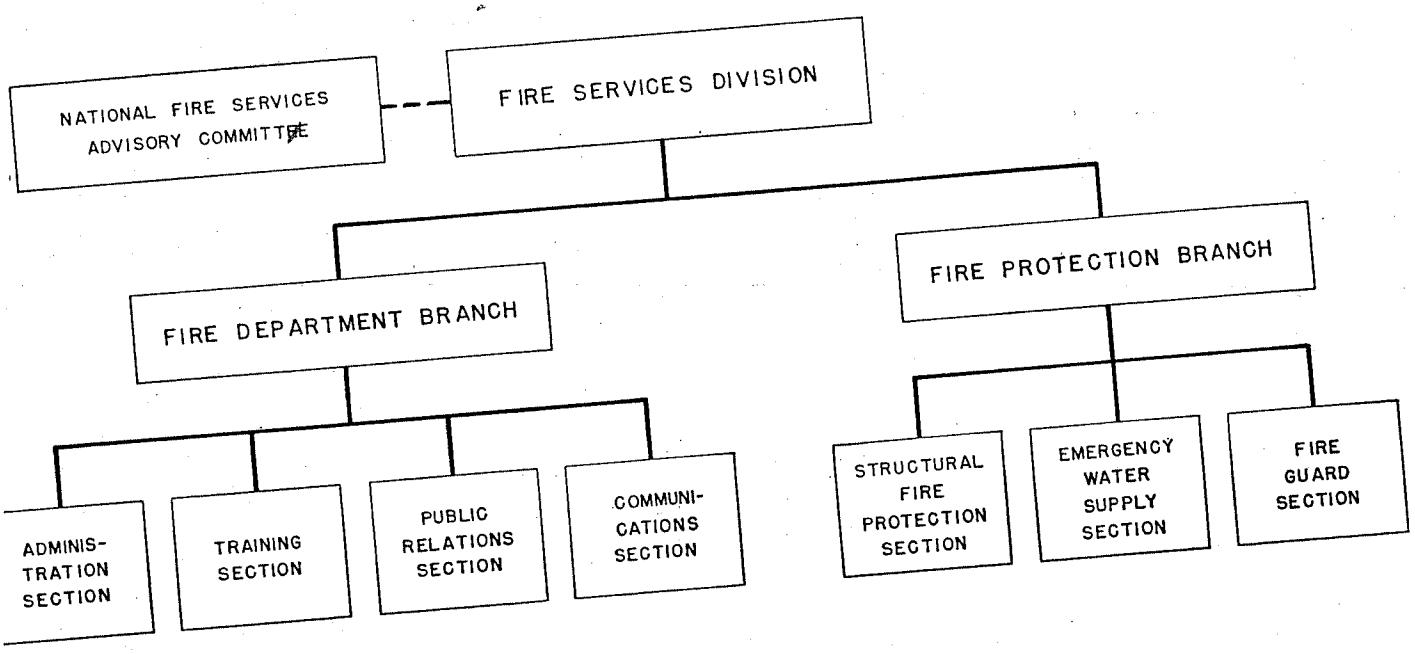


CHART 8

CHART 9

PROPOSED ORGANIZATION FOR
FIRE SERVICES DIVISION
OFFICE OF CIVIL DEFENSE



PROPOSED ORGANIZATION FOR
POLICE SERVICES DIVISION
OFFICE OF CIVIL DEFENSE

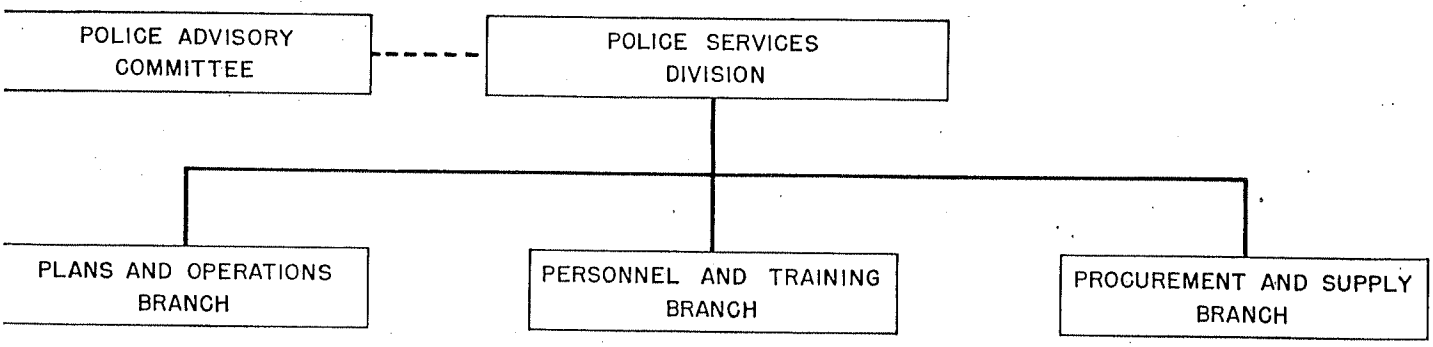
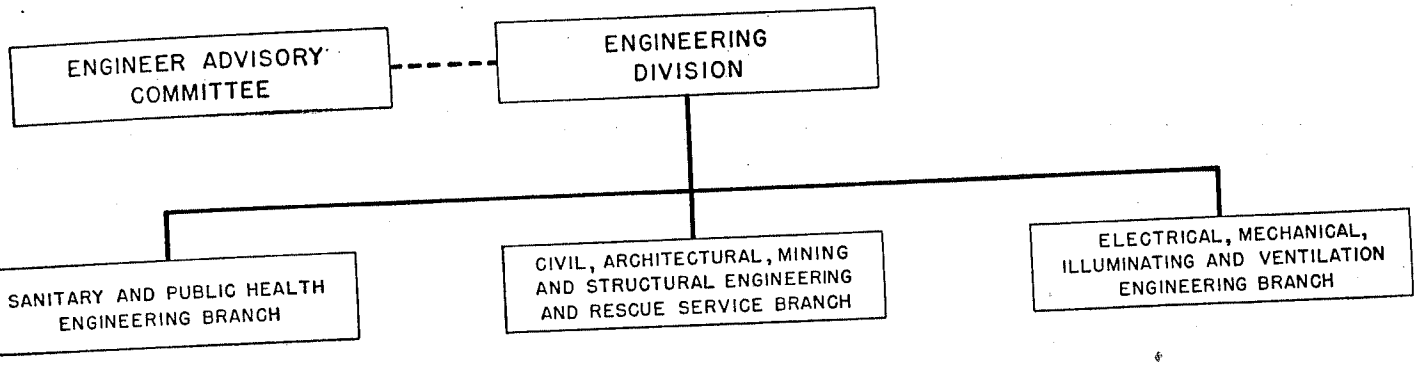


CHART 10

CHART 11

PROPOSED ORGANIZATION FOR
ENGINEERING DIVISION
OFFICE OF CIVIL DEFENSE



PROPOSED ORGANIZATION FOR
TRANSPORTATION DIVISION
OFFICE OF CIVIL DEFENSE

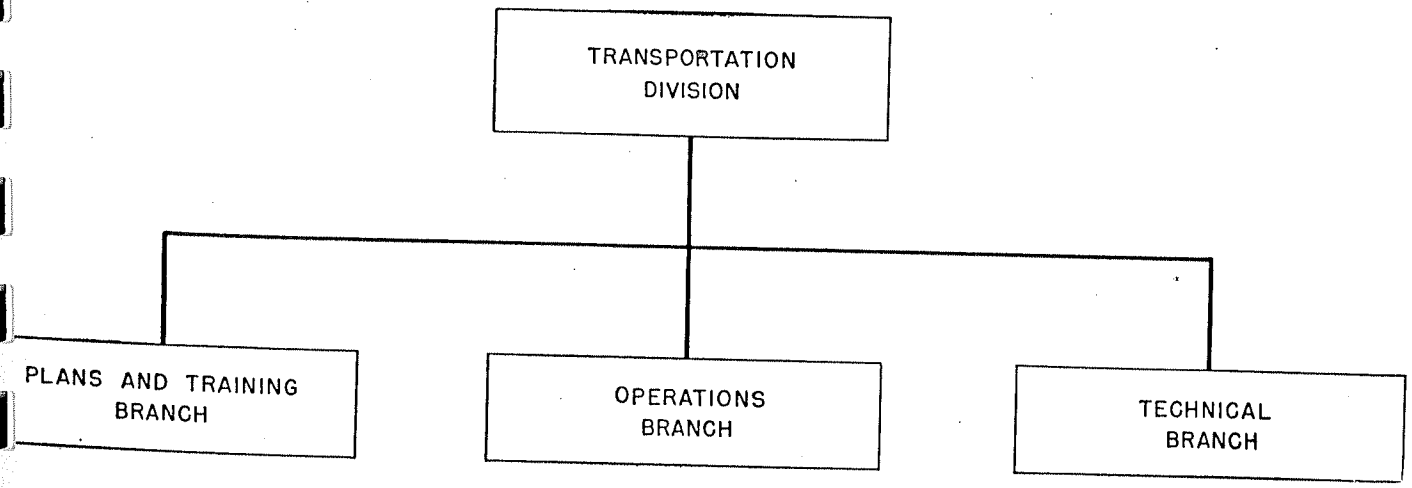


CHART 12

OUTLINE OF STEPS IN CIVIL DEFENSE ACTION

CHART 13

1st. LINE CIVIL DEFENSE

SELF–HELP

Self-Help is the organization, preparation, and execution of means by individuals, families, communities, institutions, facilities, municipalities, metropolitan areas, districts, states or regions, to meet emergencies to the extent of their own capabilities. During peacetime the family unit constitutes the basis for self-help; during peacetime the individual within the family must be encouraged to:

a. Take training courses and refresher courses through the National Red Cross or other agencies in the locality.
b. The individual equipping himself with necessary first-aid facts, tools, and other devices and supplies necessary for their individual protection.

During wartime the family shall be required to:

a. Take all the necessary courses for their welfare and safety.
b. Keep on hand all equipment and supplies necessary for family and property protection.
c. Participate in measures designed to promote self-protection and family protection by becoming an integral part of the war organization or such other organization as may be planned by his local organization Civil Defense.
d. Take training in putting out small fires.
e. Provide necessary implements to cope with small fires in the home.

Extended self-help:

a. Schools.
b. Churches.
c. Hospitals.
d. Public Service Organizations:
   (1) Hotels.
   (2) Department Stores.
   (3) Public Transportation.

2nd. LINE CIVIL DEFENSE

MUTUAL AID

Mutual Aid is the term applied to all preparations and activities whereby units or subdivisions enumerated under the First Line of Civil Defense (Self-Help), voluntarily assist each other by preconceived or spontaneous arrangements.

Mutual Aid includes:

a. Agreements or arrangements between industrial plants.
b. Mutual assistance between city subdivisions where necessary.
c. Planned mutual assistance with veterans' organizations which are organized on a semimilitary basis and have the facilities to assist.
d. Mutual assistance on a preplanned basis with local fraternal and other private organizations.
e. Organization for postwar care.

3rd. LINE CIVIL DEFENSE

STATE MOBILE RESERVES

MOBILE SUPPORT

The principles evolved for second line of Civil Defense (Mutual Aid) apply in general to the principles required for Third Line of Civil Defense. Mobile support is the use of protective services or parts thereof or a combination thereof which, upon command of higher authority are dispatched to neighboring or distant areas for operations. Mobile support therefore is authoritatively directed mutual aid. Mobile support at the local level may therefore take the form of organized units made up of a portion of the protective services of the community supplemented by such volunteers necessary to create all the elements for an organized Mobile Reserve Unit, placed on call for higher authority and by mutual agreement these Mobile Support Units will rendezvous on the perimeter of a stricken area and remain mobilized on call at such rendezvous prepared to act on a previously well-planned course. Mobile Support Reserves in some cases may be required to cross State lines. Prior mutual agreements in these cases will have been completed. The purpose of this part of the plan is to organize, coordinate, and by agreement to cause to come into being a Third Line of Self-Help, when an area has reached a stage where its First and Second Line of Civil Defense have failed or border on exhaustion it becomes necessary to use agencies of nearby communities which have been previously organized as Local Mobile Reserve Units, termed Class "B" Mobile Reserve Battalions.

CIVIL DEFENSE MOBILE RESERVE UNITS

Organized during peacetime as Class "A" Units, from a nucleus of the local protective services in accordance with a Table of Organization and Equipment, when federally recognized by inspection and approval by the National Director of Civil Defense, becomes eligible for certain personal protective equipment and certain technical equipment, less those required for fire fighting which are considered sufficient in the municipality.

a. Responsibility for organization, activation, and training rests with the State concerned.
b. Does not at any time revert to Federal control.
c. General training supervision under direction of the National Director, Civil Defense.
d. Approximate strength one hundred (100) battalions—50,000.
e. Draws additional strength and units when needed from Third Line of Civil Defense Units (Mobile Support). Class "B" Mobile Reserve Battalions.

4th. LINE CIVIL DEFENSE

MILITARY AID TO CIVIL GOVERNMENT

A secondary mission of the Armed Forces is the support of the Civil Defense effort. Such support may take the form ranging from assistance to local communities in a damaged area to an extent short of military control or martial rule as the situation may demand.

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PROPOSED ORGANIZATION FOR

MUTUAL AID AND MOBILE RESERVE DIVISION

OFFICE OF CIVIL DEFENSE

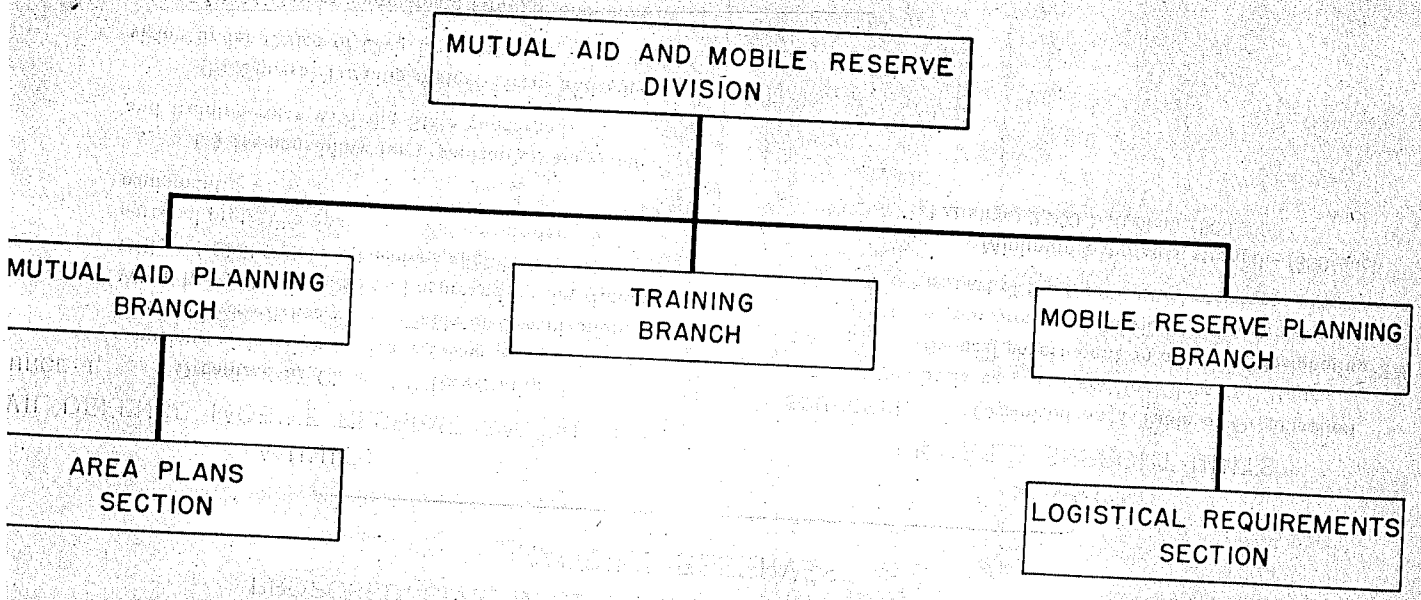


CHART 14

CHART 15

PROPOSED CIVIL DEFENSE MOBILE RESERVE BATTALIONS

MOBILE RESERVES

A UNITS
CIVIL DEFENSE MOBILE RESERVE BATTALIONS

SOURCE: 1. Organized as Class "A" Units, around a nucleus of local protective services and volunteer groups in accordance with a Table of Organization. When federally inspected and approved by the National Office of Civil Defense, becomes eligible for certain personal protective equipment and certain technical equipment.

(a) Responsibility for organization, activation and training rests with the State concerned.

(b) General Training material from and supervision under Office of Civil Defense.

(c) Minimum approximate strength one hundred (100) battalions (of approximately 500 each), 50,000.

(d) Draws additional strength and units when needed from Class "B" Civil Defense Units (Mobile Support).

B UNITS
MOBILE SUPPORT UNITS

SOURCE: 1. Organized on a Table of Organization basis as prescribed for Class "A" Units. By local government on a basis of designating X% of the protective services and volunteer groups as part of the local mutual assistance program.

2. Minimum estimated strength—(300 each battalion) 2,000 battalions, 600,000.

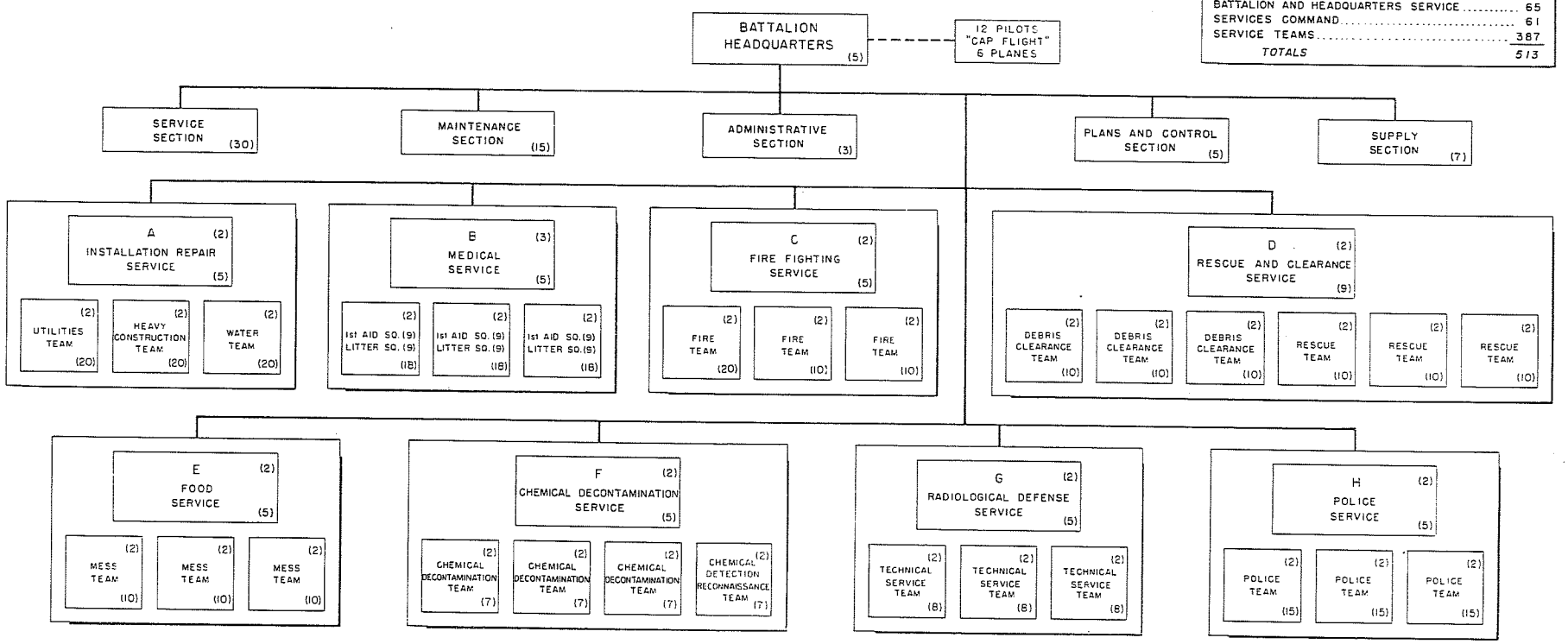
PROPOSED ORGANIZATION FOR

CIVIL DEFENSE MOBILE RESERVE BATTALION

CHART 16

RECAPITULATION

BATTALION AND HEADQUARTERS SERVICE	65
SERVICES COMMAND	61
SERVICE TEAMS	387
TOTALS	513



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PROPOSED ORGANIZATION FOR

AIR RAID WARNING AND AIRCRAFT OBSERVERS DIVISION

OFFICE OF CIVIL DEFENSE

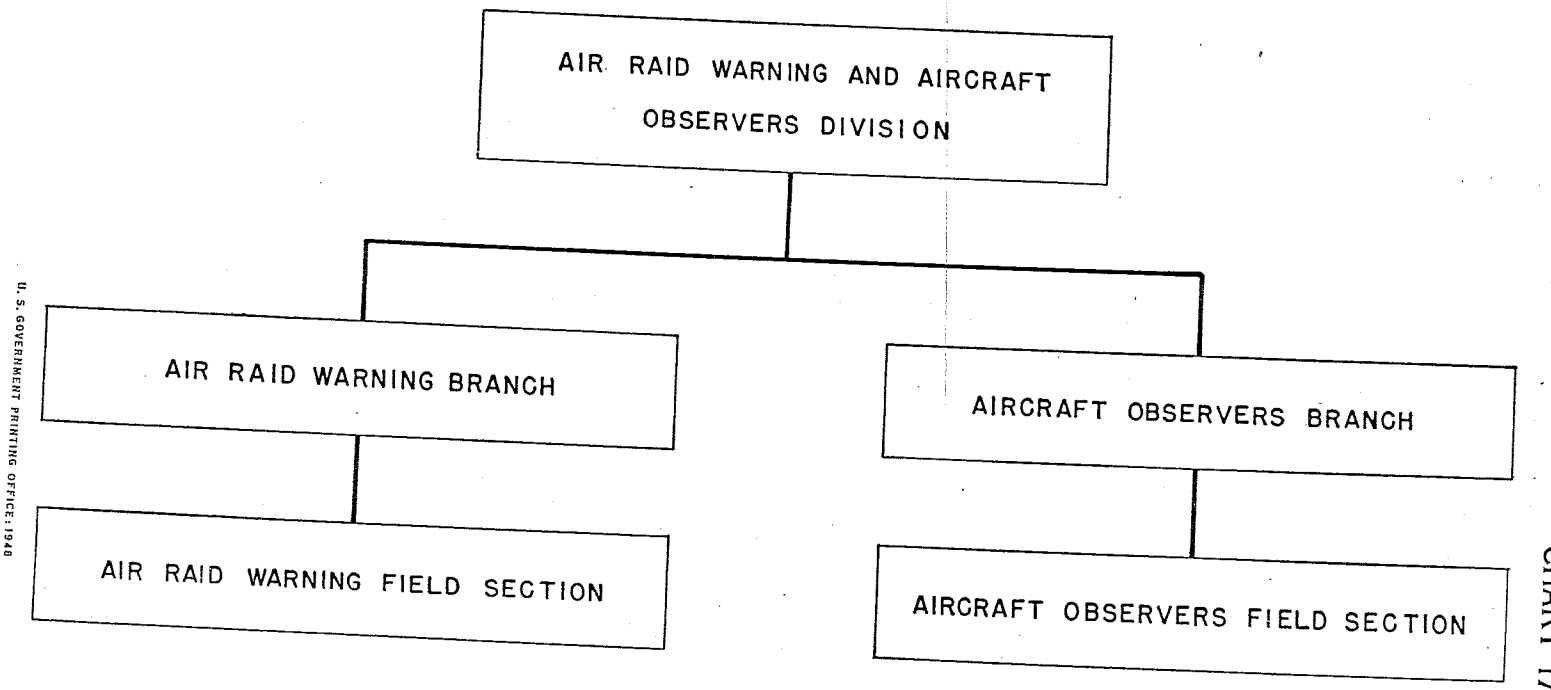

CHART 17

U. S. GOVERNMENT PRINTING OFFICE: 1940