



CIVIL DEFENCE

OPERATIONS and CONTROL
of the
CIVIL DEFENCE SERVICES

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PREFACE

The object of this manual is to describe generally the operations and control of the civil defence services within target areas.

Most of the ideas and tactics presented here are based on experience gained in Germany and England during the Second World War, and take into account the increase in power of the new types of weapons. They are also based on the assumption that civil defence services in our country will not have to combat the results of continuous attacks, but rather of sporadic raiding using weapons of great destructive power, although our civil defence services must be prepared for any eventuality.

Grateful acknowledgement is made to a large number of civil defence officials who have contributed to this manual much in the way of material and constructive criticism.

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INTRODUCTION

In planning the military defence of any area of ground, an army commander must first make a close and intimate study of the available maps of the area, in order to fix in his mind the various features on the ground that may affect his ultimate dispositions. He should then make a personal reconnaissance over the ground he will be defending. A very similar approach is necessary in planning the civil defence of any target area. A competent planner will first study, in detail, large scale maps and air photos of the entire terrain making up the target area, in order to arrive at a reasonable estimate of the probable effects of, and measures necessary to meet, an enemy attack on the target area.

This estimate cannot be made without an analysis of vital characteristics of the area, such as building heights and density, population density, location of public utility service lines, areas of fire risk and other factors which are not normally plotted on city maps. Until this information is available, a comprehensive and intelligent operational plan will not be possible.

Such information will give the planner some idea of the amounts of debris, the number of casualties, the number of homeless, etc. which will affect his future strategy. It will also indicate what services will be required to overcome the many problems which will face him.

Any organization developed for fighting a war, whether it be military or civil, must be sufficiently flexible that it will be able to adapt itself and meet changing conditions. When it comes to fighting a war, a study of military establishments, for guidance, is essential. Down the centuries military organizations have developed from loose-knit armies into closely integrated corps with staff direction

enabling commanders to employ large bodies of men with conspicuous success. Modern organization provides a definite chain of command and channel of communication so that orders or directions of commanders can be conveyed to the smallest link in the chain. These links are organized in such a way that they can work on their own initiative with the minimum of direction from the top. *This, too, must be the case in civil defence.*

Under the scales of attack which are envisaged no single community can be expected to mobilize or maintain sufficient civil defence services for complete self protection. Full consideration must therefore be given to the employment of fresh civil defence forces from areas which have not been attacked. To achieve this for civil defence purposes, Canada has been divided into three types of areas, i.e., Target Areas, Mutual Aid Areas, and Mobile Support and Reception Areas.

Because the main objects of any civil defence organization will be to assist the distressed public and to restrict and repair damage resulting from attacks, speed is of vital importance. Civil defence personnel and equipment must therefore be deployed to permit immediate remedial measures, no matter which part or parts of the target are hit. Resources to support these measures must be found from mutual aid, and mobile support and reception areas.

During World War I, the guiding principle of civil defence operations was that civil defence forces, or ARP as they were better known, functioned only until the last person was rescued, the last homeless person cared for, and the last fire was out. That doctrine worked reasonably well under relatively light attacks. Where saturation raids took place, all evidence indicates that the concept of service was broadened. The atomic attack must be regarded as in the same category as a saturation raid. Consequently, civil defence forces must, of necessity, function long after the last fire is out or the last person has been rescued, as there will be enormous restoration and welfare problems which cannot be handled by normal peacetime services.

Following a major attack, then, there are two distinct operations:—

- (a) the immediate tactical operation of controlling damage, rescue, emergency restoration, etc.; and
- (b) the administrative operation, consisting of the movement of reserves, handling and care of the homeless, evacuation and care of casualties, burial of the dead, etc.

Both operations commence together but the latter continues long after the tactical operation has been completed.

It is mainly with the tactical operation that this manual is concerned. However, the precise system of control to be exercised over the resources available will depend upon a great many factors, e.g. the deployment of the civil defence services, their state of readiness, the nature of the target area, etc. It is, therefore, impossible to lay down uniform rules of control which would be applicable to all cases. Each civil defence authority will have to adopt a procedure suited to its own local conditions, bearing in mind the principles outlined in this manual.

CHAPTER I

ORGANIZATION OF TARGET, MUTUAL AID, AND MOBILE SUPPORT AND RECEPTION AREAS

The Target Area

For operational control each target area should be sub-divided geographically into sub-divisions, districts, sectors, sub-sectors and warden posts. The actual number of these divisions within a target area will depend on a number of factors, some of which are discussed in the succeeding paragraphs. Should a target area be attacked the civil defence services within the area should be deployed to fight the battle from all sides of the devastated area. Because of this, the target area should be sub-divided radially, with the civil defence services dispersed or decentralized among the radial zones. With the services deployed in this manner there will be less likelihood of one bomb destroying all of them.

The number of sub-divisions into which a target area should be divided will depend on the population of the area under consideration. Too many sub-divisions will considerably overburden the communications system to the main control centre of the target area during operations. In the light of British and German experience sub-divisions should not include more than 250,000 people, nor fewer than 100,000, except where local conditions dictate otherwise. It should also be remembered that no command, or control centre, should be burdened with more men, units, or formations than can be adequately controlled by one headquarters.

The geographic boundaries of the sub-divisions might be governed by the following factors:—

- (a) geographical features—rivers, hills, parks, gulleys, fire breaks, etc.;
- (b) police, fire, international, provincial and municipal boundaries;

- (c) railway lines and main highways or thoroughfares; and
- (d) an approximate equal division of the total population of the target area.

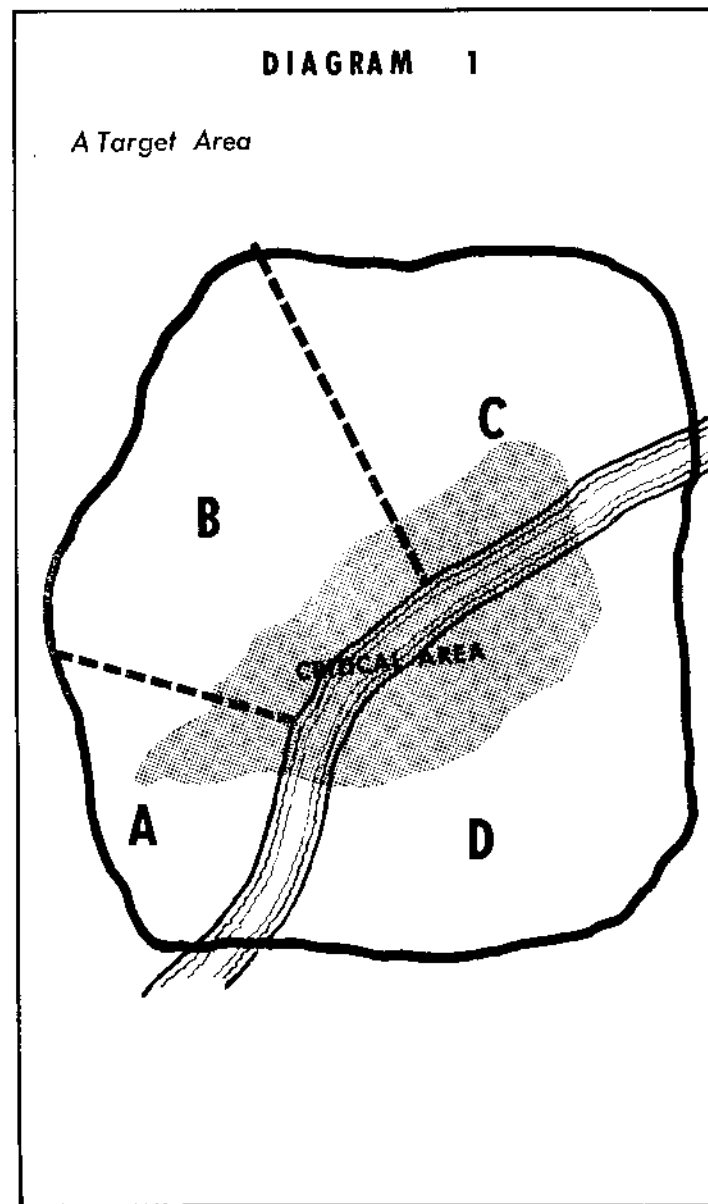
A target area, however, should not be sub-divided until a determination has been made of the critical areas because this will have a decided bearing on the logical sub-division boundaries. Where possible each sub-division should radiate outwards like a wedge, so that each sub-division will contain a portion of the critical area. A critical area is that part of a target area which contains either or all of, high population density, heavy industrial density, heavy building density, and/or high fire risk. In other words, it is the area within a city which would be subject to the most severe effects of a bombing attack. Sub-divisions should be identified by letters of the alphabet, i.e., sub-division A, B, C, D, E, etc.

Once the sub-division boundaries have been established the number of warden posts necessary to serve each sub-division should be determined, bearing in mind that each warden post should be responsible for approximately four to five hundred people.

It will be found that the number of sub-sectors, sectors and districts will be dependent upon the actual number of warden posts which have been determined. In the case of municipalities under 500,000 population it may be feasible to do away with some of the tiers, i.e. sub-sectors, districts, etc. In the case of cities of under 250,000, they might organize on the basis of a sub-division, as has been outlined previously.

There should be approximately seven warden posts to each sub-sector; four sub-sectors to each sector; three or four sectors to each district; and two or more districts to each sub-division.

Wherever possible district boundaries should conform to police divisions, because of the close co-operation necessary between police officials and wardens.



Mutual Aid Areas

In relation to the Target Area, the Mutual Aid Area is very extensive in land area, e.g. it may extend fifty or more miles from the target area. Mutual Aid areas are organized so that they may provide effective aid to the target area in the event that it requires assistance.

Because these areas are extensive it is suggested that, for control purposes, they might be divided into sub-areas. These sub-areas might radiate out from the target area itself, and be identified by the letters of the alphabet, i.e., sub-area A, B, C, etc. The actual division of the mutual aid area into sub-areas will be greatly dependent upon road and rail communications. For example, town "A" could not be in the same sub-area as town "B" unless there was good road communication between them. Other factors which might be considered, apart from road and rail communication, are geographical features, county, township, parish limits, etc.

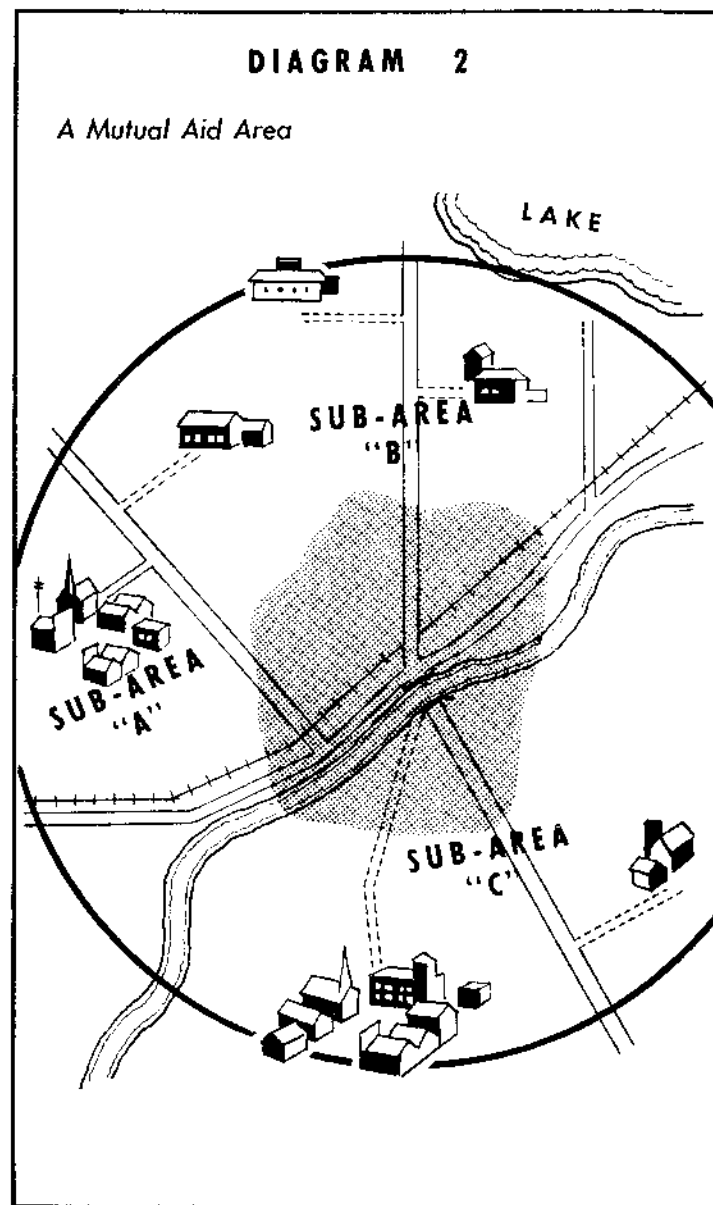
In some cases it will be advantageous if sub-areas in the mutual aid areas coincide generally with, and extend outwards from, the target area sub-divisions.

Zones

Because the mutual aid area is primarily organized to offer aid and assistance to a target area, there should be an intermediary to co-ordinate the handling of problems arising between the target area and the mutual aid area. If such an intermediary is designated he would be appointed by the provincial civil defence authorities, and might be known as the Zone Co-ordinator. The zone would consist of the mutual aid area and the target area.

Control between the components of the zone might be carried out in two ways:

- (a) The whole zone would come directly under the target area civil defence director for administration, planning and operations; or



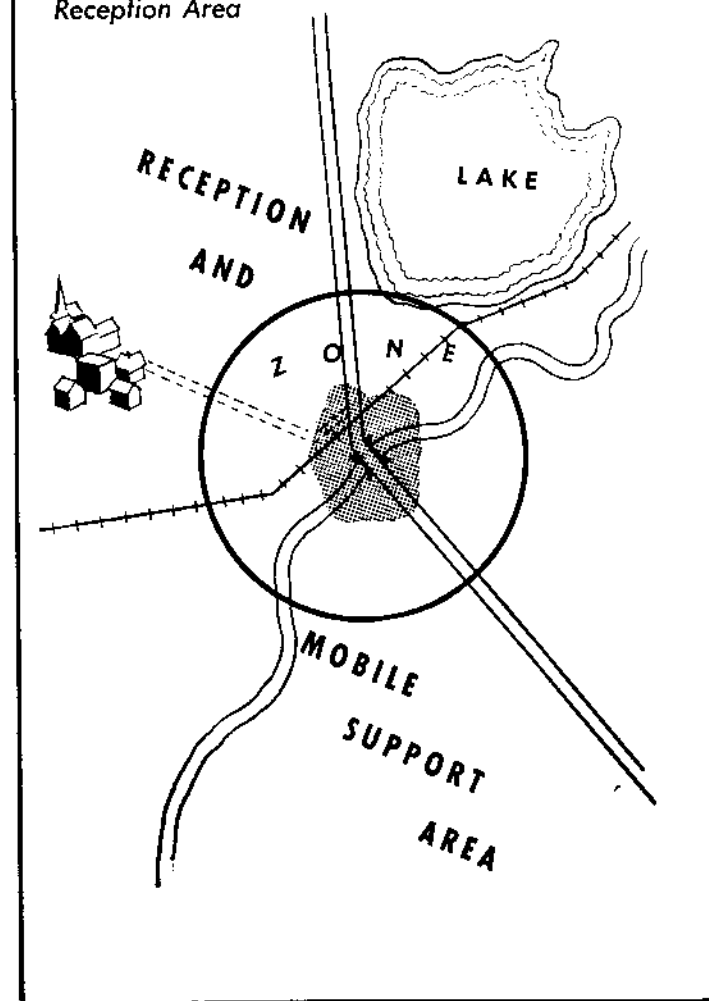
- (b) the whole zone would be placed under the direction of a provincial appointee who would be authorized to deal directly with the target area and the mutual aid area.

The Mobile Support and Reception Areas

Since Mobile Support and Reception Areas are usually so large in land area, and in some cases might comprise whole provinces, the factors outlined in the preceding paragraphs for the mutual aid area are generally applicable to them also.

DIAGRAM 3

*The Zone (Target and Mutual Aid Areas)
and the Mobile Support and
Reception Area*



CHAPTER II

THE CIVIL DEFENCE SERVICES OF A TARGET AREA

HEADQUARTERS, CIVIL DEFENCE SERVICES

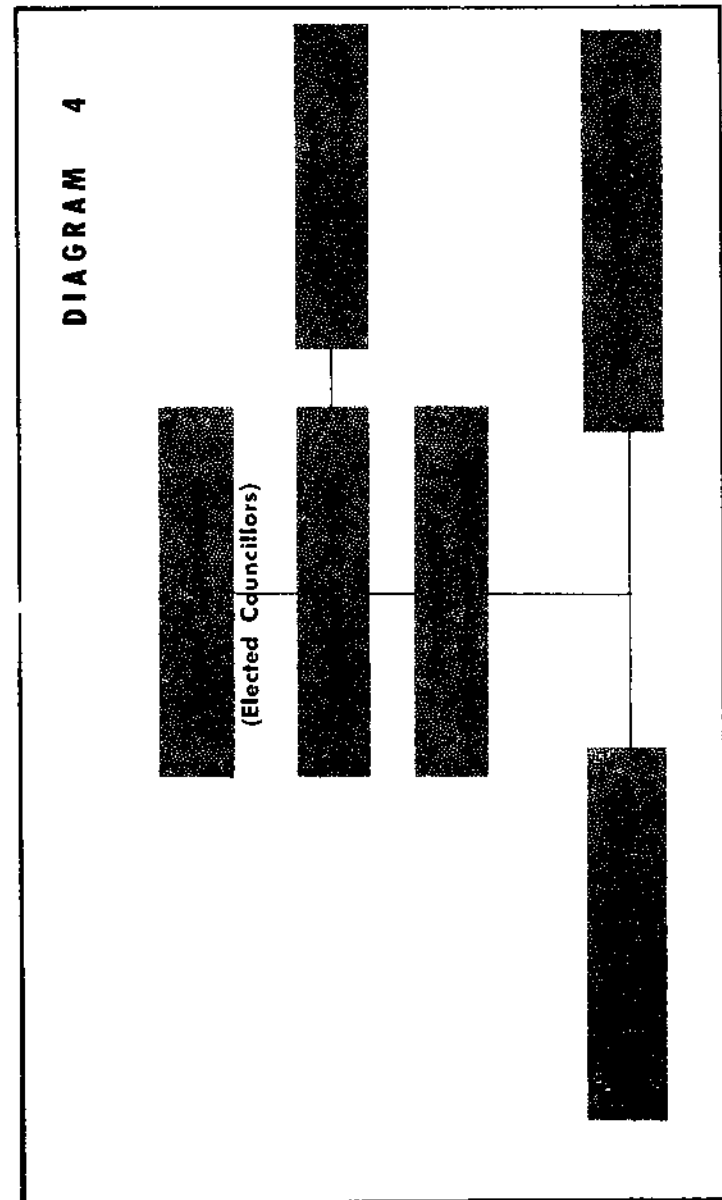
In addition to planning for operations during wartime a main duty of this headquarters in peace time is to co-ordinate the civil defence planning within civic government departments. This will be a primary responsibility or function of the civil defence director, through the municipality's planning committee.

During emergencies the main function of the headquarters is to provide operational and administrative control over all the civil defence services. To accomplish this, the headquarters must be equipped and staffed to collect, collate and disseminate information and to control the services and resources available. To enable it to carry out these functions it is desirable to divide headquarters into two main branches:

- (a) The Operations and Training Branch, and
- (b) The Administration Branch.

These branches will contain the personnel who, during operations, will be the control centre staffs throughout the target area.

The control element of this headquarters should consist of the target area civil defence director, together with the clerical staff necessary for his requirements. Besides the director there should be his deputy directors in charge of each of the branches. Other personnel who are also on the strength of the headquarters, but who will normally be stationed in the various control centres and depots, will be the sub-division controllers and their deputies, the deputy director in charge of the alternate control centre, and the officers in charge of action and reserve depots. For planning and operations the strength of the headquarters control element will be augmented by the chiefs or deputy chiefs of the various operating services.



THE OPERATIONS AND TRAINING BRANCH

This branch will consist of:

- (a) The Intelligence and Information Section;
- (b) The Training Section;
- (c) The Communications Section;
- (d) The Operations Section.

(a) The Intelligence and Information Section

This section is responsible for providing up-to-date information relating to civil defence operations for the director. In addition, it should give the public information through such media as press and radio, telling the people, for instance, the location of assembly areas, channels marked for civilian movement and areas to be avoided, while keeping all informed on other factors affecting their safety and of action required of everyone. This section should provide all control centres with intelligence staffs necessary for their operations.

During operations this section will be primarily responsible for maintaining an up-to-date record of damage, fires, casualties etc., on the control room maps besides keeping the director informed or in the picture, with situation reports. The director can only be kept up to the minute by a well-defined reporting system. Wardens in damaged areas will supply information through report centres (districts) to the control centres.

Another channel for obtaining vital information will be through the Tactical and Technical Reconnaissance Wings of this section. Prior to attacks these reconnaissance wings, which consist of teams of four, will be based on the subdivision action depots, being for operational purposes part of the sub-division. They are the eyes and ears of the sub-division controllers, being in direct communication with them while they are making their reconnaissances. A few reconnaissance teams should be at the sole disposal of the civil defence director.

Again, where high ground exists around a target area it is advisable that observation posts be established. Such posts would be invaluable in the determination of ground zero in the case of atomic bursts, and might be in a position to give quick estimates on the degree of damage or destruction within the area.

Consideration should also be given to the establishment of an Air Patrol Wing within the Intelligence and Information Section. The potentialities of such a wing are great: it would be invaluable in providing air-to-ground reports on damage, movements of vehicles on roads, etc.

Then, too, wherever rivers or canals pass through a target area, especially if they pass through the critical area, a Water Reconnaissance Wing might be established as a further reporting unit.

The Tactical Reconnaissance Wing is responsible for securing a comprehensive, rather than a detailed, picture of the general situation, extent of damage and probable ground zero, fire situation and condition of roads, so that the control centres will be able to assess:—

- (a) how and where the civil defence services can best be employed quickly, efficiently and economically;
- (b) the necessity for reinforcements;
- (c) the selection of suitable routes for incoming reinforcements to avoid hindrance from refugees, and
- (d) the selection of routes for the quick evacuation of casualties.

A great deal of the more detailed picture of damage, etc., will normally be reported by the police and warden services but many of these forces may be missing or their means of communication may have been put out of action, which is further proof of the importance of the Tactical Reconnaissance Teams—to fill in the gap.

The Technical (or Monitoring) Reconnaissance Wing will be specially trained and equipped to determine the nature and extent of chemical, biological and radiological

contamination following an attack, and to do unexploded bomb reconnaissance (known in U.S.A. as explosive ordnance reconnaissance). The personnel of this wing will be trained in sampling, making any required laboratory tests to determine the extent of biological and chemical attacks.

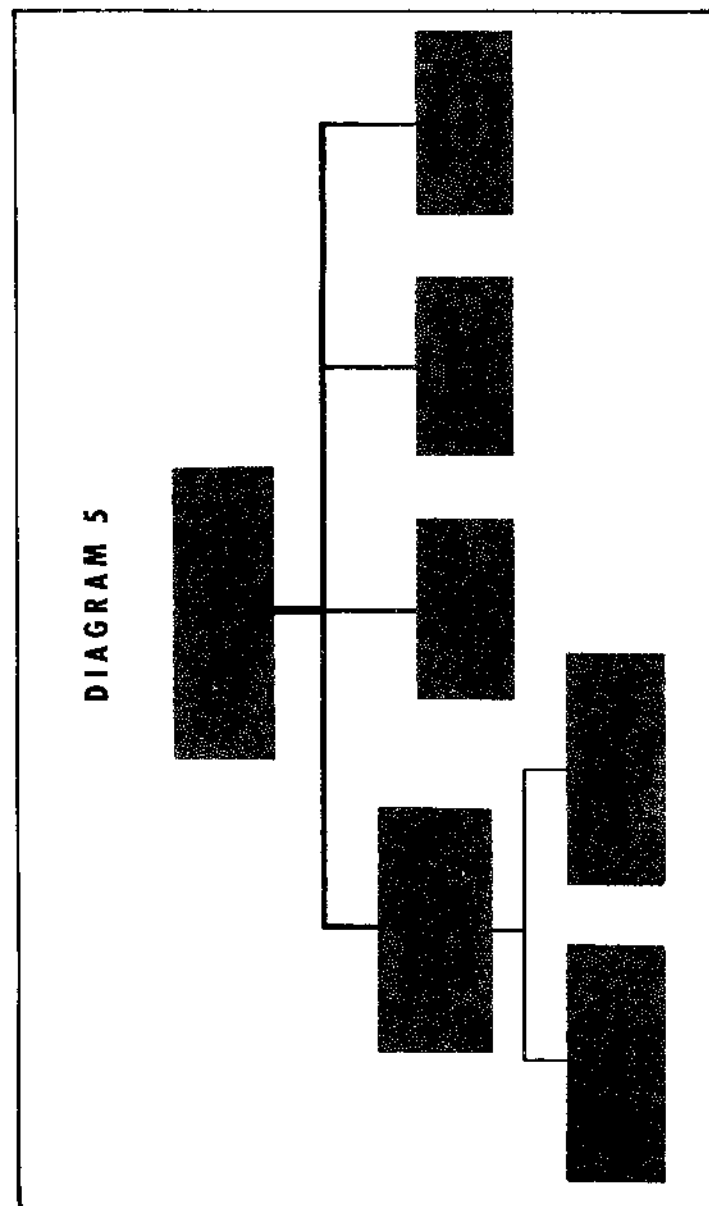
This wing will also be responsible for the demarcation of "hot" areas in the case of lingering radio-activity, and will be available to assess the rates of decay of radiation; and for notifying the civil defence services of the safe length of time that workers can work in any area which may be contaminated.

(b) The Training Section

This section is responsible for training all civil defence volunteers in the various services. Manual No. 3, "The Training Plan," gives an outline of the training which is required to bring volunteers up to a minimum standard. Although specialized training of the various services will be the responsibility of the service chiefs, the Training Section should be charged with the overall co-ordination of this training with the general civil defence courses, to ensure that all civil defence volunteers attain the standards required. It is most important that training materials, techniques and methods be standard throughout all civil defence training, so that mutual aid, etc. will be effective.

(c) The Communications Section

This section is responsible for the provision of adequate personnel to operate the communications systems in and between all the control centres, action and reserve depots and report centres. It will work in conjunction with the communication elements of the police and fire services and be responsible for the provision of communications to the medical, utilities, etc., the mutual aid area or zone headquarters, and to the headquarters of the armed services if they are operating under civil defence. It will be responsible for the care and maintenance of all civil defence communications equipment within the target area.



This section should have on its establishment a number of runners, for example, Boy Scouts and Girl Guides, to supplement the normal means of communication in case of a breakdown or congestion. Dispatch riders to provide messenger service, and to act as guides for mutual aid forces should be an important element of this section.

(d) The Operations Section

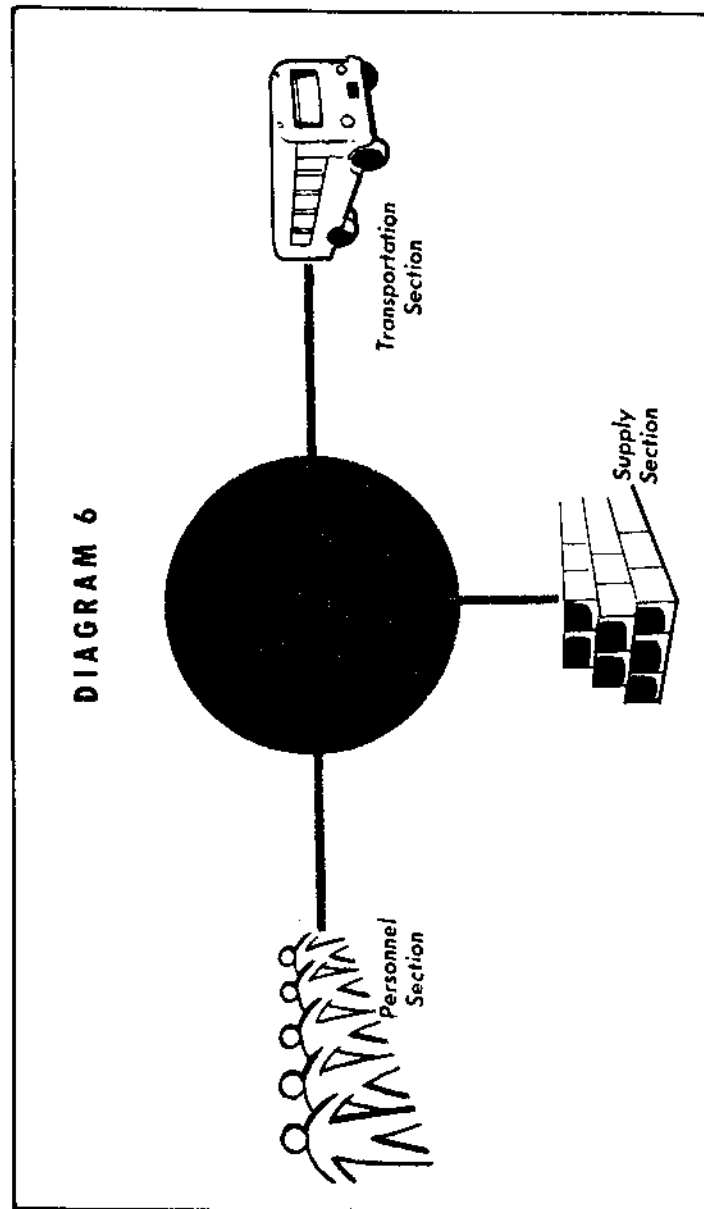
This section consists of the civil defence director and deputies, and service chiefs who are responsible for directing operations. During operations they or their representatives will be stationed in the various control centres in the target area. In peace time this section is responsible for developing and co-ordinating the overall civil defence plans.

THE ADMINISTRATION BRANCH

The Administration Branch is responsible for all personnel, supply and transportation requirements of the civil defence services. The operations side of the headquarters' organization will be dependent a great deal on the efficiency of this branch in meeting demands for workers, equipment and vehicles as soon as is feasible. One important function of this branch will be to avoid any duplications or short-comings in demands, and to set priorities on equipment, personnel, etc. that are available.

(a) **THE PERSONNEL SECTION** is responsible for recruiting all civil defence workers, and assigning them to the services. This should avoid the possibility of conflicting competition between the services. It is essential that each service should notify the Personnel Section of its requirements for workers. During operations this section, in conjunction with the warden and welfare services, would be responsible for the recruitment of additional manpower which may be required in addition to the normal service complements, and to replace casualties, etc.

During peace time this section will also be responsible for maintaining workers' record cards. For recruitment purposes it may be advisable to decentralize the recruiting



and have sub-sections of the section actually working within each sub-division. Extremely close liaison will be necessary between this section and the training section.

(b) **THE SUPPLY SECTION** is responsible for the procurement and issue of civil defence training and operational equipment and supplies. They will keep up-to-date records of all equipment issued to personnel and the services and will also be responsible for the provision of suitable buildings, etc. for storage of equipment and training purposes.

(c) **THE TRANSPORTATION SECTION** will be responsible for the co-ordination of all transportation requirements for the various services; for advising the appropriate authorities concerning necessary diversion or curtailment of commercial and other transportation services such as air, rail, marine, and highway units in and out of affected areas; and for the prior selection, conversion and allocation of vehicles and transportation units required by each of the services.

THE POLICE SERVICE

Civil defence police services are built on existing organizations. Through years of law enforcement they have developed and perfected methods and procedures for handling emergencies of all types. During peace or war their main responsibility will be the maintenance of law and order, although, during disasters their problems are multiplied considerably, usually in direct proportion to the extent of the disaster. Consequently, to enable them to carry out their duties effectively and efficiently, it will be necessary to recruit and train auxiliary police.

One of the main responsibilities of the police services would be to develop an effective traffic control plan covering the following points:

- (a) preventing use of vehicles for unauthorized movement in and out of the target area;
- (b) clearing routes necessary for movement of official civil defence vehicles; and
- (c) routing of traffic so that delays due to traffic jams will be kept to a minimum.

Although these are normal problems, expanded during a period of disaster, they can become highly complex so that much research and planning will have to be carried out.

In addition to developing a traffic plan, some of their problems will be: movement and control of refugees; the suppression of panic among the population; preventing looting; reporting of damage and unexploded bomb reconnaissance.

Although the training required of the auxiliary police will be along the general lines of training for regular police work, it is to be hoped that they will also receive some of the training outlined in the "Training Plan", such as the general course and the basic rescue courses. It has been estimated that there should be at least four auxiliaries to every regular police officer.

THE FIRE SERVICE

The fire services are an important element in the protection of life and property during peace time. Under conditions envisaged following incendiary, high explosive, or atomic bomb attacks, this service will be fully extended in all its resources, and will have a vital role to play in the overall civil defence plan.

Under the scales of attack which may be anticipated it is not expected that the present strength of personnel and equipment will be sufficient to cope with mass fires. Therefore, the fire services of a target area will have to be considerably augmented by auxiliaries. It is estimated that there should be at least four auxiliary firemen to each full-time fireman. If consideration is given to enlisting auxiliary fire-women (drivers, clerks, etc.) the number should be one auxiliary fire-woman to every ten auxiliary firemen. The training of auxiliary firemen is the responsibility of the regular fire services.

This service will be responsible for the development of a fire defence plan for the whole target area. The basis for a fire defence plan will be a thorough urban characteristics

study, which will enable a decision to be made, in peace, as to areas which every effort must be made to save, and sections which might be regarded as less vital. During operations its main function will be to control major outbreaks of fire which might develop into conflagrations or fire storms, and fires endangering vital areas or installations. There will probably be a great number of small fires but these will have to be taken care of by warden self-help parties—the fire service being fully occupied with the mass fires.

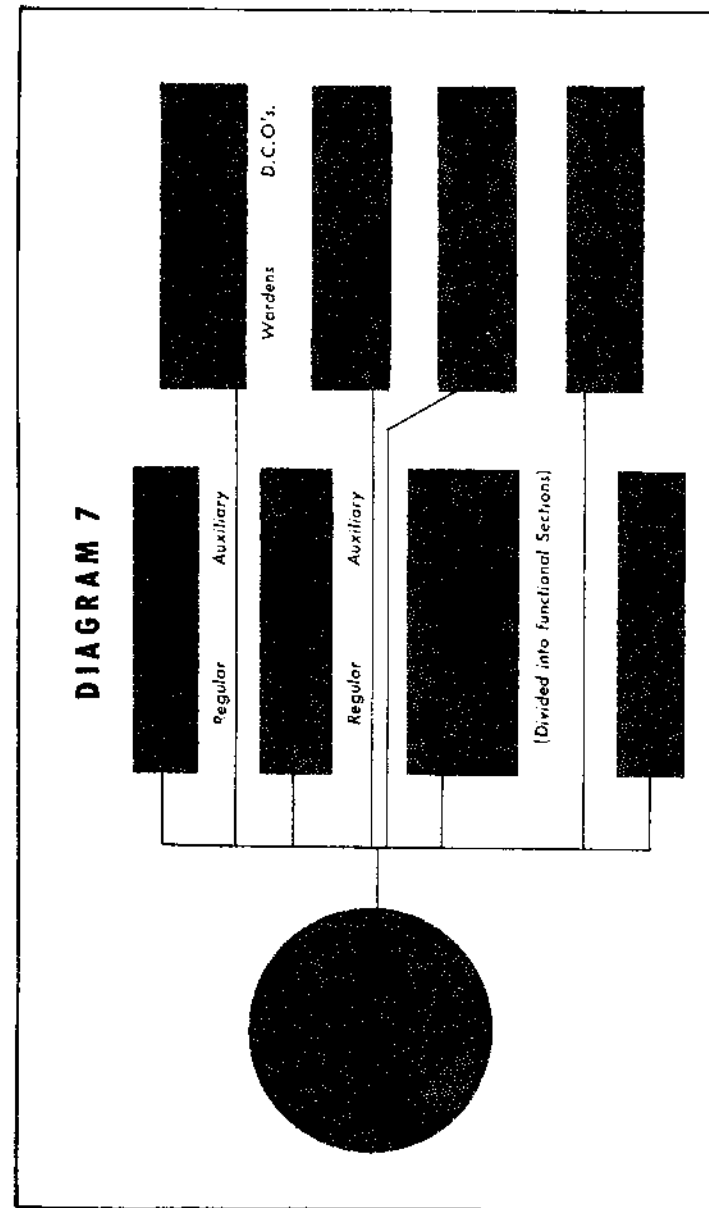
The supply of water is probably one of the most important items to be considered, because the equipment available will be of no use if there is no water. In the preparation of the fire defence plans adequate preparations must be made for the provision of supplies of water from sources other than the normal channels because of possible breaks, disruptions or loss of pressure.

THE ENGINEER AND PUBLIC UTILITY RESTORATION SERVICE

An attack on any built-up area would cause considerable damage and dislocation of public utilities. Power lines and transformer stations will be damaged; telephone, water, sewer and gas systems broken, bridges damaged. Transportation services will be disrupted; roads and streets will be cluttered and blocked by debris.

Normal peace time maintenance and repair services are designed to deal with such disruptions on a relatively small scale, consequently the normal complement of existing civic engineering and utility services will have to be increased by recruiting and training volunteers to be integrated into the normal services. Plans will have to be developed so that water, gas, electricity and sewage disposal systems can be safe-guarded.

The service should be organized into functional sections or units for clearing debris, demolishing unsafe structures, carrying out emergency repairs to lightly-damaged buildings, salvaging personal effects, foods, etc.; decontamination



of roads, vehicles and clothing, carrying out emergency repairs to public utilities. The main strength of this service should be drawn from the construction trades, as well as from the civic engineering and utility departments.

THE WARDEN SERVICE

The personnel of this section will be in the closest contact with the people before, during and after attacks. The wardens will provide the leadership in neighbourhood civil defence, and will teach the people how to prepare themselves before attacks, and how to fend for themselves under and following attack. One of their most important tasks will be to sustain the morale of the people.

Wardens will also act as links with control centres by reporting the damage, etc., in their areas. They should work in close co-operation with the police services.

Some of the functions and responsibilities of the Wardens are:

(a) **Organization of "Self-Help" Parties.** People who live in a warden's area and are unable to enrol in any of the civil defence services should be formed into self-help parties by the warden. They could thus be trained in basic protective measures against all types of attack, and be of great assistance in the immediate post-raid period. Some of the self-help parties which might be formed are:

- (i) fire fighting (not to be confused with auxiliary fire services);
- (ii) stretcher bearing;
- (iii) first aid;
- (iv) reconnaissance;
- (v) basic rescue; and
- (vi) welfare.

Their training is of vital importance and, in addition to supplying much-needed immediate assistance, will do a great deal to reduce any sign of panic which is bound to result in an untrained populace after an attack, especially if the people have never been subjected to attacks before.

(b) **Reconnaissance and Reporting.** Wardens will be trained to report "first things first", that is, to know what to report. There will always be a great number of reports which have to be sifted at the report centres, e.g. district headquarters, and well-trained wardens will ease this problem by reporting general information first, and making detailed reports later. The tactical and technical reconnaissance teams, when sent out into devastated areas, will depend on the wardens for a great deal of information and assistance. Wardens must be careful to avoid overstating their own difficulties.

(c) **Damage Control.** All wardens will be trained in the principles of damage control work, while those wardens in charge of sectors and sub-sectors will receive specialized damage control training and will also be known as Damage Control Officers. During peace, these particular wardens (DCO's) act as administrative links between district headquarters and the individual warden posts. During operations they will be responsible for setting up damage control points within or near devastated areas. Damage Control points will be "command posts" to which rescue, ambulance teams, etc., will report and be given a general picture of the area in which they are to work. Damage control officers act as the on-the-spot representatives of the sub-division controller. Their chief function is to assume general control and to co-ordinate all efforts to deal with the damage in the most efficient manner. They will not interfere with the technical work of the services.

(d) **Movement of Refugees and Walking Wounded.** This is primarily a police responsibility but wardens will probably be the first on the spot, and hence can assist in the initial handling of these persons.

(e) **Supervision of Blackout or Dimout.** This would probably be a police responsibility too, but wardens would be able to provide valuable assistance in having the people in their areas adhere to the regulations.

(f) **Unexploded Bomb Reconnaissance.** Although the prime responsibility for this task rests with the Technical Reconnaissance Wing, police and wardens should be trained

in this role. They will be required to guide the Technical Reconnaissance Teams to any area where unexploded bombs are suspected or located. The disposal of unexploded bombs is the responsibility of the armed services, not civil defence. If possible, selected wardens and police should receive special training in the recognition of unexploded bombs.

Wardens will be greatly assisted in their work if they compile and maintain records of the people living in their areas—learn their habits—the location of basement shelters, etc.

THE RESCUE SERVICE

With the expected damage and collapse of buildings following air attacks great numbers of people would be trapped, and in many cases injured seriously. Any rescue work involving the release or extrication of trapped casualties in heavily damaged or dangerous buildings requires the services of skilled rescue teams, well trained in the recognition of dangerous structures, technical methods of approach and debris handling.

This service should be organized into teams of eight men specially trained to carry out rescue operations under all possible conditions. They will also be responsible for removing casualties from debris and for carrying stretcher cases to the ambulance collecting points, assisted wherever possible by other civil defence personnel, or self-help parties trained in stretcher bearing.

The rescue service will also be responsible for the provision of first aid, if required, to surface casualties and to casualties they extricate from debris.

THE AMBULANCE SERVICE

The Ambulance Service will be responsible for the movement of casualties from ambulance collecting points to the medical first aid stations, and from the stations to the hospitals. The vehicles used by this service will be standard commercial ambulances, and vehicles which have been, or can be, converted to ambulances.

The Ambulance Service may comprise both men and women who will be trained in full first aid. Two people, a driver and an attendant, make up an ambulance team.

The speedy removal of casualties from the scene of damage to the hospitals and places where they can receive skilled attention, is an important factor and should always be kept in mind by this service.

Although the Ambulance Service is organized and trained as a separate service, during operations it will act in accordance with the directions of the chief of the Health Services. The normal ambulance service within a city might act as the nucleus of this organization.

THE HEALTH SERVICES

The medical and health services must be organized to provide prompt and effective treatment for casualties. They will have to maintain or restore public health services immediately following an attack. All available health personnel within any target area will have to be mobilized and given a part to play. In addition there will be a great need for trained nursing auxiliaries.

Generally speaking this service will be responsible for the care of casualties, prevention of disease and epidemics, organizing existing hospital facilities, planning emergency hospital measures, provision of a laboratory service for the detection of chemical, biological and radiation contamination, casualty evacuation and establishment of first aid stations and veterinary service.

Reference should be made to the Civil Defence Health Services Manual, which has been distributed to provincial civil defence authorities, for further detail on the organization of this service.

THE WELFARE SERVICES

Welfare Services must be prepared to provide mass care facilities, such as emergency food, clothing and shelter, as well as individual assistance and advice. Well organized Welfare Services can do much towards maintaining morale and developing a will to "fight back".

Those engaged in Welfare Services are dealing with the types of human problems which appear to lack something of the drama inherent in the practical nature of rescue, fire fighting, urgent repair work and casualty treatment. Yet in disaster, such personal human problems assume the utmost importance and are of general concern. It should be recognized that the spirit of the people may collapse rapidly under strain unless effective and immediate attention and assistance is given to their vital individual needs. Accordingly, a welfare organization must be effective and ready to act. It is therefore imperative that the Welfare Services be prepared to provide a roof, food, warmth and information for the harassed people who may have lost everything, and possibly even their loved ones, in the disaster.

A proposed method of organizing Welfare Services is outlined in the pamphlet entitled "Welfare Services in Canada's Civil Defence Program".

CHAPTER III

THE CIVIL DEFENCE SERVICES IN THE MUTUAL AID AND MOBILE SUPPORT AND RECEPTION AREAS

THE MUTUAL AID AREA

The components of the civil defence services in a mutual aid area are basically the same as the services in a target area. The actual duties, functions and training of these services should be identical with those in the target area. Because the mutual aid area is primarily organized for a support role, and to provide welfare centre or other accommodation for the homeless, the strength of these services may vary considerably. For example, because of the probable immensity of the rescue problem in the target area, it is suggested that the rescue service in the mutual aid area be very strong in numbers. This applies to the other services which are allied with rescue work, such as the ambulance service and some sections of the engineer and public utility restoration service.

It is not thought that there should be the same proportions of personnel in either the warden or headquarters services. In fact, it might even be feasible to combine these two services in mutual aid areas. It will be necessary, though, to have a small control staff in any community which is organizing fairly large components of any of the services.

Each sub-area of a mutual aid area should be responsible for the organization of all the necessary components of the civil defence services so that, if support were being moved to a target area, complete mobile columns could move from each sub-area into the target area. The ideal is to have mobile columns organized in such a manner as to contain a suitable tactical sub-unit of each of the essential services required for effective counter measures.

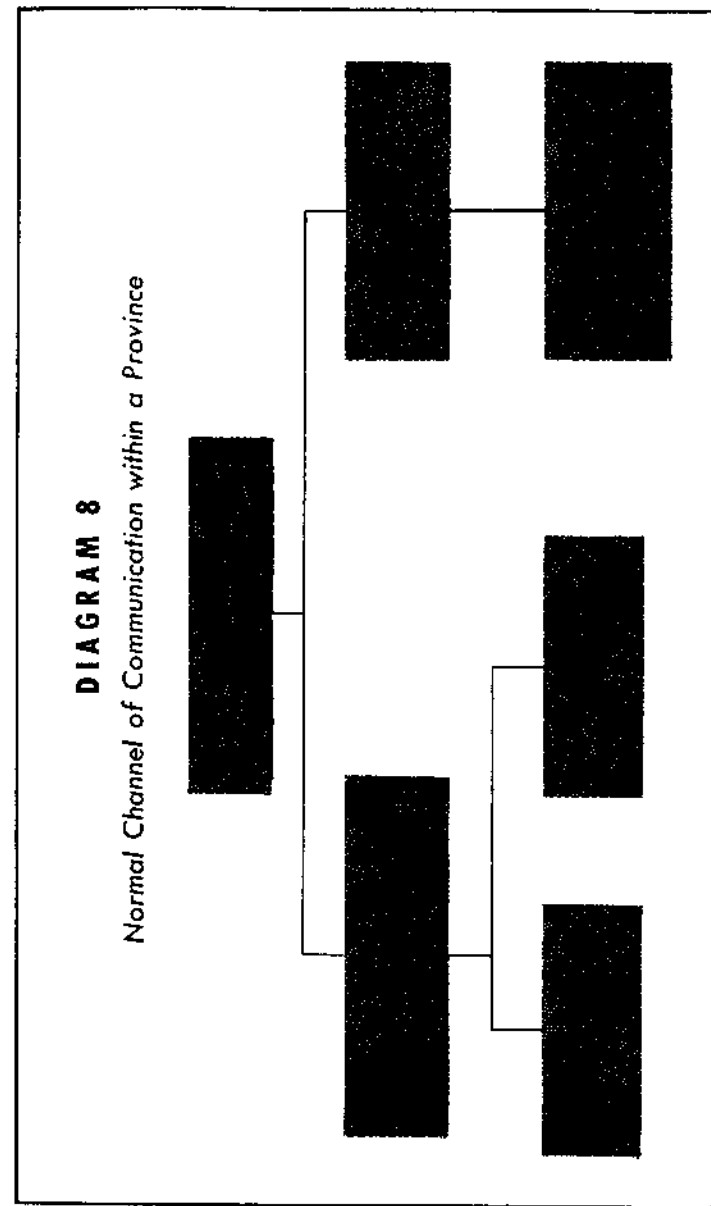
The number and size of these mobile columns, available for mutual aid, will be governed by the following factors:

- (a) the location of the components of each column;
- (b) the population of the mutual aid area;
- (c) the proximity of the columns to the target area.

Some smaller communities in the mutual aid area may not be able to organize full complements of all the civil defence services required, but they should attempt to create teams and sections of each service so that, in actual fact, they are establishing a miniature Civil Defence Service which would be capable of dealing with any small-scale disaster which might strike the community. At the same time this force would be so organized that it has a nucleus of all essential civil defence services which can be expanded quickly should the occasion arise. It is reasonable to believe that cities and towns of 10,000 will be able to organize units of all the components making up the civil defence services, which, besides providing mutual aid or support to a target area, would be sufficient to cope with any type of disaster which might strike the town.

The main responsibility for organizing the mutual aid area for civil defence rests with the respective provincial civil defence authorities, because they are in a position to say what each community should contribute to the overall support plan within the province.

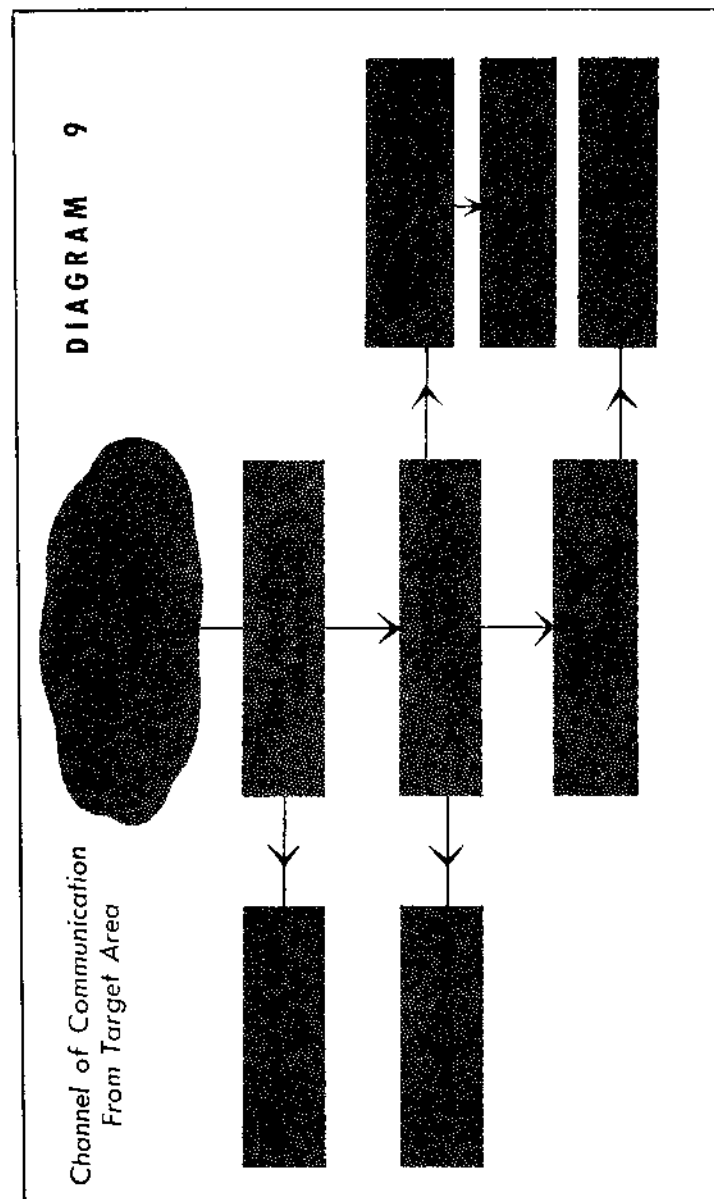
It has been suggested, in Chapter I, how civil defence control within a zone could be accomplished. It will be necessary, however, that a control headquarters be established, with a staff necessary for its operation. This headquarters would then be in a position to carry out operational control of all civil defence units within the zone.



THE MOBILE SUPPORT AND RECEPTION AREA

The civil defence services in this area are basically the same as those in the Target Areas, but because the area is mobilized principally to receive long term evacuees and casualties, and to offer mobile support to a target area, the units organized to carry out these functions should be stressed, for example, welfare, medical teams, first aid teams, and rescue teams. In certain cases it might be feasible to move auxiliary firemen, etc., into target areas to reinforce overworked personnel in the fire services. However, this does not preclude the necessity for organizing and training other units of the services for local protection.

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CHAPTER IV

CONTROL REQUIREMENTS WITHIN TARGET AREAS

(a) GENERAL

In order that control may be efficiently maintained over all the resources in manpower and material within a target area following an attack it will be necessary to set up control and reporting systems throughout the target area.

Control Centres are required in all sub-divisions of the target area. These control centres are known as Sub-Division Control Centres. In addition there should be a Main Control Centre for overall co-ordination of action among the sub-divisions. Report Centres are established at District headquarters, while Report Posts are established at Warden Posts. Sector and Sub-Sector Headquarters carry out administrative control within the warden organization in peace time, and during operations they become the damage control officers' headquarters.

The main roles of a control centre are:

- (a) to receive and collate information sent from the report centres;
- (b) to despatch such civil defence services as are considered necessary; and
- (c) to report to higher authority as required.

Similarly, report centres must be so organized that they can collect and sift reports of damage, casualties, etc., and pass only the important information back to the sub-division control centres. During operations report centres are the reporting links between report posts and the sub-division control centres.

The primary function of a report post (warden post) is to collect information and transmit it to the report centre.

(b) THE MAIN CONTROL CENTRE

To facilitate operational control within each target area a main control centre should be established on the periphery of the target area. The control centre should be protected against the main effects of an atomic explosion, and should be situated near a main road or highway.

Because of the possibility that a main control centre might be put out of action, an alternate centre should be established not closer than three miles from the main control centre, and should always be "in the picture", so that, if the main centre was put out of action, the alternate could carry on operational control. In some cases it might be possible to have one of the sub-division control centres prepared to serve as the alternate control centre, rather than constructing a separate one.

The main control centre of a target area is the Civil Defence Director's operational headquarters. Generally speaking it is from here that the civil defence services of the target area are controlled by the Director, who will be responsible for the overall deployment of the civil defence services, in consultation with the chiefs of the services. During active operations the chiefs of the various services, or their deputies, will be stationed at the main control centre to give technical advice to the Director on the employment of their respective services.

Accommodation is required, in the main control centre, for the Director, the chiefs of the services or their deputies, and clerical and administrative staffs. Suitable lavatory and sleeping accommodation, a waiting room, a control room, an intelligence room and a message room should be provided.

The Control Room

In the simplest cases, a control room measuring approximately 30 feet by 20 feet will suffice, and although a larger room is always desirable, a dimension of 40 feet by 30 feet should provide ample working space even in the biggest

centres. Within the control room, wall space is required for the display of a large scale map of the whole target area. There should also be wall space sufficient for hanging tally boards to show the disposition and strength of each of the services.

Space, in the form of cubicles or small rooms, should be provided around the control room for each of the services represented in the control centre. The cubicles would then provide space for each service representative to work on the problems peculiar to his service without undue interference. The wall space should be sufficient for maps of interest to the service.

The Intelligence Room

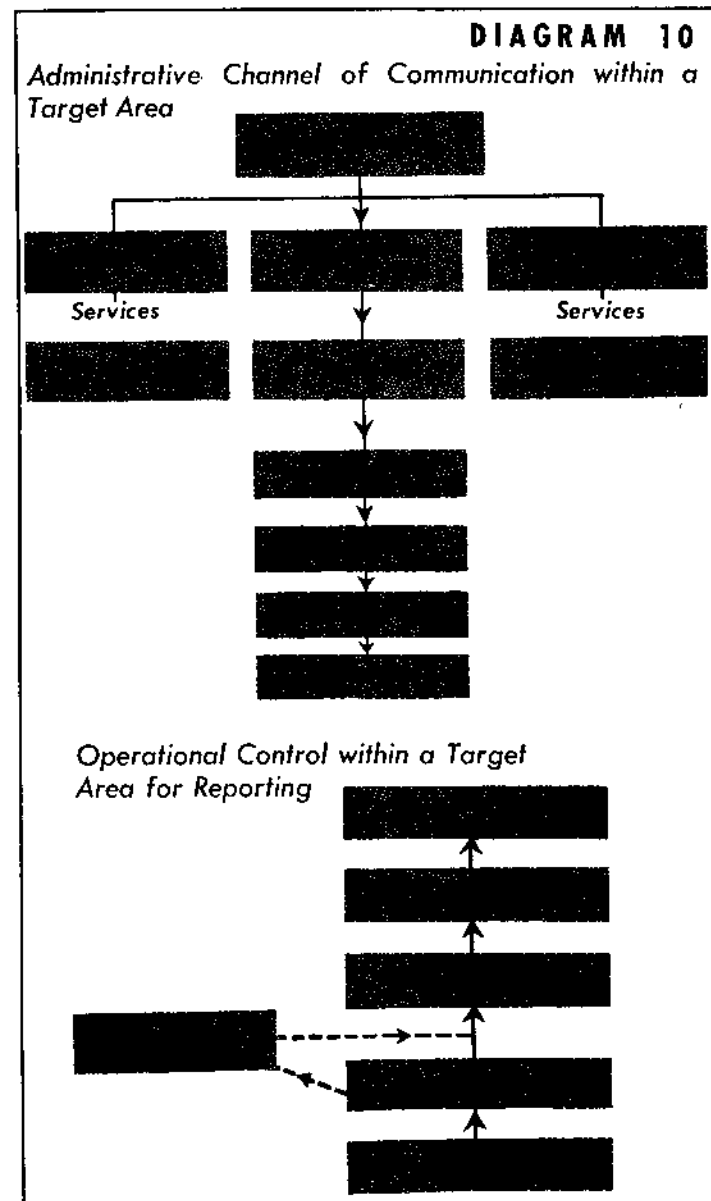
An intelligence room or centre, should be established next to the actual control room. Provision must be made for the Intelligence Officers, filing clerks, typists and chart writers.

The Message Room

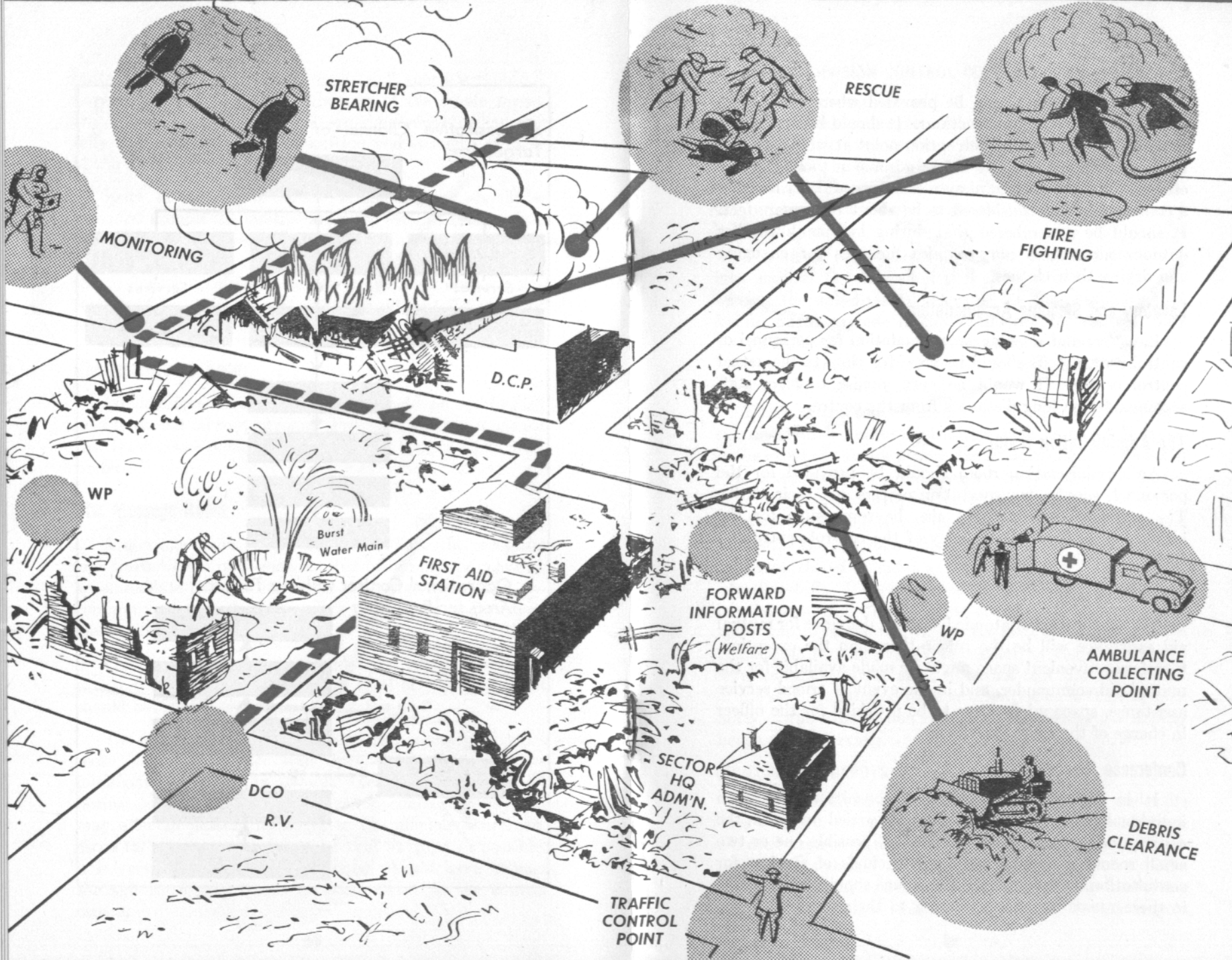
A message room should be provided for the reception and transmission of messages. Provision must be made to accommodate message receivers, a message supervisor, the communications officer, a clerk and a message room messenger.

Each message receiver should have approximately 16 square feet of floor space, while a total of 100 square feet should suffice for the remainder of the staff.

The message room is best located next to the intelligence room, with hatches or wall openings leading into the intelligence room for "in and out" messages. In any event it must not be far from the intelligence room, or undue delay may arise in passing messages to the officials concerned. Since the message room must be kept as quiet as possible, it is very undesirable that personnel should have to pass through it to gain access to other rooms in the control centre.



CIVIL DEFENCE IN ACTION



STRETCHER BEARING

RESCUE

FIRE FIGHTING

MONITORING

D.C.P.

WP

Burst Water Main

FIRST AID STATION

FORWARD INFORMATION POSTS (Welfare)

WP

AMBULANCE COLLECTING POINT

DCO R.V.

SECTOR HQ ADM'N.

DEBRIS CLEARANCE

TRAFFIC CONTROL POINT

The Waiting Room

A waiting room should be provided where messengers can sit while awaiting instructions. It should be so situated that it can serve as an interception point at which visitors to the centre are checked before admission to any of the officials on duty. The minimum size for a waiting room in a control centre is considered to be about 160 square feet. It should be remembered that during inclement weather outdoor messengers may require facilities for changing and drying their clothes.

Lavatory and Sleeping Accommodation

Lavatory and sleeping accommodation for personnel of control centre staffs should be provided close to the actual control centre. It would be very unwise to have staff accommodation long distances from the centre.

The Administration Room

An administration room should be provided for the personnel, supply, transportation officers and their clerks. The personnel officer could also be responsible for the internal economy and efficiency of the control centre and staff.

Mutual Aid Room

With saturation or atomic bombing, demands for mutual aid assistance will be the rule rather than the exception, therefore convenient space might be made available for the mutual aid commander, and in the event of armed service assistance, space might have to be provided for the officer in charge of the armed services.

Conference Rooms

It is highly undesirable that consultation between individual chiefs of services should be carried on within the confines of the control room. If at all possible one or two small rooms should be available to chiefs of services for consultation and planning. Map space should be available in these rooms for charts relating to their services.

(c) THE SUB-DIVISION CONTROL CENTRE

A control centre should be established for each sub-division of the target area, and will be the headquarters of the sub-division controller. Each sub-division control centre should be situated near the periphery of the sub-division so that the control organization of the sub-division will not be put out of action should the central portions of it be devastated.

The siting of sub-division control centres should take into account the accessibility of the centre to good roads serving the sub-division. Because of the possibility that bombs might explode in the vicinity of the centres, they should be situated in the basements of reinforced concrete buildings suitably strengthened to withstand the main effects of an atomic explosion.

These control centres should not be separated from their sub-divisions by natural obstacles such as rivers because, in the event of a major attack, the bridges might be knocked out, necessitating a great deal of rerouting which might have been avoided with better siting.

Accommodation is required in each sub-division control centre for the controller, his deputies or assistants, deputy chiefs of the civil defence services, clerical and administrative staffs. It should be noted that the accommodation requirements for these centres are similar to those for a main control centre. Although the civil defence director is responsible for the overall disposition of the civil defence services in the target area, in actual fact the deployment of the services situated in each sub-division is the responsibility of the sub-division controller assisted by the deputy heads of the services.

(d) (i) ACTION DEPOTS

Each sub-division control centre will have, under its direct control, an allotment of the civil defence services, situated prior to attacks in action depots. Where possible these depots should be situated near the periphery of the sub-division, and in some cases may be in the immediate vicinity of the sub-division control centre. Action Depots

should have accommodation which will provide shelter for on-duty personnel during the actual raid. The accommodation provided for shelter might also serve as sleeping accommodation for the on-duty shifts of the services. Sufficient protected space will also have to be provided for the assembly of the vehicles of the services.

The movement of the services from the action depots will normally be based on messages received from the sub-division control centre, and it should be realized that not only parties of one service, but parties from all services will be required simultaneously when a target area is attacked. It is essential, therefore, in order to simplify control, communications and movements of the services, that the latter should not be too widely dispersed.

(ii) Reserve Depots

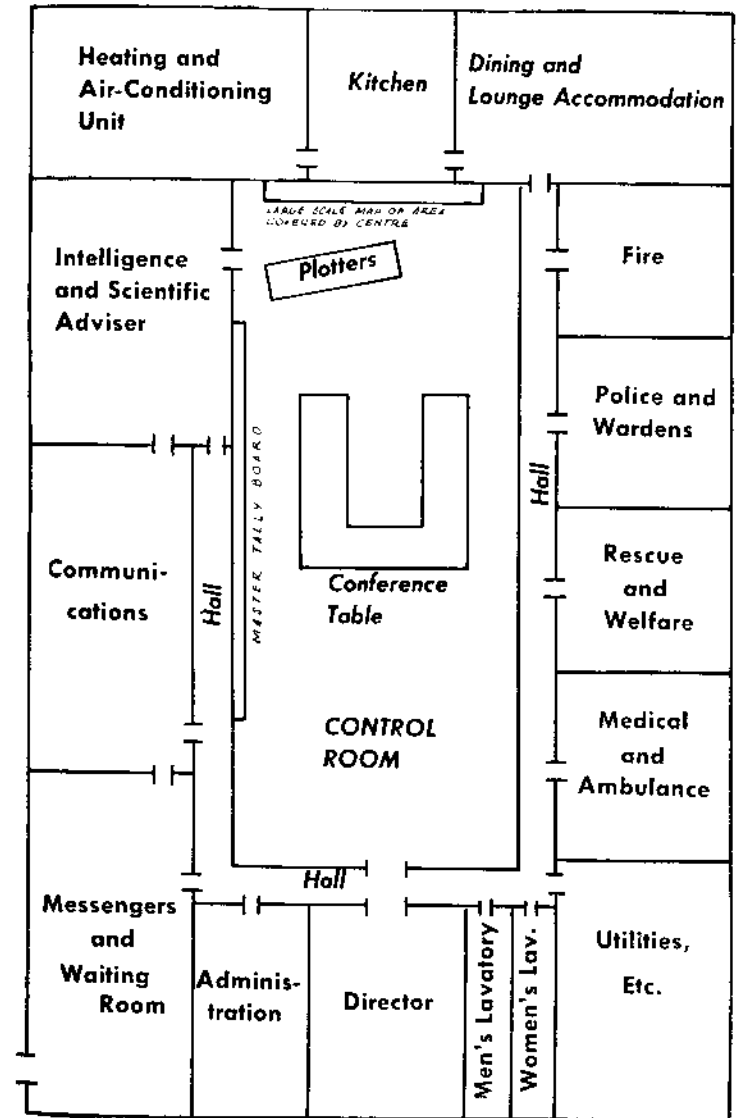
Reserve Depots should be established on the periphery of each target area to accommodate the civil defence service reserves. The requirements necessary for the reserve depots are similar to those for the action depots. Movement of services from reserve depots will only be on orders received from the main control centre. It is possible that reserve depots will be established in the immediate vicinity of main and alternate main control centres.

(e) REPORT CENTRES

Report Centres are located at District Headquarters in the Target Area. In each sub-division there should not be fewer than two nor more than four report centres. They should be situated in reinforced basements of large buildings, protecting the personnel against the main effects of bombardments.

The officer in charge of each report centre should be the district warden. Accommodation is required for the district warden, a map room for a large scale plan of the district, a message room for the reception and transmission of messages. In most cases, two rooms, the control room and the message room, should be sufficient to provide for the requirements of the report centre.

A Suggested Control Centre **DIAGRAM 11**



(f) REPORT POSTS

Report Posts are established in each warden post area. They are the wardens' headquarters. Such posts should be established in basements of buildings or such other protective structures as may be available within the warden post area. Accommodation requirements for the post are quite simple, and one large room should be sufficient.

(g) COMMUNICATIONS

Because one of the objects of the civil defence services is to give assistance and repair or localize damage as soon as possible following an attack, the successful operation of the civil defence services will depend to a great extent upon the efficiency and reliability of the communications system. The system must be flexible, so that if one channel or medium breaks down, another can be put into operation without undue delay.

The system must provide for continuous receipt of messages from wardens through the report centres to the main control centre, and transmission of orders downward again. It must permit of transmission to and from points outside the target area. It must also take care of messages laterally, that is, from sub-division to sub-division and service to service, etc.

The actual system of communications to be placed in operation must await further developments. However, amateur radio operators who are enrolled in civil defence will be able to offer much valuable advice and assistance, until plans under consideration are finalized.

It should be remembered that some of the civil defence services, in particular the police and fire, have their own communications systems in operation at all times. These will be useful supplementary channels for civil defence, but complete dependence upon them may prejudice their normal roles which must continue even during operations. Moreover, if the police and fire systems are to be integrated into the civil defence reporting system, they will have to be enlarged or may require alterations in their existing switchboards, etc.

CHAPTER V

STAFF REQUIREMENTS AND DUTIES FOR CONTROL DURING OPERATIONS

GENERAL

Within any control or report centre a carefully devised organization and a trained staff are essential, and the importance of choosing the simplest procedure cannot be over-emphasized. Because of the many possible variations that will be required to meet local conditions, it is not possible to lay down standards for staff and procedure, but the following are suggestions concerning the staffing of these centres.

The main essentials of control and report centre organization are that:—

- (a) at any time of the day or night, for so long as enemy action may necessitate, the centres must be in a position to receive and deal with all reports. This includes messages coming in, orders going out to those under control, and messages going to higher authority;
- (b) an up-to-date picture of the situation in the area covered by the centre must be maintained as a map record;
- (c) messages reporting fires must be passed *at once* to the fire representative on duty;
- (d) arrangements must be made so that information which might affect the operation of any service, for example, blocked roads, destroyed bridges, etc., is not only readily available, but is immediately notified to those concerned, as a matter of routine;
- (e) some ready means, such as a system of tallies on a tally board, must be provided for the chief of each service, to show the availability and location of the teams or sections under his direction;

(f) under conditions of heavy bombing when local resources may be insufficient to deal simultaneously with all the damage which has occurred, some provision must be made so that decisions may be taken on how the available resources may be best employed. An order of priority will have to be established on the tackling of damage awaiting attention. There should be a common decision between all the services concerned on the order of priority. If, for any reason, differences arise on the order of priority the matter should be submitted to the director or controller, as the case may be, for his decision.

STAFF REQUIREMENTS AND DUTIES IN CONTROL CENTRES (Main and Sub-Divisions)

The following suggestions are equally applicable to Main, Alternate and Sub-division control centres. Although the main control centre is the headquarters of the target area civil defence director, and the sub-division control centre is the headquarters of the sub-division controller, it is not desirable that they be tied to their headquarters throughout the period of, and immediately following, attacks on the target area. Nor should they be hampered in the exercise of their responsibilities by the routine work of administering the centres. The responsibility for the organization and operation of a control centre might, therefore, be entrusted to the personnel officers, or one of the deputy directors, or the deputy controller in the case of the sub-division. These officials will be held directly responsible to the director or controller, and in some circumstances may deputize for them when they are not available, acting as the director's or controller's personal assistants.

The duties of the civil defence director are:—

- (a) to maintain operational control over all civil defence services within the target area;
- (b) to call for mutual aid when it is apparent that assistance is required;

- (c) to keep higher authorities constantly in the picture;
- (d) to ensure that sub-division control centres are functioning properly, and that reports are forthcoming from sub-division control centres; and
- (e) to make operational decisions as the need for them arises.

The duties of the sub-division controller are:—

- (a) to keep main control informed of the situation by frequent reports;
- (b) to maintain a record of services at his disposal;
- (c) to ensure that the services or sections are despatched from the action depots in accordance with his plan of action;
- (d) to ensure that reinforcements into the sub-division are properly employed;
- (e) to see that reports are forthcoming from the district report centres;
- (f) to make operational decisions as situations may arise respecting his sub-division;
- (g) to arrange for rendezvous points in the sub-division for incoming reinforcements;
- (h) to ensure that operational maps in the control room are up-to-date;
- (i) to ensure that damage control officers are carrying out their duties.

The chiefs of the services, or representatives deputized by them for the purpose, should be at the control centres while a raid and operations following it are in progress. They will thus be able to keep watch on the situation as it affects their services, exercise general supervision over them, send assistance to any area in which the resources locally available are insufficient, and decide, by consultation, any questions of priority. They must therefore be aware of the general deployment and condition of their services at all times, and in particular the number of parties or sections

of the services available. In the last resort, the final decision in regard to the employment to any service would rest with the director or controller as the case may be, but it is not intended that these officers should themselves interfere, normally, with the actual operation of the services.

The officer who has been delegated to administer the control centre is, in fact, the officer-in-charge of the control centre. In peace he should be responsible for the selection and training of the control centre staff, and for all the details of organization, so that an efficient machine is ready for war.

Plotting clerks are required in each control centre to keep the control maps marked up-to-date. As reports come in to the control centres, the plotting clerks must determine whether they relate to fresh occurrences or to occurrences about which other reports have already been received. In the main control centre it will not be necessary to mark each reported point of damage, but rather the general picture of the situation concerning damage, casualties, and deployment of the services. In the case of the sub-division control centres larger scale maps of the sub-divisions are desirable so that all pertinent information relating to damage, etc., in the sub-division may be easily plotted and recognized.

Chart Writers or Log Clerks should work with the Plotting Clerks.

Record clerks will be required to file all incoming and outgoing messages, and to record all action taken. In this way any action initiated can be followed through, and if there appears to be undue delay in taking prompt measures, the matter can be brought to the attention of the director or controller. This is a difficult task in a busy control centre and will entail the closest co-operation of the whole of its staff.

Plotting clerks, the chart writers, and record clerks are part of the Intelligence Officer's staff. In addition to supervising their functions, he is responsible for keeping the director or controller in the picture. This will entail

the preparation of appreciations of the situation, or possibly situation reports (sitreps). Under the possible scales of attack which are envisaged it is quite probable that there should be the equivalent of an intelligence officer per service, each of whom would be primarily responsible for the production of intelligence reports to the chief of his service. For example, the Engineer Intelligence Officer, as soon as the type of attack was known, and based on reports received from the devastated area, would be able to make an appreciation of the situation as it affects all sections in the Engineering Service.

A message clerk will write any messages required by the Director or the Controller. Clerks should be available to the chief or representative of any service to write such messages as they may require. They will also be responsible for keeping up-to-date records (tally boards) showing the deployment of the services, the despatch of which must always be notified to the control centres. Normally it will not be necessary to have one clerk for each service represented at the centre but if there are more than three sub-divisions it may be necessary to provide one clerk for each service represented at the Main Control Centre.

Indoor messengers are required in any control centre. There should be a message supervisor in charge of the message room. He occupies a key position in the organization and will:

- (a) supervise the work in the message room to ensure that it is carried out with speed and accuracy, and that messages are legible;
- (b) keep the director or controller informed of any interruption or serious congestion of the communications system;
- (c) if hold-up occurs, ensure that messages are despatched according to their priority; and
- (d) see that outgoing messages after despatch are promptly returned to the record clerk for filing.

With a properly trained staff it should be unnecessary for the message supervisor to scrutinize each incoming message before it is passed to the plotting clerk. Telephonists or wireless operators will write down or transmit messages as required, initialling and timing all completed messages by the twenty-four hour clock system.

Outdoor messengers will afford an alternate means of communication and provide against a breakdown of telephone or wireless service. If they are to be used, a messenger clerk should be provided to log the outgoing and incoming messages.

The personnel who are selected to work in control centres should be recruited according to the individual duties that each would be required to carry out. The whole staff of control centres, and particularly the plotting clerks must have, or acquire during training, an intimate knowledge of the area covered by the centre.

Although a complete shift must be ready to staff the control centres at very short notice, continuous manning by a complete staff will rarely be advisable as there may be long periods when they would have nothing to do. This problem of manning control centres will be partly solved if all members work or live near to the centre, so that they could carry on their normal work when not on actual duty in the centre.

STAFF REQUIREMENTS AND DUTIES IN ACTION AND RESERVE DEPOTS

The officer in charge of an action depot or a reserve depot will be known as a Depot Superintendent. He will keep the sub-division control centre (main control centre in the case of the reserve depots) informed of which parties are available for duty and as to the condition, i.e. state of fatigue, etc., of the services based on his depot. Administrative messages in connection with the maintenance, etc., of depot services will be passed direct to the service chief concerned or as laid down locally. Operational messages dealing with the movement of services will normally be

based on orders received from the sub-division control centre. Demands for assistance at points outside the sub-division should not be met unless the concurrence of the sub-division control centre has been obtained.

STAFF REQUIREMENTS AND DUTIES IN REPORT CENTRES (District HQ)

The district warden is the chief officer of the Report Centre. Because report centres are mainly concerned with the transmission of messages from warden posts and damage control officers to the sub-division control centre, a small control staff is required to determine which message, as received from the posts or damage control officers, should receive prior attention, and be passed to the control centre for action. Report centres in this phase would be responsible for the sifting of important messages from the non-important ones.

All messages received should be passed to the District Warden or his assistant for scrutiny. If the message is important he should initial it and pass it to an "out" telephonist or wireless operator for transmission direct to the sub-division control centre. As soon as the message has been transmitted, it should be passed to a plotting clerk who will plot the information on the district control map.

A Chart Writer should be available to register each incoming message to the centre. His functions would be similar to those of the chart writer in the control centre. When the chart writer has received the necessary information the message should be passed to the filing clerk.

In the event that the communication system in existence is put out of action, a number of messengers should be available to carry messages to the control centre.

In addition to receiving messages from the warden, or report posts, the report centre will be the centre to which damage control officers working within the district will communicate their requests for assistance in manpower and materials. The District Warden will assist the damage

control officers to the greatest extent possible. Generally speaking reports received from damage control officers should receive immediate attention by the report centre.

The District Warden will, in conjunction with the damage control officers, arrange for any guides who might be required to meet civil defence parties and reinforcements. He will also keep a record of all civil defence services which are at work within the district.

STAFF REQUIREMENTS AND DUTIES IN REPORT POSTS (Warden Posts)

The Report Post is the headquarters of the warden in charge of each warden post. The requirements in personnel and accommodation for a report post are very simple. The first duty of a warden during operations is to report damage, casualties, etc., to the report centre. In the first instance warden reports should give general information, and later on follow-up reports will give more detailed information to supplement the original report.

The post may be a small brick or concrete building, or a protected room in the basement of a building in the post area. The post should be equipped with communication equipment for the reporting of damage, etc., and have space for a large scale map indicating all important buildings, etc. in the area.

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CHAPTER VI

DEPLOYMENT OF THE CIVIL DEFENCE SERVICES BEFORE AIR RAIDS

The actual detailed deployment of the civil defence services cannot be described because the personnel strength will vary from municipality to municipality. Their actual disposition will also be dependent upon the number of action and reserve depots there are within the target area. In some cases it may not be feasible to have a single action depot in each sub-division, large enough to accommodate all the services in the sub-division. If not, they should be located in the vicinity of the control centre. For example, the Rescue Service and Engineer Services might be located in the basement of a reinforced building, while the Ambulance Service might be situated a few blocks away in a building adjacent to parking space for their ambulances.

In general the civil defence services within a target area should be deployed as evenly as possible among each of the sub-divisions. A portion of each of the services, possibly 15 to 20 per cent, should be held in Reserve Depots.

The staff who are part of the Headquarters, Civil Defence Services, will be stationed at the Main, Alternate Main and Sub-Division Control Centres. Such personnel as intelligence officers, chart writers, plotters and filing clerks, may be provided from the Headquarters Service to the District Report Centres. In some cases the district warden may be able to recruit this personnel from people living within the district.

During operations the chiefs of each of the services, or their deputies, will be stationed at the Main Control Centres. Representatives of the civil defence services will be stationed at each sub-division control centre and the alternate main control centre.

At the action and reserve depots, components of the Rescue, Ambulance, Engineering and Public Utility

Restoration Services will be standing by ready to move on orders from the sub-division control centre, as already indicated. Tactical and Technical Reconnaissance Teams, although a part of the Intelligence and Information Section of the Headquarters Service, will be based on sub-division action depots. Some of the reconnaissance teams should be directly under command of the Director.

It is desirable that members of the Welfare Service be based on the Welfare Centres established around the periphery of the target area, although a small proportion may be posted at the Welfare Assembly areas. It will be necessary, however, for certain key officials of the service to be stationed at the various control centres, where they will be kept informed of the situation. They will thus be in a better position to devise a suitable course of action for the Welfare Service operations. It is imperative that the representatives of this service be kept informed of the situation as it develops.

Wardens who are on duty will at all times be at their respective warden posts. Sector and Sub-Sector Wardens, who are also Damage Control Officers, will be stationed at their sector and sub-sector headquarters, ready to go into action as soon as possible following a raid.

Personnel of the Fire, Police and Health Services will be deployed throughout the target area according to their own respective plans. It should be remembered that these services, although most essential for civil defence, must continue to perform their normal peacetime functions during war. In some cases they may not be able to deploy or disperse to the periphery of the target area prior to an attack, and this factor must be considered in planning for their utilization. Chiefs or deputies of these services will most certainly be at the various control centres.

It will be noted that, in the deployment of these services prior to an attack, it is assumed that a certain proportion of each of the services is on duty. Off-duty personnel will be expected to report to their action depot, or at some other prearranged rendezvous point, as soon as possible

following an attack. It is quite possible that it may be some time before off-duty personnel will be able to report for duty. Every civil defence worker should understand the importance of reporting as soon as possible to the Action Depot. Successful operations can only be carried out following an attack by well-organized bodies of personnel. Individual action on the part of persons not reporting for duty, however valorous, will probably be frittered away on relatively unimportant tasks, when their talents and skills could be put to better use as members of an organized and trained team.

CHAPTER VII

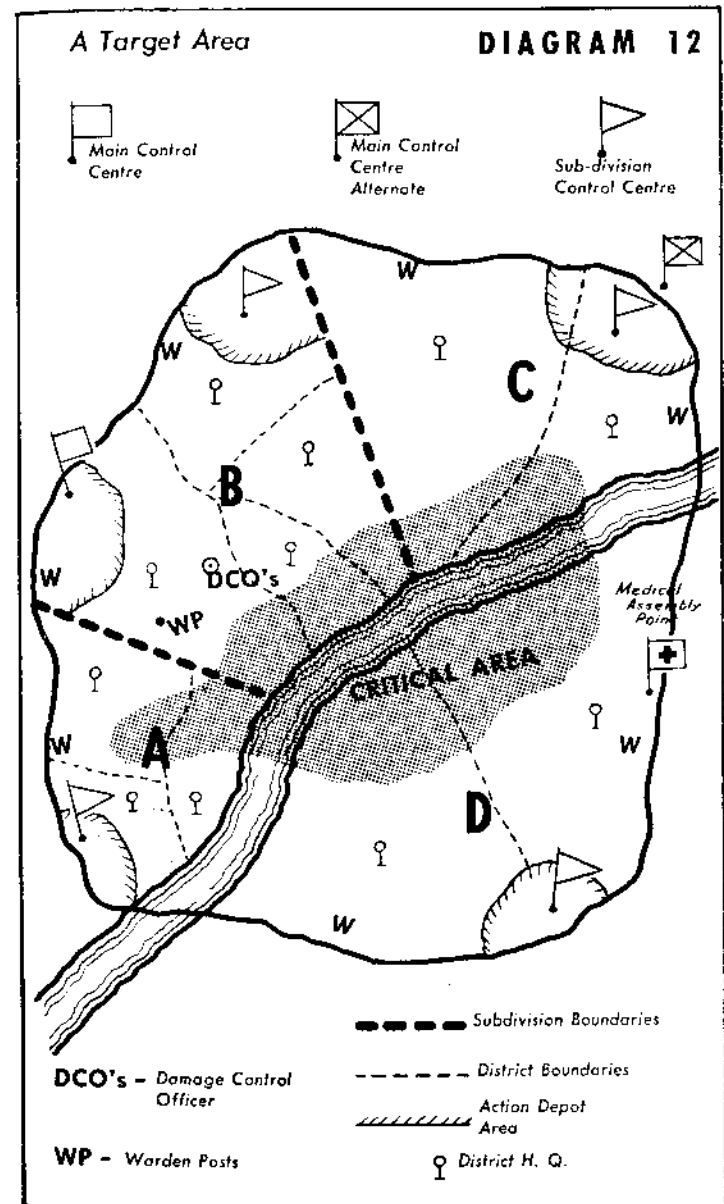
DAMAGE CONTROL

After an atomic bomb burst, or a heavy conventional bombing raid, it is to be expected that a great number of roads will be blocked by debris, many areas will be inaccessible because of fires, gas mains will be leaking, great masses of people will have to be evacuated, and large numbers of casualties who have been trapped will have to be rescued. Many well-known landmarks will have been destroyed, making quick identification of devastated areas a difficult task for the operating services.

To deal successfully with the possible scales of damage and anticipated numbers of casualties it will be necessary for the Civil Defence Director and the Sub-Division Controllers to have early information in order that a suitable and effective plan of action can be put into operation to cope with the problems. There are certain fundamental principles on which any system for the co-ordination and direction of civil defence damage control operations must be based. The most important of these principles are that:—

- (a) the system must be an integral part of civil defence control;
- (b) control must be flexible and adaptable to both heavy and light attacks;
- (c) there must be economy in manpower;
- (d) the system must be simple; and
- (e) success hinges on reliable communications.

Damage control is the responsibility of the warden service—each warden having been trained in the principles of damage control, while sector and sub-sector wardens receive special damage control training. These wardens will be known as Damage Control Officers. There should be at least two damage control officers on duty at any one time in each sector or sub-sector. Damage control operations will commence as soon as possible after a raid, and continue only so long as there are casualties within a damaged area.



However, under saturation or atomic bombing conditions, wardens and damage control officers within a mile of ground zero might not be in a position to carry out their duties efficiently. In such cases damage control might take place in either of two ways:—

- (a) damage control officers from unaffected areas might be rushed in to take over the duties; or
- (b) a special reserve of damage control officers might be on call at district or sub-division headquarters to be sent to seriously affected areas as and when required.

The principal duties of damage control officers are to co-ordinate the operations of the different civil defence services engaged, and to ensure that the closest co-operation exists between the services.

Damage control officers act as the on-the-spot representatives of the sub-division controllers. However, they do not in any way interfere with the technical work of individual services. The general control of civil defence operations will be the responsibility of the civil defence director through the sub-division controllers. However, damage control officers may have to assume operational control of their particular sector or sub-sector. It is clear that personnel required to carry out these important duties must be trained in peace time, and that they must make careful studies of the areas in which they are to operate.

The operational duties of the damage control officer are to:—

- (a) select a suitable site for his headquarters (by day he will show a flag, and by night colored lamps or lanterns);
- (b) maintain records, and arrange with post wardens for clerks from self-help parties if needed;
- (c) make a personal reconnaissance of his area, although this may depend upon warden reports;
- (d) keep sub-division control informed by reporting through his report centres;

- (e) select suitable sites for the ambulance collecting points, parking grounds for rescue and other civil defence vehicles—if possible, the sites selected should be up-wind and free from smoke and contamination;
- (f) earmark sites or buildings which might serve as medical first aid stations;
- (g) make arrangements for the evacuation of walking wounded, old people, children and others who cannot be usefully employed;
- (h) make sure that refugees etc., are using evacuation routes;
- (i) inform ambulance teams of their routes in and out of the damaged area;
- (j) inform the leaders of civil defence parties of the general situation, and suggest a plan of action;
- (k) regulate the despatch of reinforcements when they arrive;
- (l) maintain close liaison with all services working in the vicinity.

The duties of the officer in charge (the district warden) of the report centre are to:—

- (a) report to the sub-division control centre immediately following an attack on the general situation in his area—these reports originate from the warden, and damage control officers;
- (b) ensure that the damage control officer is kept informed of the situation in other areas, etc.;
- (c) in conjunction with the damage control officer, arrange for guides to meet civil defence parties and reinforcements;
- (d) keep a record of the parties and reinforcements working in his area;
- (e) ensure that requests for reinforcements are in order;
- (f) assist the damage control officer in his duties, and co-ordinate all damage control operations in the district;

In order that directors and controllers at main and sub-division control centres may make a rapid appreciation of the situation as the basis on which they may develop a plan of action they must have, and will be dependent upon the accuracy of, the reports being received from the wardens and report centres. It should be remembered that those who will be making the initial reports will be the post wardens and there will be a natural tendency to represent their own problems as the most urgent. This must be guarded against because it might easily result in the dissipation of the forces available in a most uneconomical manner.

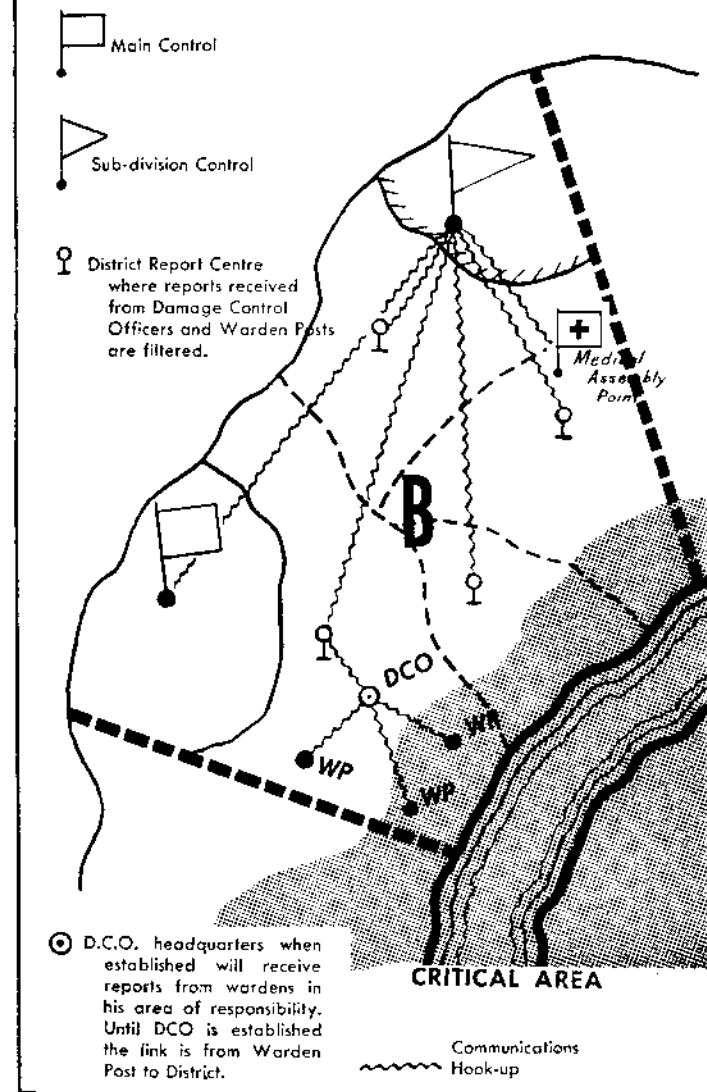
Information which is required by controllers is listed below in order of priority:—

- (a) location of any fires which might develop into a serious conflagration or firestorm;
- (b) condition of the roads, and approaches to key points;
- (c) estimated location of the centres of severe damage;
- (d) areas of contamination—biological, chemical, radiation;
- (e) areas clear of debris;
- (f) if pre-selected evacuation routes, etc., are blocked, other suggested alternates;
- (g) information as to any large shelters or other places where large numbers of people have been trapped;
- (h) atmospheric conditions;
- (i) situation regarding vital points.

In the first instance wardens and reconnaissance teams (tactical and technical) will make a rapid survey of the area of damage and will report their information as soon as possible. As soon as the information is received at sub-division headquarters, it will be plotted on the control map. As soon as the map presents a picture as to the limits of damage, areas of severe damage, areas of fires, roads blocked, etc., the sub-division controller will deploy the civil defence forces at his disposal to areas where the most good will be achieved. His deployment of the forces will be aided by the information which has been passed to him

Example of Communications network in a sub-division

DIAGRAM 13



by report centre officers who should have a good idea of the situation in their areas of responsibility, based on reports from the wardens and damage control officers.

Because it is highly probable that initial reports will be coming from the lightly damaged areas, controllers and directors might gain an unbalanced picture of the true situation. In the early stages they will have to depend on a "rough and ready" picture, by the use of templates to make probable estimations of damage and casualties. Initial deployment of services will in all probability be made on the basis of these sketchy calculations. Consequently, it is all the more important that reporting agents send back word immediately so that further deployments can be made on the basis of actual conditions.

The officers in charge of working parties requiring reinforcements will request them through the damage control officer who, if the requests are reasonable, will pass them to sub-division controller through the report centres. The damage control officer will limit his requests for assistance to the absolute minimum, and will ensure that the services he receives are returned immediately the task for which they have been sent has been completed. It is important that damage control officers make use of all available resources since there can be no guarantee that requests to control for assistance will be met. A great deal of assistance will be given by the wardens who should be organizing self-help parties from survivors.

All requests for assistance should be accompanied by the position of a rendezvous point where the reinforcement, if forthcoming, is to report. The damage control officer will ensure that guides are on the spot to meet new parties.

The main considerations for deployment of services by damage control officers are:—

- (a) the rapid disposition of services throughout the area, and
- (b) the collection and dispatch of casualties by ambulances.

NOTE—A more detailed manual is being prepared on "Damage Control."

CHAPTER VIII

CONTROL FOLLOWING RAIDS

THE WARDENS

As soon as a raid is over, wardens will make a quick survey of the damage in their areas of responsibility, and will report immediately to the District Report Centre, by the communications system in use, on the extent of damage, fires, approximate numbers of casualties, etc. Following the dispatch of their reports, they should commence organizing survivors into fire-fighting teams, light rescue teams, first aid teams to treat the lightly injured, stretcher bearers, parties to clear debris from the roads to facilitate the entry of the civil defence services. They should maintain constant communication to the report centre by sending supplementary reports giving more detail than could be included in their original reports. As soon as damage control officers arrive and set up their headquarters, the wardens will pass all reports through them, and will act in accordance with their instructions.

THE DAMAGE CONTROL OFFICERS

The damage control officers should automatically set out to seek suitable locations for their damage control headquarters. In searching for a suitable location they should contact the local wardens who will usually be able to give valuable assistance in the way of information, and providing personnel to act as clerks, guides, messengers, etc. As soon as their headquarters have been established they should survey the areas under their control, relying to a great extent on the information provided by the local wardens, and should make frequent progress reports to the report centre. When elements of the civil defence services arrive in their areas they will be responsible for the co-ordination of all elements of the services allotted to those areas. If loud hailer equipment can be provided it will greatly facilitate the work of the damage control officers.

THE RECONNAISSANCE TEAMS—TECHNICAL AND TACTICAL

As soon as possible following a raid these teams should be dispatched from the action depots to make their reconnaissances. It may be possible to send an engineer and a rescue team with each tactical reconnaissance team to commence work immediately, prior to the arrival of the main body of the services who will only be dispatched from the action depots on orders from the controller.

If possible, reconnaissance teams should contact damage control officers or wardens, if damage control points have not been established. They will be able to give much valuable information. Reconnaissance teams will be in direct communication with sub-division control centres, and should send progress reports regularly. The information which they should send back to control has been listed in the preceding chapter.

AT DISTRICT REPORT CENTRES

On receipt of messages from wardens and damage control officers, the district warden will decide which messages are of sufficient importance to be sent to the sub-division control centre. As soon as a message has been transmitted to control, the information should be plotted on the district report centre control maps.

AT SUB-DIVISION CONTROL CENTRES

As soon as reports are received from the report centres or the reconnaissance teams, the information will be plotted on the large scale control map. Copies of messages will be circulated to service chiefs or representatives for their information and action.

When sufficient reports are plotted and the controller and service chiefs have a picture of what has happened, they should issue orders for the dispatch of the services at their command in the most economical and efficient means possible, advising main control of the deployment which is taking place. Civil defence services will only be deployed on orders from the sub-division controller or the service chiefs.

AT MAIN CONTROL

Sub-division control centres will keep the Main Control Centre informed on what has happened or is taking place within the sub-divisions. The deployment of services and action taken in sub-divisions will be passed to main control. On the basis of reports received from the sub-division control centres, and information plotted on the control map, the director and service chiefs will be able to see what has taken place within the target area as a whole.

As soon as it is apparent that assistance is required, main control will request it from the zone co-ordinator. In some cases some sub-divisions might not be directly affected by the attack, and if such is the case, the director may issue orders to an unaffected sub-division to assist a seriously-affected one. Such deployments will only take place on the direct orders of the director. Similarly the deployment of those services in reserve depots will only be carried out on his orders.

ACTION OF THE SERVICES

Teams of the rescue, engineer and public utility restoration, and ambulance services will, after they have been dispatched, report to the rendezvous point selected by the damage control officer. They will be met there by guides who will direct them to their parking areas. Service heads or team leaders will then report to the damage control officer to receive instructions where they are to work.

THE RESCUE AND AMBULANCE SERVICE

Local wardens may have already organized self-help rescue parties. If such has been the case, the rescue party leader might designate certain members of his teams to work with the self-help parties, acting as foremen over semi-skilled workers. It should be noted that rescue party leaders are in charge of all rescue work, including the rescue and treatment of surface casualties within the area in which they are working. In the event that rescue operations are being conducted close to fires, rescue parties will act in accordance with the directions of the fire service.

Insofar as is necessary for the completion of rescue work at a damaged site, the rescue service should have priority of place, movement and approach over all other services, with the exception of the fire service.

All first aid and stretcher-bearing operations at a damaged site will come under control of the senior rescue service officer, subject to the general arrangements made by the damage control officer. Stretcher bearers, from other services or from the self-help parties, will work in accordance with the rescue leader's plan of action. If medical personnel are present, the rescue leader will arrange for priority movement of casualties who will be carried by stretcher bearers to the ambulance collecting post, where they will be transported by ambulance to medical first aid stations. Any walking wounded personnel will be guided to the first aid stations by guides recruited from the self-help parties. Ambulances will be despatched from depots only on orders of the chief of the Health Services or his representative.

THE WELFARE SERVICES

The importance of effective welfare services in maintaining the morale of distressed persons cannot be over-emphasized. In the organization of Welfare Services provision must be made for two types of operation. The first type of service is the operation of mass care facilities—food, clothing and shelter. The second type includes the more personalized services—the registration of the homeless and the casualties, and the supplying of information as well as individual assistance in the way of advice, financial help and general guidance.

It is considered that the basic organization through which the Welfare Services can best be provided is the Welfare Centre, a proposed establishment either in one large building or in a number of neighbouring ones. Prior to the attack, Welfare Centre accommodation should be

ear-marked for occupation, sited, it is suggested, towards the periphery of the target area. The buildings chosen should be such as to be able to provide all the welfare facilities and should include an auditorium, lodging accommodation, and cooking facilities.

Each Welfare Centre organization should be responsible for servicing a section of the damaged area. For example, there may be two or three Welfare Centre organizations for each sub-division. For this purpose each should include within its organization small well-trained teams of workers whose responsibility would be to establish welfare assembly areas reasonably close to the scene of the incident where the dazed and homeless masses of people may find a place of temporary refuge, possible some light refreshment and where they may secure information about and, if necessary, guidance back to, the main Welfare Centre servicing the area. In addition to the Welfare Assembly Areas a number of Forward Information Posts are established. These are intended to be tentacles or out-stations of the Welfare Assembly Areas, and will be located adjacent to the Damage Control Officers headquarters. The functions of the Forward Information Posts are to:—

- (a) guide refugees, etc., to the Welfare Assembly Areas,
- (b) relieve the Damage Control Officer of the responsibility of answering inquiries from the public;
- (c) collect, collate and disseminate information with a view to relieving the anxiety of the general public, thereby assisting in maintaining morale;
- (d) provide the Damage Control Officer with information which may be of use to the services;
- (e) undertake such other related duties as the Damage Control Officer might request.

It is recognized that, immediately following an attack, mass care facilities will be strained to the utmost. It is expected that many people will find their own accommodation with friends or relatives, while others will be billeted with householders who have previously indicated willing-

ness to accept refugees in the event of a disaster. A great many others, however, will have to be lodged within the Welfare Centres themselves, at least until other arrangements can be made for them. It is hoped that a good percentage of the homeless will be able to return to their own homes after emergency repairs (such as the covering of broken windows) have been effected. It is planned that the majority of the homeless, especially essential workers and their families, should be re-housed within a reasonable distance of their work. Others, however, may have to be moved to the Mutual Aid Area, or even to the Mobile Support and Reception Area, for temporary housing accommodation.

Pamphlets entitled "Welfare Services in Canada's Civil Defence Program," and supplements, have been distributed to each province.

THE FIRE SERVICE

The job of tackling fires will be the main responsibility of the fire service. The Chief Fire Officer should not permit any one fire station to act without his orders in the event of a large scale bombing attack. The reason is that the fire services will probably have to deal with area fires, or those which are liable to develop into area fires, consequently it will not be until the Chief Fire Officer has a reasonable appreciation of the fire situation existing throughout a devastated area that orders for their deployment can be given.

The fire service will have priority over all services in any fire area, and all other services will assist whenever required in fire operations. Damage Control Officers and Wardens will be of great assistance to the fire service by keeping it informed of the situation in their areas.

The fire service will probably have a fire control point established near a scene of operations to direct the operations in an area. The fire officer in charge of fire operations in the area is responsible for keeping the damage control officers in the picture as far as other civil defence operations may be affected by fires. He may have a warden attached to him for this purpose.

Because the fire services of target areas are adequately equipped with their own communications equipment, they will probably not use the normal civil defence reporting system. However, if requests for assistance are passed through the reporting system it should be remembered that their messages merit priority attention. Representatives of the fire services will be stationed in all control centres.

THE POLICE SERVICE

Some police functions, during operations following a raid, will be similar to those outlined for the warden service. Consideration is also being given to the training of policemen as damage control officers. If police are used as damage control officers, they would probably use their own communications system, which has a reputation for speed and reliability. This would be a most valuable supplement to the normal civil defence reporting system.

THE ENGINEER AND PUBLIC UTILITY RESTORATION SERVICES

In order that normal activities can be resumed without undue delay, damage to gas, electricity, water and other public utility services must be repaired as soon as possible following an attack. To achieve this, specialist repair teams are organized and based on action depots. Representatives of these services will be located in the control centres and will receive damage information on which they will be able to base plans for action. If roads are not completely blocked they should clear debris off the roads so that service vehicles may move closer to the areas of operation.

In addition to the clearance of debris the engineering service will be organized to effect emergency repairs to lightly-damaged houses and buildings; to carry out demolition of structures which are liable to impede rescue operations and to clear debris from streets to facilitate entry into damaged areas.

When they are dispatched from the action depots, the sections of this service will report to damage control officers and will work under their general direction.

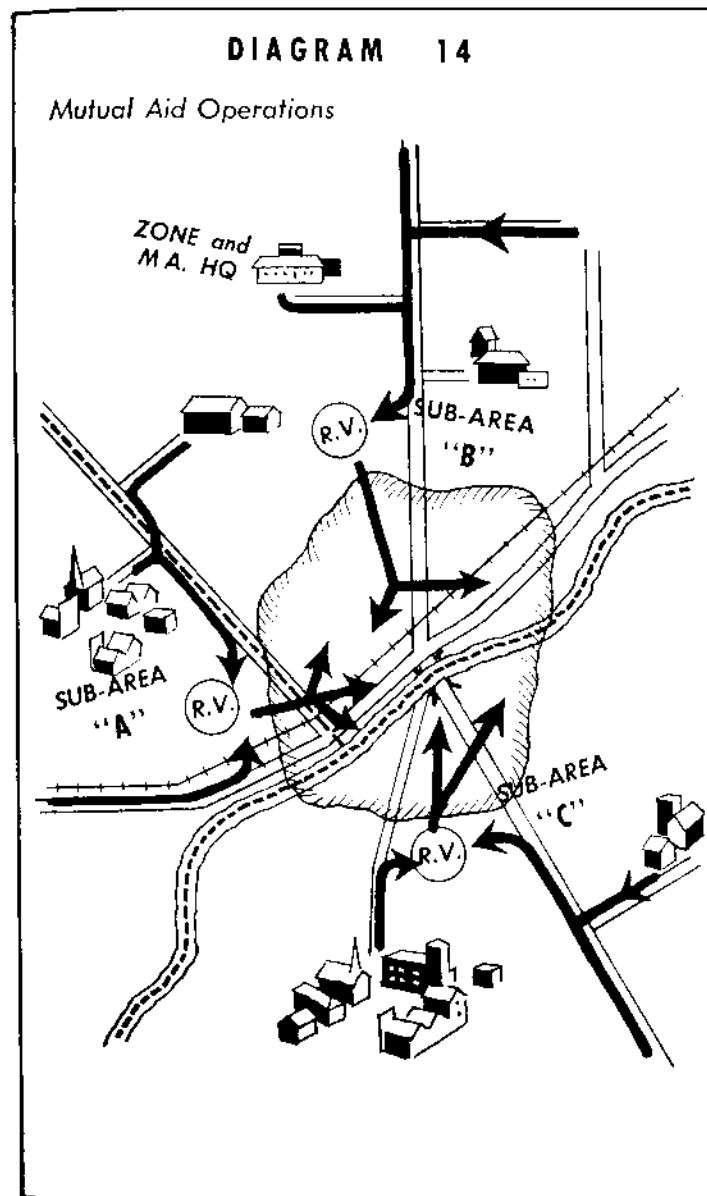
THE HEALTH SERVICE

The most important medical operation to be carried out following an attack will be care and assistance to the injured. To this end the casualty service of the Health Service will establish first aid stations as close as possible to the devastated areas. Casualties who are brought to these stations by the ambulance service will be given treatment, and if their condition requires, will be transported back to the emergency hospitals established on the periphery of the target area. First aid stations will only be set up on orders from the Chief Medical Officer stationed at the control centre.

Damage control officers and wardens should report any locations or buildings which might serve as first aid stations.

The Chief Medical Officer will be kept informed as to the extent of damage and possible numbers of casualties by the warden reports and other information plotted on maps in the control centres.

A more detailed explanation of the operation of the health services is given in the Civil Defence Health Services Manual. Because of the large number of lightly-injured casualties which may exist following a heavy raid ALL members of the civil defence services will be trained in first aid. Prompt attention by first aiders will greatly assist the Health Service in their work.



CHAPTER IX

OPERATIONS IN THE MUTUAL AID, AND MOBILE SUPPORT AND RECEPTION AREAS

The civil defence services of Mutual Aid and Mobile Support and Reception Areas are so organized that well-trained civil defence services are prepared and equipped to aid in the restoration of order, combatting of fires, clearance of debris, the rescue of trapped persons, provision of medical assistance, supply of food and water, and assistance in any evacuation that may take place.

THE MUTUAL AID AREA

In the event of an impending enemy attack upon the zone, the zone co-ordinator would send out a warning order to all civil defence chiefs in the mutual aid area to "stand to". This warning order should not be passed further than the civil defence service chiefs, otherwise too many people might be immobilized during a period of impending attack which may never take place.

The zone co-ordinator is responsible for selecting and dispatching mutual aid mobile columns or groups. The column commander is responsible for the movement of the column from concentration areas to rendezvous areas. The service chiefs are responsible for the mobilization of their services, and their assembly in the concentration areas. The target area director is responsible for the deployment of the columns from the rendezvous areas, and for their subsequent operations.

When any area within a zone is attacked the civil defence director of the target area will notify the zone co-ordinator. The zone co-ordinator would then issue orders to all service chiefs in the mutual aid area to mobilize their services, at pre-arranged concentration areas, and to await further orders, or at their pre-arranged places of duty if they belong to a mutual aid area welfare centre group, for instance.

On receipt of a request for reinforcements from the target area civil defence director, the zone co-ordinator would issue orders for the mobile columns to move forward to pre-arranged rendezvous areas in or near the target area, where they would be met by guides who would lead them to their assigned areas of work. When assisting a target area, the mobile columns normally come under control of the civil defence director of the target area, and remain under his control until dismissed by him, at which time they revert to the commander of the mutual aid services.

When a column is moving from the concentration area, the personnel of each service should be under the command of the senior member of that service. In any large scale movement, the column or group commander might go ahead to make liaison with the target area director. He should take with him such information as the composition of his column and the equipment they are bringing.

It should be borne in mind that the mutual aid forces should be administratively self-contained, i.e. they should have their own rations, equipment and supplies. This is important because it is essential that the resources of the target area be not overburdened by what could well be an additional load on the stricken city under adverse conditions. Incoming services should also carry enough supplies to look after the requirements of civilian labor which might be attached to them.

The following is a suggested composition for a mutual aid mobile column:—

- (a) A headquarters consisting of:
 - (i) commanders;
 - (ii) a communications wing for control purposes, (this would include despatch riders, telephone and wireless operators);
 - (iii) a reconnaissance wing, (it might be feasible to combine the tactical and technical reconnaissance teams);

(iv) an administrative wing which would be responsible for all administrative details, i.e. rations, equipment, etc.

- (b) rescue teams;
- (c) ambulance teams;
- (d) engineer teams;
- (e) welfare teams, (a proportion of the Welfare Service would remain in the Mutual Aid Area to staff welfare centres, etc.) The primary role of this Service when sent to a target area would be emergency feeding and reinforcing welfare centre staffs;
- (f) police teams;
- (g) fire teams, and
- (h) medical teams.

WATER-BORNE MUTUAL AID COLUMNS

In those parts of the country where it is feasible, it is suggested that water-borne mutual aid columns be organized. Their organization and equipment would be similar to the land columns. They could use practically any kind of craft for transportation to the disaster area. Private boats could be used to transport medical teams, rescue teams, etc. Fire boats and ferry boats which can be equipped with fire fighting equipment are particularly useful. The crews of volunteer craft should be trained for team work in specific services.

THE MOBILE SUPPORT AND RECEPTION AREA

The area should be organized principally for the reception of long-term homeless and convalescent casualties. However, under a large scale attack on a target area it is anticipated that the reinforcements provided by the mutual aid area would, in some cases, be inadequate. Even though initially sufficient, they might soon become exhausted and require relief. Reinforcements, or reserves, from outside the mutual aid area must be made available to meet such contingencies.

The basic principles for mobile support are similar to those for mutual aid. The following points should be noted:

- (a) the components of the services are organized in communities that lie outside the mutual aid areas; and
- (b) mobile support forces would have the advantage of going into a disaster area in a fresh and fit condition.

Requests for assistance from the mobile support and reception areas should be made by the zone co-ordinator to the provincial civil defence authorities. The actual mobilizing, movement and deployment of mobile support forces is similar to that outlined for the mutual aid forces.

It is not expected that many homeless or casualties will reach this area within the first twenty-four hours following an attack, so that there would be a sufficient time lag during which the reception facilities in this area could be adequately mobilized. Welfare reception teams might be dispatched to a target area to act as guides for homeless and hospital cases being sent to a mobile support and reception area.