CIVIL DEFENCE

POCKET BOOK NO. 3

GENERAL INFORMATION

(All Sections)



PUBLISHED FOR THE HOME OFFICE
AND SCOTTISH HOME DEPARTMENT BY
HER MAJESTY'S STATIONERY OFFICE

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Foreword

This Pocket Book contains general information on civil defence matters of common interest to all Sections of the Civil Defence Corps. It does not attempt to be anything more than an AIDE MEMOIRE for certain essential points to which reference can readily be made. It should not, therefore, be regarded as a complete digest of training information.

Other Pocket Books will cover information which is particular to individual Sections of the Civil Defence Corps.

HOME OFFICE
SCOTTISH HOME DEPARTMENT

General Information

(All Sections)

CIVIL DEFENCE
POCKET BOOK NO. 3

LONDON
HER MAJESTY'S STATIONERY OFFICE
1960

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I. Civil Defence Organisation

ORGANISATION OF CIVIL DEFENCE CORPS

1.1 The Civil Defence Corps is a voluntary civilian organisation raised and trained by Corps Authorities which are, generally speaking, counties and county boroughs (in Scotland, counties and large burghs). Each Corps Authority raises a division of the Corps. The potential resources of manpower available to individual Corps Authorities for recruitment vary considerably. A division of the Civil Defence Corps is, therefore, not of fixed size.

Local divisions of the Civil Defence Corps in England and Wales (except for London) are divided into the following sections:

Headquarters, Warden, Rescue, Ambulance and First Aid, Welfare.

In London, the local divisions organised by the City of London and the Metropolitan Boroughs include Headquarters, Warden and Welfare Sections. The London County Council administers centrally the Rescue and Ambulance and First Aid Sections. The London County Council and the Metropolitan Boroughs share responsibility for the Welfare Section, the division of duties being on the broad basis of the peace-time functions of the respective authorities.

In Scotland, each local division is composed of four sections, namely:

Headquarters, Warden, Rescue and Welfare.

Organisation of Divisions.

1.2 In England and Wales, each local division of the Corps is composed of the five sections shown in succeeding paragraphs.

Headquarters Section. The Headquarters Section, which staffs control centres, is divided into three sub-sections:

(a) Intelligence and Operations Sub-Section—whose function is to analyse and record information and to prepare necessary instructions etc., at the controller's direction.

(b) Signal Sub-Section—responsible for providing and maintaining communications (including wireless, field cable laying and despatch riders).

(c) Scientific and Reconnaissance Sub-Section—whose primary task is to advise controllers about scientific and technical aspects of nuclear warfare (particularly as regards radioactive fall-out) and also on biological and chemical warfare as may be necessary. It is also responsible for the provision of staff for plotting and interpreting information about radioactive fall-out, and the provision of reconnaissance parties.

Warden Section. The wardens are the link between the civil defence services and the public to whom they will give leadership and guidance before, during and after attack. They are responsible for local reconnaissance and reporting, for the organisation of domestic "self-help" parties and for the local control of life-saving civil defence services deployed within the warden post area. They have special responsibilities for measuring and reporting the degree of radioactivity of fall-out and for the control of the public.

Rescue Section. This section is responsible for rescue work and first aid in connection with rescue operations, emergency work on demolition and debris clearance. Each party carries manpack equipment; heavier equipment is carried in a special vehicle.

Ambulance and First Aid Section. This section is built up on the normal peace-time ambulance service provided by county and county borough councils. The basic units of the section are the Ambulance Detachment and the First Aid Party and their duties are:

(a) Ambulance Detachment: the evacuation of casualties to Forward Medical Aid Units (see paragraph 1.7) and to hospitals.

(b) First Aid Party: to render first aid, to place seriously injured casualties on stretchers and to organize their removal to the ambulance loading points.

In addition a certain number of ambulances will be retained for the work of the peace-time service.

Welfare Section. The Welfare Section will be concerned with the care of those rendered homeless as a result of war conditions or deprived of normal facilities for cooking, sanitation, etc. These duties will include work in connection with evacuation, rest centres for the homeless, billeting, emergency feeding, emergency sanitation, distribution of

clothing, first aid, nursing the sick, information centres, etc.

In Scotland the functions of the Headquarters, Warden, Rescue and Welfare sections are similar to those in England and Wales. There is no separate ambulance and first aid section. The ambulance function is carried out by the Scottish Ambulance Service and the first aid function by the Warden Section. The latter has an element not found in England and Wales, namely, the casualty warden who is the specialist in first aid in the Section.

Pre-attack disposition of civil defence forces.

1.3 A proportion of the Section strengths (with the exception of the Warden and Welfare Sections) raised in Sub-regions and certain other densely populated districts will be stationed at operational bases for use in mobile columns after attack. The remaining strengths will comprise "home cover" forces.

OTHER SERVICES

The Industrial Civil Defence Service.

1.4 Industrial and commercial concerns employing 200 persons or more, including the public utility undertakings and Government Departments, have been invited to form in their premises industrial civil defence units comprising Headquarters, Warden, Rescue, First Aid and Fire Guard Sections. The duties of the Headquarters, Warden and Rescue Sections are much the same as those of the corresponding Sections of the Civil Defence Corps. The First Aid Section provides static first aid points and first aid parties, and the Fire Guard Section mans fire points and the smaller powered appliances. Each industrial civil defence unit has its own control post, and where a number of units form an industrial group there is a group control post. Industrial group control posts and control posts in large factories generally have the status of warden posts. Smaller units normally form part of a warden post area.

The Police.

1.5 In war the Police will continue to be responsible for the maintenance of law and order, the control of traffic, the control of aliens, and giving general assistance and guidance

to members of the public. They will also be responsible for certain additional war-time tasks, such as:

(a) Taking special measures to maintain internal security.
(b) Assisting in the control of the evacuation of the civil population.
(c) Reconnaissance of roads immediately after an attack to determine the extent of debris and radiation.
(d) Assisting in the control of the homeless.
(e) Assisting in public control in the fall-out areas, and in operations in the highly radioactive area surrounding the axis of the radioactive plume (Zone Z).

About one third of the strength of the police forces in the country will be in police mobile columns. These columns will be at places away from areas likely to be attacked and they will be available for the reinforcement of local forces or for special tasks. Each column will consist of about 120 police officers organised into small parties.

The Fire Service.

1.6 In war, the fire brigades maintained by local authorities would be brought under central control and formed into a National Fire Service, which would be greatly expanded by the mobilization of certain R.A.F. reservists who have been trained in fire-fighting, and by the mobilization of such members of the Auxiliary Fire Service (a volunteer organization trained in peace-time by the regular brigades) as were available for whole-time service. Large numbers of additional fire-fighting appliances would also be provided. A proportion of the personnel and appliances of this service would remain in existing fire stations and would be available to deal with fires arising from normal causes, but the greater part of its resources would be organized into large mobile fire-fighting formations. These formations would be located outside main built-up areas, but would be immediately available to operate wherever required.

The Hospital Service.

1.7 Hospital treatment of casualties will be undertaken by a reorganised and greatly expanded hospital service. In addition, the hospitals will provide Forward Medical Aid Units, whose functions will be to sort the casualties brought

Notes (England and Wales)

(a) Not all level of controls will be needed in every part of the country (e.g. Sub-area controls will not always be required).

(b) Normally, warden posts report to the Sector Post; where no Sector Post is established they will report to the next higher level of control (Sub-area control or Area control, as the case may be).

(c) Mobile controls may replace static controls from Sector Post to Group level. The general levels of deployment of mobile controls will be at Sub-area or Sector Post level.

REPORTING AND CONTROL
SCOTLAND

Scottish Central Control
|
Zone
|
Group
|
Area
|
Sub-Area
|
Sector Post
|
Warden Post

Notes (Scotland)

(a) Not all levels of control will be needed in every part of the country, e.g., Sub-area controls will be omitted in most cases.

(b) Normally, warden posts report to the Sector Post; where no Sector Post is established they will report to the next higher level of control (Sub-area control or Area control, as the case may be).

(c) (See page 11).

(c) Mobile controls may replace static controls from Sector Post to Group level. The general levels of deployment of mobile controls will be at Area or Sub-area level and at Sector Post level.

II. Nuclear Warfare

2.1 Data on weapon effects (excluding fall-out, which is dealt with at paragraphs 2.4 – 2.5 below) extracted from the Manual of Civil Defence, Volume 1, Pamphlet No. 1. "Nuclear Weapons" (Second Edition 1959).

It should be noted that the figures in the Tables are greatly simplified for PLANNING purposes. They must NOT be regarded as providing a "template" for the final control of OPERATIONS, which must be based on conditions as found.

TABLE I

Radii from G.Z. in miles of blast damage to average British houses and blockage to street from a ground burst weapon (i)

Weapon power	20 *KT*	100 *KT*	½ *MT*	1 *MT*	2 *MT*	5 *MT*	10 *MT*
Damage ring A Houses totally destroyed streets impassable	0–⅜	0–¾	0–1¼	0–1½	0–2	0–2¾	0–3½
Damage ring B House irreparably damaged, streets blocked until cleared with mechanical aids.	⅜–⅝	¾–1	1¼–1¾	1½–2¼	2–3	2¾–3¾	3½–5
Damage ring C Houses severely to moderately damaged: progress in streets made difficult by debris.	⅝–1⅝	1–2¾	1¾–4¾	2¼–6	3–7½	3¾–10	5–13
Damage ring D Houses lightly damaged, streets open but some glass and tiles.	1⅝–2½	2¾–4¼	4¾–7¼	6–9	7½–12	10–15½	13–20

NOTE: (i) The blockage figures are average ones. Blockage will vary with:
(a) Width of street.
(b) Direction of street in relation to G.Z., e.g., radial to G.Z. or at right angles to direction of blast.
(c) Height, density and nature of construction of buildings fronting the street.

TABLE II

Radii from G.Z. in miles of heat effects from:

A. A ground burst weapon.

Weapon power	20 *KT*	100 *KT*	½ *MT*	1 *MT*	2 *MT*	5 *MT*	10 *MT*
(*a*) *On people exposed in the open:*							
Third degree burns (charring) of exposed skin.	⅞	1½	3½	4¾	6¼	9½	13
Second degree burns (blistering) of exposed skin.	1	2	4	5½	7½	11	15
First degree burns (reddening) of exposed skin.	1½	3	5½	8	11	15	21
(*b*) *Fire situation:*							
Main fire area ...	⅜–1	¾–2	1¼–3½	1½–5	2–6½	2¾–9	3½–12
Limit of isolated fires	1½	3	5	7	9	13	17

B. An air burst weapon.

Weapon power	20 *KT*	100 *KT*	½ *MT*	1 *MT*	2 *MT*	5 *MT*	10 *MT*
(*a*) *On people exposed in the open:* Third degree burns (charring) of exposed skin.	1⅜	2½	6	8	11	16	22
Second degree burns (blistering) of exposed skin.	1¾	3½	7	9	13	18	25
First degree burns (reddening) of exposed skin.	2½	5	9	13	17	25	35
(*b*) *Fire situation:* Main fire area ...	½–1⅝	⅞–3	1½–6	1¾–8	2¼–11	3¼–15	4–20
Limit of isolated fires	2	5	8	12	15	22	28

TABLE III.

Crater dimensions in feet for burst at ground level in saturated clay (ii).

Weapon power	20 *KT*	100 *KT*	½ *MT*	1 *MT*	2 *MT*	5 *MT*	10 *MT*
Radius of crater	300	510	850	1,100	1,360	1,700	2,200
Radius of crater lip ...	600	1,020	1,700	2,220	2,720	3,400	4,400
Depth of crater ...	40	55	80	100	120	150	170

NOTE: (ii) For radii in dry soil divide above values by 1.7
„ depths „ „ „ „ „ „ 0.7
„ ranges in hard rock divide above „ „ 2.0
„ depths „ „ „ „ „ „ 0.9

TABLE IV.

Radii from G.Z. in miles of initial gamma effects on people exposed in the open from a ground—or air—burst weapon.

Weapon power	20 *KT*	100 *KT*	½ *MT*	1 *MT*	2 *MT*	5 *MT*	10 *MT*
50% chance of survival (450 r)	¾	1	1¼	1½	1¾	2	2¼
No appreciable risk of sickness (75 r)	1	1¼	1½	1¾	2	2¼	2½

Wartime Emergency Dose of radioactivity.

2.2 In Civil Defence operations a Wartime Emergency Dose (WED) of 75 roentgens (r) may be accepted where necessary for all Sections and Services engaged in essential work during the life-saving phase, whether this total dose has to be incurred during a few (say 4) hours or spread out over several days. Discretion is, however, given to unit commanders to continue with an essential task in hand up to a maximum dose of 100 r. if the unit is not relieved beforehand, but subject to this over-riding necessity no-one other than a Regional Commissioner or a person to whom he has delegated the responsibility will have authority to sanction an increase in the WED of 75 r. It cannot be stressed too strongly that ALL EXPOSURE TO RADIATION IS HARMFUL; that

the WED must be regarded as a permitted maximum only when the dividend in essential work to be done justifies this expenditure of radiological life; and that EVERY EFFORT must be made to confine the dose to a lower figure than 75 r. where possible.

Effects of radiation on individuals.

2.3 Exposure to whole-body doses of radiation (whether incurred during a few hours or spread over several days) has the following broad effects on the average person in good health:

up to 150 r.:	no acute effects, but increasingly serious long-term hazard.
150–250 r.:	nausea and vomiting within 24 hours; some incapacitation after 2 days.
250–350 r.:	nausea and vomiting in under 4 hours; some deaths in 2–4 weeks.
350–600 r.:	nausea and vomiting in under 2 hours; heavy mortality certain in 2–4 weeks; prolonged incapacitation for survivors (Note: 350–500 r. is usually regarded as the dose at which people have only a 50% chance of survival).
over 600 r.:	almost immediate incapacitation; mortality in one week.

NOTE: All exposure causes injury to the body and it should therefore be limited to the absolute minimum.

Principles of decay of radioactivity from fall-out.

2.4 Radioactivity decays with time, and the decay rate of all the mixed fission products constituting fall-out is likely to be such that:

If the dose-rate at H+ 1 hour is "R" r.p.h. then the dose-rate

at H + 7 drops to $\frac{R}{10}$

and at H + 49 drops to $\frac{R}{100}$

and at H + 14 days drops to $\frac{R}{1000}$

Factors affording protections against radiation from fall-out.

2.5 (*a*) *Distance*

Assuming uniform contamination having a dose-rate of "R" r.p.h.

One-third of "R" comes from within a radius of $12\frac{1}{2}$ feet

One-half of "R" „ „ „ „ „ „ 25 feet

Three-quarters of "R" comes from within a radius of 100 feet.

Therefore persons taking refuge in a large building are isolated from a proportion of the effects.

(*b*) *Shielding*

Gamma radiation from fall-out is reduced in intensity by passing through dense materials, e.g.

Behind 2.2 inches of concrete "R" becomes $\frac{R}{2}$

„ 4.4 „ „ „ „ „ $\frac{R}{4}$

„ 6.6 „ „ „ „ „ $\frac{R}{8}$

„ 8.8 „ „ „ „ „ $\frac{R}{16}$

Because 2.2 inches reduces the intensity by a half every time, it is known as the "half-value thickness" for concrete.

Half-value thicknesses for other shielding materials against residual radiation from fall-out are: Steel 0.7 inches, brick-work 2.8 inches, earth 3.3 inches.

Taking distance and shielding into account, approximate protective factors in ground floor refuge rooms of various types of British houses are:

Types of house	*Protective Factor (P.F.)*
Prefab	3
Bungalow	5– 10
Detached 2-storey	15
Semi-detached 2-storey	
(11 inch cavity walls)	25– 30
($13\frac{1}{2}$ inch brick walls)	40
Terraced 2-storey	45
„ back-to-back	60
Basement below 2-storey	140–340

(*See following Note on page* 16).

NOTE: A slit trench in the open will give P.F.s as follows:
With overhead cover of boards or corrugated iron and a tarpaulin, 5–10
With an additional 3 ft. of earth cover, 200–300 or more.

(*c*) *Time*

The time factor is important in view of the decay rate of radioactivity (see paragraph 2.4 above).

If people in a fall-out area can remain in refuge for the first 48 hours after the explosion, the dose-rate will have dropped during that period by a factor of 100, i.e. what was "R" r.p.h. at one hour after burst will become $\frac{R}{100}$ two days later.

Effects of fall-out on agriculture.

2.6 A handbook entitled "Home Defence and the Farmer" (published by H.M. Stationery Office, price 1/-) prepared by the Agricultural Departments of England and Wales, Scotland and Northern Ireland, gives details of the effects of fall-out on farming and agriculture in general.

Fall-out would present a grave hazard to farm animals in the open and, in particular, to milk supplies from dairy cows. In some districts losses of livestock would be serious.

Sowing and harvesting of crops might be seriously impeded and, while growing crops may not, themselves, be greatly affected in many areas, fall-out settling on them may make them unfit to eat.

The handbook contains advice to farmers on these and other agricultural matters. It also deals with preparations that can be made both before and after attack to lessen the risk of danger from fall-out.

III. Radiac Instruments (Training and Operational)

Radiac instruments used in civil defence.

3.1 There are three main types:

(1) The INDIVIDUAL DOSIMETER: this measures the total dose of radiation received and accumulated over a given period at the place where the instrument is being used.

(2) The SURVEY METER: this measures the rate at which radiation is being received at a given time and

(3) The CONTAMINATION METER: this measures the amount of radioactive contamination on the person or on equipment. Special modifications of the contamination meter have been developed for detecting undesirable levels of radioactive contamination in drinking water and in liquid or solid food.

Individual Dosimeters (one training and three operational versions).

3.2 (1) Training (No. 1) reading 0 – 0·5 r.
(2) Operational (No. 2) reading 0 – 5 r.
(3) Operational (No. 3) reading 0 – 50 r.
(4) Operational (No. 4) reading 0 – 150 r.

Dosimeter Charging Units.

3.3 The individual dosimeter has to be charged before use in order to bring the pointer to the zero position on the scale: it is gradually discharged by the ionisation produced on irradiation so that the scale reading becomes a measure of the radiation dose. A special dynamo type of charging unit is available and this is operated by a few turns of a handle. It is quite independent of batteries, an important consideration in wartime. Charging and re-charging after use would normally be done at depots and places where forces were based. It is intended that the charging unit should be made available at controls and warden posts.

Survey Meters (one training and three operational versions).

3.4 These are used for reconnoitring and monitoring radioactive areas so that radiological control can be established and maintained.

(1) Training (No. 1 Trainer), reading 0-300 micro* —r.p.h.
*Note: micro = one millionth.

(2) Operational (No. 1) reading 0 – 3 r.p.h.

(3) Operational (No. 2) three scales, reading 0 – 3, 0 – 30, 0 – 300 r.p.h.

(4) Operational lightweight, logarithmic scale, reading 0–100 r.p.h.

Contamination Meter.

3.5 This instrument, which can be battery or mains operated, is used for detecting the presence of radioactive contamination on the skin, clothing or equipment of those who may have been working for some time in contaminated areas; particularly those who may be wounded and contaminated, e.g., on reception at Forward Medical Aid Units or hospitals.

Radiac Calculator No. 1.

3.6 This is a circular form of slide rule based upon a decay "law" for radioactivity (see paragraph 2.4), and is used mainly by Scientific Intelligence Officers. Given the dose-rate at a known time after a nuclear burst (once fall-out maximum has been reached) the dose-rate at any other time may be calculated; or the time at which a certain dose-rate will be reached through decay; or the total dose which would be accumulated by forces entering a radioactive area at a known time after burst and staying for a given period; or the time after entry at which a given total dose will be accumulated. Full instructions are printed on the back of the Calculator, but the blue sides of the discs on the Mk. I. pattern are now obsolete.

IV. Attack and Fall-out Warnings

4.1 The following types of public warning are planned to be initiated by the United Kingdom Warning and Monitoring Organisation:

Public Warning	*How given*	*Meaning*
RED	By siren	Imminent danger of air-attack—take cover.
GREY	By maroon (or other signal)	Danger of fall-out, but at least one hour before its expected arrival.

BLACK	By maroon	Imminent danger of fall-out, take refuge until further advice is received.
WHITE	By siren	No further danger from air-attack or from fall-out.

The RED public warning is planned to be sounded four or five minutes before any air-attack develops, and when the Ballistic Missile Early Warning Station for the United Kingdom is in operation it is planned to distribute this warning in a matter of seconds, so that the public should still get four to five minutes warning of attack.

It will be noted that message GREEN indicating cancellation of GREY or BLACK may still be sent but is no longer intended for issue as a warning to the public.

Fall-out Completed.

4.2 Regional headquarters (and in the case of Scotland, Zone headquarters) will issue a Message BLUE by telephone to subordinate controls when it has been established that the deposition of fall-out from a nuclear weapon affecting that Region (or Scottish Zone) is complete and no further fall-out is expected from any other weapon which has already dropped. Receipt of this Message enables procedures for release of the public from refuge to be initiated after local checks have been made on the intensity of the fall-out radiation.

V. Control of the Public in Fall-out Areas

5.1 It is proposed to nominate FOUR Zones of residual radio-active intensity in relation to protective measures required to be taken by ALL persons in these Zones.

The proposed Zones and an indication of the protective "drill" likely to be necessary are set out in the following **table:**

Zone	*Dose-rate at H+48 hours*	*Summary of permissible and recommended action*
W	Less than 0.3 r.p.h.	Remain in refuge until released, which can be as soon as dose-rate falls to 0.3 r.p.h. or when fall-out is complete if the rate has not reached that figure.
X	0.3—3 r.p.h.	Remain in refuge until H+48 hours; then qualified release. Indoor workers to follow normal occupations, but not to exceed 4 hours per day in the open for the next 5 days. Outdoor workers would have to do half shifts to keep within this figure. At the end of a week the zone would be normal, except that all would be advised to be out of doors as little as possible, and not in any case to exceed 8 hours per day in the open for the next 3 months.
Y	3—10 r.p.h.	Remain in refuge until at least H+48 hours; then release under stringent control. For the next 12 days time in the oper should not exceed 2 hours per day. On this basis essential indoor workers should be able to get to their work, but outdoor work would remain suspended. After the first fortnight it would be possible to increase the essential time spent out of doors to 4 hours per day for the next three weeks, increasing this to 8 hours per day thereafter for the rest of the first year.
Z	10 r.p.h. or more	Remain in refuge until told to leave. All movement outside refuge in this zone would be dangerous. People should remain until instructions for clearance are given; they should then leave by the nominated route if they have means of transport—or wait in their refuge to be collected if they have not. The clearance operation might start after H+48 hours and removal from the Zone would be for at least 3 months.

Operational Control in Fall-Out Areas.

5.2 (a) If essential operations are to produce the most profitable return in casualties and others rescued, then incoming rescue and first aid units may have to penetrate where practicable (e.g. where the fire and debris situation permit) even though they incur their WED of 75r in a single shift of 8 hours (and are then replaced).

This would mean an average dose-rate of $\frac{75}{8} = 9.4$ r.p.h., but for practical planning, work can be maintained for this period (less time taken for entry and exit) where the dose-rate is about 10 r.p.h.

Controllers will therefore require 10 r.p.h. contours at the time of first practicable deployment and at successive 8 hourly times to be displayed on their operational maps—once fall-out maximum (FOM) has been recorded—so that they can estimate the casualty task uncovered by these contours and deploy the necessary strength of rescue and first aid units.

(b) Some forces, e.g. ambulances, could however operate more profitably where their WED is spread out over longer periods than 8 hours and by working at lower dose-rates than 10 r.p.h.

(c) Conversely other units, e.g. Reconnaissance Parties with special responsibility for rapid penetration, may have to take their WED without heed to the 10 r.p.h. line, and their working shift will have to be regulated accordingly to keep within the permitted maximum dose.

VI. Other Forms of Attack

6.1 Although Nuclear Warfare presents probably the greatest potential danger from destruction and casualty production, other forms of attack, e.g. Biological or Chemical Warfare, or high explosive and incendiary bombs, may be used either by themselves or in combination with a nuclear attack.

Detection of B.W. agents and C.W. gases.

6.2 Protection can only be ensured, whether against B.W. or C.W. by putting on the respirator immediately bombs or other missiles burst in the vicinity, and by keeping it on until the local "B.W. and C.W. clear" signal is given. Under no circumstances should smelling tests be made (as used to be the case before the introduction of nerve gases and B.W. agents). Methods of detection are, therefore, confined to what can be done while wearing a respirator.

Two chemical detectors are available for determining the presence of war gases. These are:

(a) *Detector Powder:* Used to detect the presence of LIQUID gases and identify them. The powder is the colour of white pepper and is supplied in canisters with perforated ends so that it can be sprinkled on to any suspicious liquid. It gives different colour reactions for different liquid gases. In contact with liquid mustard gas it changes to RED and with liquid nerve gas to a YELLOW-ORANGE colour.

(b) *Vapour Detector:* Detector powder will only detect liquid contamination. It is necessary, therefore, to have some means of identifying the vapour. A chemical detector known as the Kit Vapour Detector (K.V.D.) is available for this purpose. It consists of apparatus and reagents which will detect the presence of nerve and blister gas vapour.

The detection of B.W. agents is extremely difficult, and is not normally within the scope of anyone without laboratory facilities—except that if fragments other than those of H.E. or incendiary bombs are found, and the two chemical detector tests already mentioned give negative results, a B.W. agent may be suspected. Observation of the action of nearby birds and small animals may give further indication that some unusual and dangerous substance has been used.

B.W. and C.W. Warnings.

6.3 In such circumstances the warden takes the following action immediately:

(a) Sounds local warning by means of a hand rattle.
(b) Reports "C.W." or "suspected B.W."
(c) Cordons off object or area of liquid contamination.

The task of confirming or otherwise the presence of a B.W. agent will be undertaken by specially trained personnel after fragments, samples of earth, etc., have been collected under the guidance of a Scientific Intelligence Officer for analysis in laboratories where such facilities are provided.

The local clear signal will be the ringing of handbells as and when an area becomes clear of B.W. and C.W. agents.

B.W. and C.W. Precautions.

6.4 *Respirators:* The respirator is the primary means of protection against B.W. and C.W. agents. It must be kept in good condition and correctly adjusted. Once it has been

established that the enemy is using or thought likely to use B.W. or C W., respirators must be put on immediately any bombs are heard bursting on the ground or in the air.

House or shelter: An intact closed house, or a shelter provided with a closely fitting blanket-covered door, offers, for a limited period, considerable protection from war gas vapour and/or a cloud of germs.

When out of doors: Civil Defence workers who must remain in the open and those who are out of doors when the "Alert" sounds must take every precaution to protect themselves. They should ensure that their heads, necks and hands are protected; in other words as little bare skin as possible should be left exposed.

Avoiding contamination: As far as essential duties permit, personnel should keep well upwind of any known sources of contamination, because gas and germs travel with wind. Nobody should needlessly walk on contaminated ground or brush against surfaces which may be contaminated. If clothing, boots or shoes have been contaminated, they must be removed as soon as possible and not taken inside any building.

Food and drink: Larders in houses should be kept closed when not in use, and all food and drink which is not in sealed containers should be kept covered, e.g. by using inverted basins and saucers. Crockery, cutlery and cooking utensils should be thoroughly washed in boiling water if there is reason to suspect they have been exposed to B.W. or C.W. agents.

Additional precautions against B.W.: Maintain personal and domestic hygiene at highest possible level. Keep the mouth clean by washing it out with warm water or normal saline. Report any sickness of persons and animals, and any rats and mice found dead. Reduce uncontrolled movement in or out of infected areas.

Personal Cleansing (C.W.).

6.5 Any suspicious liquid on the skin should immediately be "picked" or dabbed off with a wet handkerchief, rag or other absorbent swab, care being taken to avoid spreading the contamination and to dispose safely of the swabs used.

Quickly follow with thorough washing of affected parts with soap and water. It is obvious that the individual must first be protected from further exposure by putting on a respirator (if this is not already being worn).

If liquid has entered the eyes, immediately wash out thoroughly with a stream of water for at least a minute. If no help or water bottle, etc., is available, plunge the head into clean water in any available container (e.g. fire bucket), keeping the eyes open.

If liquid has been swallowed (e.g. in contaminated food or water, immediately try to produce vomiting (e.g. by tickling the throat or giving an emetic such as a large amount of salt and water to drink).

Contaminated clothing must be promptly removed, and if possible the whole body washed with soap and water.

Even after exposure to vapour only (and this is particularly important should it be mustard gas) clothing should be changed, keeping the respirator on until this is done, and if practicable washing the whole body with soap and water before fresh clothing is put on.

VII. Elementary Fire Prevention and Fire-Fighting

Basic Protective Measures.

7.1 The precautions which can be taken are directed along three main lines, viz:

(a) preventing heat radiation from penetrating into the building by shuttering or blocking up windows and entrances;

(b) preventing radiation from striking readily inflammable materials such as paper, textiles and the like, by removing them from the possible path of heat radiation, or covering them;

(c) reducing the inflammability of materials in which a fire might be started, by treating them suitably.

Emphasis is placed on interior preventative measures because it is unlikely that fire could be started on the outside surfaces of buildings, except at such close range that the buildings would not survive in any case. Doors and window

frames might catch alight momentarily, but this would be unlikely to cause continuing fires. The main danger is from the materials usually found indoors; the walls of buildings will, of course, keep out heat radiation, so that heat can only enter by way of windows, skylights or doors opening directly to the outside. Exterior doors are nearly always at ground level and are usually shielded by other buildings, so that the risk from this particular cause is small.

Prevention of Penetration by Heat Radiation.

7.2 The risk of fire from heat radiation can be very greatly reduced by the simple expedient of whitewashing the window-panes. Glass in itself offers little protection against heat radiation, no more than it stops the heat of the sun. Whitewash on its surface, however, reflects about four-fifths of the heat and reduces the penetrating power of the latter considerably. The same thing applies equally to skylights as to windows.

It is an important characteristic of heat radiation that it travels through the air much faster than does the blast wave. As a result of this, the effects of the heat radiation are largely over by the time the blast wave arrives; for instance, at a range of ten to fifteen miles, 80 per cent. of the heat has been received at any given point by the time of the arrival of the blast. So that, although the glass of windows or skylights may later be shattered, most of the necessary protective work of the whitewashed glass will have been done by that time.

A wooden screen fitted to the window can be used as a deterrent to heat radiation; the wood may become charred by radiation on the outside, but it should prevent fires being started in the room. All such screens should be whitewashed on the outside to reduce the risk of ignition. If curtaining material is very heavy it, too, will serve to keep heat radiation out, though there is a risk of the curtains themselves igniting. Where a window is not needed to light the room, it can be blocked up. If wooden boards are used for this purpose they should be whitewashed on the outside: they may be carried away by the blast-wave, but by then they should have done most of their useful work.

Fire-Fighting Hints.

7.3 Some important points in fire-fighting are listed below in the form of "DO'S" and "DONT'S".

DO keep ample supplies of water ; YOU CAN'T HAVE TOO MUCH.

DO keep all fire-fighting equipment in good order and ready for action.

DO get to know as much as you can about the layout of buildings in which you might have to fight fires.

DO make certain that no one is lost or trapped in a building which is on fire.

DO get in as close as you can to a fire when you are fighting it.

DO make sure you aim for the heart of a fire when you direct a jet on it.

DO make quite sure that all fires are really out before you leave the scene of the fire.

DO keep close to walls, where floors and stairs are strongest, when moving in a damaged or burning building.

DO see that the gas is turned off at the main before fire-fighting starts, if it is practicable to do so.

DO break a panel near the lock when you need to force a door.

DO make sure you always know:
where fires should be reported, and in what circumstances; where the nearest emergency water supplies are.

DON'T lose your head, whatever the circumstances.

DON'T be caught unawares in a burning building from which you don't know more than one way out.

DON'T admit air to a fire by opening doors or windows before it is safe to do so.

DON'T go alone into a burning building, even to save life, if you can go as one of a pair.
DON'T direct water or foam on to live electric wiring.
DON'T switch on electricity during fire-fighting.
DON'T let anything unnecessarily delay your attack on a fire, even by seconds.

VIII. Message Procedure

Writing Messages

8.1 (a) Never sacrifice accuracy for speed—make sure writing is legible.

(b) Write all messages beforehand whatever means of sending is adopted.

(c) Use BLOCK CAPITALS for:

(i) Addresses
(ii) Names
(iii) Points of compass (which must be in full, e.g. NORTH)
(iv) The word NOT
(v) Months of the year (always the first three letters, e.g. JAN)

(d) Write full stops as a circle with a dot in the centre thus ⊙. No other punctuation marks should be used. The figure '0' is spoken as Zero and is written thus θ.

(e) Write dates as follows: 16 JAN, 3θ APR.

(f) Fractions, mathematical and other signs are written in words, e.g.

2.5 as 2 pt 5
7/8ths as seven eighths.

(g) The 24-hour clock system will be used.
All 24-hour clock times express the number of hours and minutes which have elapsed from the previous midnight and consist of four figures. Reading from left to right these figures represent the hours in tens, the hours in units, the minutes in tens and the minutes in units, e.g.

12.5 a.m. becomes 0005 hrs. and should be spoken as "zero zero, zero fi-yiv hours".

10.00 a.m. becomes 1000 hrs. and is spoken as "Wun zero hundred hours".
10.35 a.m. becomes 1035 hrs (wun zero thuh-ree fi-yiv hours).
Noon becomes 1200 hrs. (wun too hundred hours).
4.9 p.m. becomes 1609 hrs. (wun six zero niner hours).
Midnight is given as a minute before or a minute after e.g.
2359 hrs. or as 0001 hrs. (zero zero, zero wun hours).

(h) Date-Time Group is always six figures, the first two of which are the date, e.g. θ51125 and 21θ615.

(i) Send message over telephone or wireless phrase by phrase and allow sufficient time for receiving operator to write it down.

(j) Spell words about which there may be misunderstanding by using the N.A.T.O. phonetic alphabet and precede by saying "I spell", e.g. "Proceed to—I spell—BRAVO - OSCAR - UNIFORM - GOLF - HOTEL—Bough Lane".

(k) Where an initial letter is used for identifying, it will be spoken phonetically, e.g. "SECTOR 'K'" would be spoken as "SECTOR KILO".

(l) Say "full stop" and NOT "stop".

(m) Indicate inverted commas by "quote" at beginning and "unquote" at end.

(n) Where the use of an oblique stroke (/) is necessary, it should be spoken as "oblique", e.g. "and/or" should be spoken as "and oblique or".

(o) Be as brief as is consistent with accuracy.

Use of Message Form

8.2 (a) Use Form F. Sigs. 52 (small and large) for all written messages.

(b) Enter designation of control or post in spaces "FROM", "TO", and in "INFO" (when necessary).

(c) Individual names should not be entered in these spaces, but should preface the text if the message is

intended for a particular person or holder of an appointment, e.g. "For BROWN", "For rsc colm offr".

(d) Complete Date-Time Group box (top right hand corner).

(e) Sign name as originator in
  (i) the signature space on F. Sigs 52 (small)
  (ii) releasing officer's signature space on F. Sigs 52 (large).

(f) The following order should be followed in transmitting a message:
  1. FROM (give designation)
  2. TO (give designation)
  3. INFO (give designation)—(where required)
  4. Text of message as written by originator
  5. End with DATE-TIME-GROUP

(g) Complete "FOR OPR'S USE" boxes; under "SYSTEM" insert as appropriate, and add initials in the "OPERATOR" box.

APPENDIX A

N.A.T.O. Phonetic Alphabet and Numerals

Letter	Phonetic Equivalent	Pronunciation
A	ALFA	*AL* FAH
B	BRAVO	*BRAH VOH*
C	CHARLIE	*CHAR* LEE
D	DELTA	*DELL* TAH
E	ECHO	*ECK* OH
F	FOXTROT	*FOKS* TROT
G	GOLF	GOLF
H	HOTEL	HOH *TEL*
I	INDIA	*IN* DEE AH
J	JULIETT	*JEW* LEE *ETT*
K	KILO	*KEY* LOH
L	LIMA	*LEE* MAH
M	MIKE	MIKE
N	NOVEMBER	NO *VEM* BER
O	OSCAR	*OSS* CAH
P	PAPA	PAH *PAH*
Q	QUEBEC	KEH *BECK*

R	ROMEO	*ROH* ME OH
S	SIERRA	SEE *AIR*RAH
T	TANGO	*TANG* GO
U	UNIFORM	*YOU* NEE FORM
V	VICTOR	*VIK* TAH
W	WHISKEY	*WISS* KEY
X	X-RAY	*ECKS* RAY
Y	YANKEE	*YANG* KEY
Z	ZULU	*ZOO* LOO

Notes:

1. "Roger", meaning "I have received your last transmission satisfactorily", is a "proword" (a procedural word in radio telephony) and will be retained until further notice. "Romeo" is not to be used to replace "Roger" as a proword.
2. The General Post Office will continue to use their own phonetic alphabet, as the NATO alphabet, which is intended for use by trained personnel, is not considered suitable for use by the general public.

Number	Pronunciation
0	ZERO
1	WUN
2	TOO
3	THUH-REE
4	FO-WER
5	FI-YIV
6	SIX
7	SEVEN
8	ATE
9	NINER

Figures are spoken thus: 1609 "figures wun six zero niner" except when exact multiples of a hundred or a thousand are concerned. These are spoken as:

100	—	figures, wun hundred
1,000	—	figures, wun thousand
2,000	—	figures, too thousand
40,000	—	figures, fo-wer zero thousand

(See paragraph 8.1 (g) for transmission of numerals where referring to time).

APPENDIX B

List of Abbreviations for Use in Civil Defence

In full	*Abbreviation*
Accommodation	accm
Acknowledge, acknowledged or acknowledgement	ack
Administration or administrative	adm
Ambulance	amb
Ambulance check point	ACP
Ambulance loading point	ALP
As soon as possible	ASP
Assistant(ce)	asst(ce)
Battalion	bn
Battery	bty
Biological Warfare	BW
Bridge, bridging	br
Brigade	bde
Building(s)	bdg(s)
Casualty(ies)	cas
Chemical Warfare	CW
Chief Sector Warning Officer	CSWO
Civil Defence	CD
Column	colm
Command, commanded or commander	comd
Communication(s)	comm(s)
Company	coy
Company Equipment Vehicle	CEV
Control or controller	con
Cross Roads	Xrds
Date—time group	DTG
Despatch rider	DR
Doserate at 7 hours (etc.)	DR7(etc.)

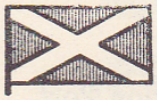
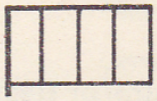
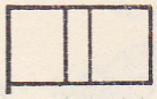
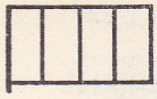
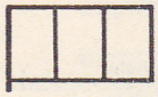
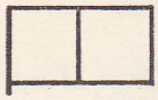
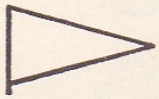
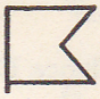
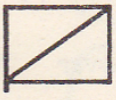
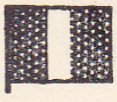
In full	*Abbreviation*
Electricity	elec
Equipment	eqpt
Estimate(d)	est
Estimated time of arrival	ETA
Estimated time of completion	ETC
Estimated time of departure	ETD
Evacuate, evacuated or evacuation	evac
First Aid Party or Post....	FAP
Fallout (arrival) (complete)	FO(A)(C)
(limit) (maximum)	(L)(M)
Field Cable Party	FCP
Forward or forwarded	fwd
Forward Medical Aid Unit	FMAU
Grid reference	GR
Ground Zero	GZ
Group	gp
Headquarters	HQ
High Explosive	HE
Homeless....	hmls
Hospital	hosp
Hospital Area Officer	HAO
Hour(s)	hr(s)
Include(s), included, including or inclusive	incl(s)
Inform, informed, information or for information of	info
Injured (but see seriously injured)	inj
Intelligence Officer	IO
Junction	junc
Kiloton	KT
Leader	ldr
Liaison Officer	LO
Local Authority	LA

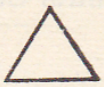
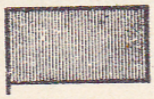
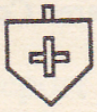
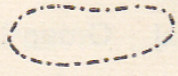
In full	*Abbreviation*
Location, locate, locality, located or locating	loc
Medical	med
Medical Officer	MO
Medical Officer of Health	MOH
Megaton	MT(normally with a preceding number)
Message or messenger	msg
Meteorological or meteorology	met
Mobile or mobilisation	mob
Movement	mov
Officer	offr
Operate, operated, operation, operational or operator	op
Operational Base	OB
Operational Reporting Code	OPREP
Party	pty
Patrol Post	PP
Personnel Carrying Vehicle	PCV
Personnel and Equipment Vehicle	PEV
Platoon	pl
Point	pt
Post Warden	PW
Principal Medical Officer	PMO
Radiactivity, radioactive	rad A
Radio telephony	RT
Railway	rly
Reconnaissance or reconnoitre	recce
Region	reg
Regional Commissioner	RC
Regional Fire Commander	RFC
Regional Police Commander	RPC

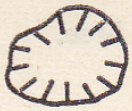
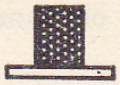
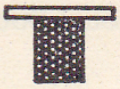
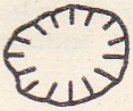
In full	*Abbreviation*
Regional Scientific Adviser	RSA
Reinforcement	rft
Rendezvous	RV
Required	reqd
Rescue	rsc
Restricted	RESTD
Roentgens per hour	rph
Royal Observer Corps	ROC
Sector Operations Centre	SOC
Scientific Intelligence Officer	SIO
Second, section or sector	sec
Sector Post	SP
Senior Administrative Medical Officer	SAMO
Seriously injured	SI
Signal(s)	sig(s)
Situation	sit
Situation report	SITREP
Staff Officer	SO
Station	sta
Stretcher bearer	SB
Telephone	tele
Temporary	temp
Time of Despatch	TOD
Time of Receipt	TOR
Towards	twds
Transport	tpt
Unclassified	UNCLAS
Unexploded missile(s)	UXM(s)
Vehicle	veh
Warden	wdn
Warden Post	WP
With effect from	wef

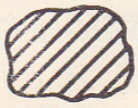
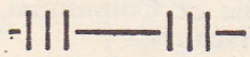
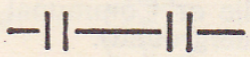
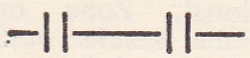
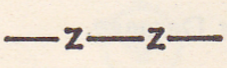
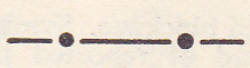
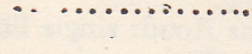
APPENDIX C

Map Symbols Used in Civil Defence

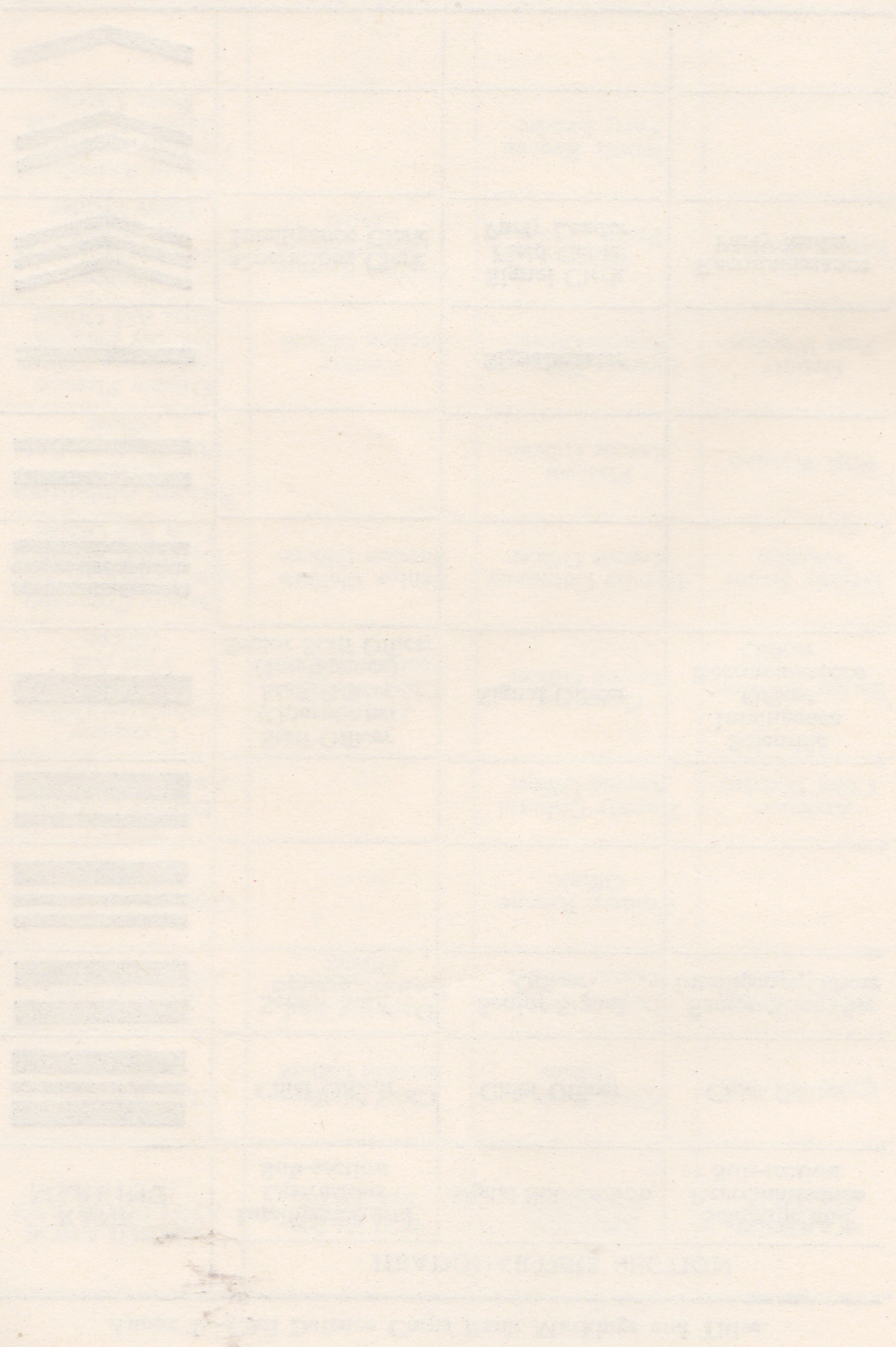
Serial	Symbol	Colour	Definition
1		Blue with white cross.	Scottish Central Control.
2		Black. (Hollow).	Regional Headquarters or Zone Control.
3		Black. (Hollow).	Sub-Regional Control.
4		Green. (Hollow).	Group Control.
5		Green. (Hollow).	Area Control.
6		Green. (Hollow).	Static Sub-area Control.
7		Green. (Hollow).	Mobile Control (Sector level).
8			
9		Green. (Hollow).	Mobile Control (Sub-area level).
10		Green. (Hollow).	Sector Post.
11		Green. (Hollow).	Wardens' Post.
12		Green Dot.	Patrol Post.
13		Green with white stripe.	Industrial Group Control Post.

Serial	Symbol	Colour	Definition
14		Green. (Solid).	Industrial Control Post.
15		Green. (Hollow).	Observation Post.
16		Red. (Solid).	Fire Control or Headquarters.
17		Blue. (Solid).	Police Control or Headquarters.
18		Red with white background.	Acute Hospital.
19		Red with white background.	Auxiliary Hospital.
20		Red with white background.	Home Cover Hospital.
21			
22		Red with white background.	Forward Medical Aid Units.
23		Red with white background.	Main Ambulance Depots.
24		Red with white background.	Home Cover Ambulance Station.
25		Red with white background.	Ambulance Loading Point.
26		Red with white background.	Ambulance Check Point.
27		Red	Hospital Area.

Serial	Symbol	Colour	Definition
28		Green. (Solid).	Rest Centre.
29		Green. (Hollow).	Information Centre.
30		Green. (Hollow).	Emergency Feeding Centre.
31		Green. (Hollow).	Assembly Area.
32		Green. (Solid).	Public or Communal Shelter (Surface).
33		Green. (Solid).	Public or Communal Shelter (Underground).
34		Green triangle (solid) in hollow circle.	Civil Defence Depot or Operational Base.
35		Black. (Hollow). Green. Hollow).	Regional, Zone or Sub-Regional Rendezvous. Rendezvous (where necessary indicate identity).
36		Brown	Area of complete destruction.
37		Brown.	Heavy Damage.
38		Brown.	Light Damage.
39		Brown.	Road blockage. Symbol to be placed at reported point of blockage.
40		Blue. Blue. Blue.	Clear Road: single line traffic (one way only). Clear Road: double line traffic. Clear Road: single line traffic (two way).

Serial	Symbol	Colour	Definition
41		Red.	Area containing isolated fires.
42		Red.	Area of severe fire.
43		Yellow.	C.W. Area of Contamination.
44		Blue.	Flooded Area.
45		Black.	Regional or Zone Boundary.
46		Black.	Sub-Regional Boundary.
47		Green.	Boundary of territory controlled by a Group control.
48		Green.	Boundary of territory controlled by an Area control.
49		Green.	Boundary of territory controlled by a static Sub-area.
50		Green.	Boundary of territory controlled by a mobile Sub-area control.
51		Green.	Sector (static) area boundary.
52		Green.	Boundary of territory controlled by a mobile control (Sector).
53		Green.	Warden Post area boundary.
54		Green.	Patrol area boundary.

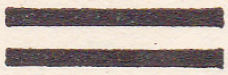
Note: In the case of symbols 1–7, 9–11, 13, 16 and 17 the bottom of the post should indicate the actual location of the headquarters.



APPENDIX D

Badges of Rank

Annex I—Civil Defence Corps Rank Markings and Titles.

RANK MARKING	HEADQUARTERS SECTION		
	Intelligence and Operations Sub-section	Signal Sub-section	Scientific and Reconnaissance Sub-section
	Chief Officer	Chief Officer	Chief Officer
	Senior Staff Officer	Senior Signal Officer	Senior Scientific Intelligence Officer
			
			
	Staff Officer (Operations) Staff Officer (Intelligence) Sector Staff Officer	Signal Officer	Scientific Intelligence Officer Reconnaissance Officer
			
			
		Signalmaster	
	Operations Clerk Intelligence Clerk	Signal Clerk Field Cable Party Leader	Reconnaissance Party leader
			
			

WARDEN SECTION	RESCUE SECTION	WELFARE SECTION	AMBULANCE AND FIRST AID SECTION
Chief Warden	Chief Rescue Officer	Chief Welfare Section Officer	Chief Ambulance Officer
Deputy Chief Warden	Deputy Chief Rescue Officer	Deputy Chief Welfare Section Officer	Deputy Chief Ambulance Officer
	Column Rescue Officer		Column Ambulance Officer
Assistant Chief Warden	Deputy Column Rescue Officer		Deputy Column Ambulance Officer
Sector Warden	Company Rescue Officer	Assistant Chief Welfare Section Officer	Company Ambulance Officer Company First Aid Officer
Deputy Sector Warden	Deputy Company Rescue Officer	Senior Welfare Section Officer	Deputy Company Ambulance Officer Deputy Company First Aid Officer
Post Warden	Platoon Rescue Officer		Platoon Ambulance Officer Platoon First Aid Officer
Deputy Post Warden	Deputy Platoon Rescue Officer	Welfare Section Officer	Deputy Platoon Ambulance Officer Deputy Platoon First Aid Officer
Senior Warden	Rescue Party Leader	Welfare Section Detachment Leader	Ambulance Detachment Leader First Aid Party Leader
	Deputy Rescue Party Leader		Deputy Ambulance Detachment Leader Deputy First Aid Party Leader

Annex II—The Army

Appointment	*Rank*	*Rank Marking*
Army District Commander	Major General	Crossed sword and baton surmounted by star
Brigade Commander	Brigadier	Three stars surmounted by crown
Battalion Commander	Lieutenant Colonel	One star surmounted by crown
Company (Battery) Commander	Major	Crown
Company (Battery) 2 i/c	Captain	Three stars
Platoon (Troop) Commander	Lieutenant	Two stars
	or	
	2nd Lieutenant	One star
Platoon (Troop) 2 i/c	Sergeant	Three bar chevron (on sleeve)
Section Commander	Corporal (Bombardier)	Two bar chevron (on sleeve)
	or	
	Lance Corporal (Lance Bombardier)	One bar chevron (on sleeve)

Annex III—The Police

Rank	*Metropolitan and City of London Police Forces*	*County and Borough Police Forces*
Chief Constable	—	Crossed tipstaves within laurel leaves surmounted by crown
District Commanders (Metropolitan Police only)	Crossed tipstaves within laurel leaves surmounted by star	—
Deputy Commanders (Metropolitan Police only)	Crossed tipstaves within laurel leaves	—
Assistant Chief Constable	—	Crossed tipstaves within laurel leaves
Chief Superintendents	Crown and two stars	Crown and star
Superintendents		
Grade I	Crown and star	—
Grade II	Crown	Crown
Chief Inspectors	Three stars	Three stars
Inspectors	Two stars	Two stars
Temporary Inspectors	One star	One star
Station Sergeants (Metropolitan Police only)	Three bar chevron and crown (on sleeve)	—
Sergeants	Three bar chevron (on sleeve)	Three bar chevron (on sleeve)
Acting Sergeants	Two bar chevrons (on sleeve)	—
Constables	—	—

Annex IV—The Fire Service

As the Nationalised Fire Service only becomes operative in wartime, badges of rank are not published at this stage.

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