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CIVIL DEFENCE

THE ATOM BOMB ITS EFFECTS & HOW TO MEET THEM

PART 2

"HEAT"

FILM STRIP C.D. 32

LECTURE NOTES

LONDON : HER MAJESTY'S STATIONERY OFFICE
1953

NOTES FOR THE INSTRUCTOR

1. THE INSTRUCTOR

The qualities required in a good instructor are as follows:-

(i) Must be PURPOSEFUL
(ii) KNOW the SUBJECT
(iii) Be PAINSTAKING
(iv) ENTHUSIASTIC
(v) Have a DRAMATIC SENSE
(vi) A PLEASING MANNER
(vii) Must have the right ATTITUDE towards the class.

2. THE STUDENT

The student is largely dependent on his five senses for acquiring knowledge. If the training is to be most effective, therefore, it should be directed more or less simultaneously to as many of these senses as possible.

3. THE LECTURE

The Instructor should use every possible device to maintain the interest of his class, and to prevent boredom. Introduce drama, surprise and variety; encourage questions; etc.

The lecture should be short and, if necessary, broken up into small periods. The breaks may be made by means of visual aids, something dramatic, a few test questions or a summary.

4. THE FILM STRIP

The film strip is merely one of the visual aids to instruction and the lesson should be planned and prepared by previewing the strip in conjunction with the notes, so that the best use may be made of the strip in presenting the lesson.

The film strip should not be used as a substitute for demonstration. It should be followed, whenever possible, by demonstration and practical work. (This obviously will not apply to every film strip).

5. THE INSTRUCTOR'S NOTES

The notes given in this booklet are not as they stand, intended to be read to the class, but are designed to assist in the preparation of the lecture.

HOW TO USE THE FILM STRIP

1. Screening and projection should be prepared and checked before the lecture.

2. The projector is best placed as close to the screen as the size of the class permits, and should be central to the screen to minimise distortion of the picture. It should be set high enough to project the image above the heads of the students. The projected picture can generally be raised or lowered by means of milled screws at the bottom of the projector. Before using the projector, make certain that the electricity supply is of correct voltage.

3. Focus the film strip on the screen at the beginning of the lecture. The "focus frame" included at the beginning of the strip is provided for this purpose. If a proper screen is not availa
stretched free from wrinkles. Any white, opaque material or surface (e.g. a white wall) will do in an emergency. Total darkness is not normally necessary.

4. Orderly seating helps to create an attitude of attention and may prevent vision being obstructed. A rear row of seats should be at a distance from the screen not greater than 6 times the WIDTH of the projected picture. The front row should be at a distance not less than twice the DEPTH of the projected picture. The seats should be situated within an angle of 30^{o} extending outwards from either side of the projected picture.

5. Film strips should be wound with the emulsion (or dull) side outwards, so that, when threaded, this dull side faces the lamp.

6. The projector should be properly maintained if it is to project the pictures as clearly and efficiently as possible. Lenses and glass aperture plates should be cleaned and polished regularly with methylated spirit or other suitable cleaning fluid, and finished off with dry chamois leather. Aperture plates should not normally be removed.

Final

FILM STRIP CD 32

The Atom Bomb - its effects and how to meet them

PART 2

HEAT

INTRODUCTION

The Heat flash as it is called, may start a number of primary fires - it is not dangerous to human life provided that a person has some form of protection.

Those people exposed in a direct unshielded line to the bomb will be affected.

FRAME

1 Heat flash produces its own phenomenon, that of Flash burn shadow. All the area surrounding an object is affected by the intense momentary heat of the flash with the exception of that part directly in the shadow of the object, like this fern leaf.

2 This effect occurs so rapidly that the outline of the leaf is clearly left before the leaf itself is destroyed.

3 In this case the shadow of a man was left. (The debris has been cleared showing that the heat flash came before the blast.)

4 Here the flash came through the window and left the imprint of a man's pipe.

5 This phenomenon can be used in determining the direction of ground zero. Simple devices, like this board fixed in suitable positions will give both the height and direction of the burst.

6 The shadow will be indelibly marked on the board while it is still in place and the reading will be true no matter where the blast may shift the board.

FRAME

7 Should the population have failed to take cover prior to the explosion severe skin burns would be very heavy up to a distance of two miles from ground zero in clear weather.

It is important to realise that weather conditions at the time of the explosion have a marked effect on the range of the heat flash. In heavy mist, rain or fog the effective range of the flash is more than halved.

8 Types of clothing worn by unsheltered people will also affect the number of injuries from burns. Covering of all normally exposed parts of the body with any material will invariably lessen the severity of the burns.

9 If a person is shielded from the direct heat flash there is no danger.

10 The indirect danger is from fires started by the flash. Any easily inflammable material exposed within a two mile radius of ground zero, in clear weather, is liable to be ignited by the heat flash, although it is very unlikely that there will be many fires beyond the $1\frac{1}{4}$–$1\frac{1}{2}$ mile radius.

11 In this country little use is made of wood or other combustible materials on the exterior of buildings. The main danger from fire would be internal, the flash entering through windows and other apertures directly exposed to the flash and it is therefore likely that a large number of primary fires will be started on the upper floors of the buildings.

12 The fires may be quite small and can be dealt with by hand operated fire fighting equipment.

It is important that small fires in otherwise undamaged areas be dealt with quickly. Otherwise the spread of such fires would seriously impede the fire fighting and rescue squads endeavouring to reach the more heavily damaged area.

FRAME

13 The risk of fire from heat flash can be greatly reduced by white-washing window panes. As the blast wave travels much slower than the heat flash, the glass will not be shattered until after the heat flash has done its harm.

14 At night time a wooden "black out screen" fitted to the window will also serve as a deterrent to heat flash. All such screens should be white-washed on the outside.

15 If the curtaining material is very heavy it will also serve to stop the heat flash entering, but there is a risk of the curtains themselves igniting.

16 There are several ways of making materials fire resisting, this can be done at home, and householders will be advised on how this is best done.

17 The most serious fire situations may be expected at the three-quarter mile range from ground zero. This will include a number of secondary fires started by collapsing buildings.

18 It will be important to warn the public that all domestic cooking and heating appliances must be turned off at the mains before taking cover.

19 Fire will be a very grave danger to human life and property after an atomic bomb explosion, and fire fighting equipment should be kept readily available.

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