

3. Gas shells are about 1·8 kg. (4 lb.) heavier than ordinary shells. No particular precautions are necessary when handling them and they are stored and loaded like ordinary shells.

If it is noticed that the chemical is escaping from the shell, the shell should be condemned and exploded.

4. The bursts of gas shells are no more difficult to observe than those of ordinary shells. The amount of smoke produced by the explosion is identical.

II.—Employment.

1. Owing to the differences in the action of the chemical they contain, the two kinds of shell are employed for different purposes.

"T" shells are used against a position or an area, the use of which is to be denied to the enemy for some time. These shells, however, possess the disadvantage of preventing our troops from occupying the ground we have shelled, and even, in certain cases, from moving across it, until a certain period has elapsed.

"K" shells are used when it is intended to drive the enemy quickly from a position with a view to occupying it by our own troops or to their passing through it.

2. *Examples.*—(a) An infantry position is to be captured and no further advance or only a very slight advance beyond it is intended: it is intended that our own troops should make use of the enemy's trenches

"K" shells are used.

(b) It is intended to capture an enemy's position and advance beyond it.

If the position is in the open

"T" shells or "K" shells are used.

If the position is in a thick wood

"K" shells only are used.

(c) It is intended to bombard a retired hostile position, in order to neutralize it and prevent artillery observation

"T" shells are used.

(d) To neutralize possible flanking fire from an infantry position on the edge of, or inside a wood

"T" shells are used.

(e) To make an enemy, entrenched in farms or small woods, withdraw from his positions

"K" or "T" shells are used, according to whether it is intended to occupy this zone or pass beyond it.

(f) Forming barrages over whole tracts of country to prevent the arrival of reserves or to cut off the enemy's retreat

"T" shells are used.

(g) To drive artillery observers from their posts "T" shells are used.

(4) When engaging batteries and groups of batteries "K" shells are used, followed after a short interval by "T" shells.

3. *Atmospheric conditions* in general and the *wind* in particular play an important part in the use of gas shells.

A complete absence of wind, or a light wind, is most favourable. Gas shells are comparatively ineffective when a very strong wind is blowing.

It should be noted that in a large forest the wind is usually very slight or non-existent, even when a gale is blowing outside.

A wind blowing towards the enemy is, of course, the most favourable. If, however, there is only a light wind blowing, its direction is relatively unimportant.

Much moisture in the air (75—100 per cent.) is favourable.

A gentle rain is not disadvantageous: heavy rain would reduce the effect of gas shells.

Cold air (zero Centigrade) excludes all possibility of the use of gas shells.

III.—Fire Procedure.

(a) *General considerations.*

1. The increased weight of the gas shells reduces the range. Up to the present it has been found that at medium ranges the elevation must be increased by 100 metres.

2. *Firing with single guns is ineffective. The requisite amount of gas can only be obtained by firing a considerable number of gas shells.*

When firing with "K" shell, a heavy fire with percussion shell should be maintained for a very short time, in order to force the enemy to abandon his position.

When firing with "T" shell, the bombardment may be slightly prolonged. Once the gas barrier is formed, a slow rate of fire is sufficient to maintain it.

The action of the gas barrier, preventing the bringing up of reserves, should be prolonged up to the time when our own infantry have succeeded in penetrating the enemy's position.

3. In order to make full use of the explosive effect of gas shells, the gas barrier should not be formed on tracts of ground which offer no suitable objective; but, on the contrary, zones must be selected in which *points d'appui* situated in rear, camps, dépôts and exits from villages, can be made to feel the effects of our fire.

4. Before beginning a heavy bombardment in which gas shells are to be employed, such shells should not be fired singly, in order to give no warning to the enemy, who would put into effect precautionary measures.

(b) *Special points.*

1. *Firing against infantry positions.*—The width of the zone (2761-8)

allotted to each battery should be about 150 metres. The ranging of the batteries with ordinary ammunition (flank observation) should be completed before the attack begins.

Fire is generally opened against the more distant portions of the position up to 400 metres behind the front line. The ground is then covered with fire, decreasing the range by 25 metres at a time until the first line is reached.

At each of these ranges 12 rounds are fired, distributed evenly along a front of 150 metres. When the front line trench has been reached, fire is continued against it for some time (20-30 minutes), after which the range is increased by 25 metres at a time. At the same time patrols, armed with hand grenades and shields, advance towards the enemy's position to ascertain if it is still held and if the action of the gas has been sufficiently effective to enable our troops to advance and to what extent. If the enemy fires at the patrols, our fire is again directed against the front line trenches. Our infantry must also open fire against the enemy's first line trenches.

If the enemy's fire ceases or becomes very feeble, the infantry attacks as soon as the patrols have gained the enemy's front line trenches. At the same time the artillery directs its fire against the rearward portions of the line by gradually increasing the range.

The guns which are not firing gas shell observe the following rules:—

The light howitzers distribute their fire along the front of attack and bombard the first line trenches with time shell (H.E.).

The mortar batteries come into action against the strongest *points d'appui*, and, should there be none of these, against the front line trenches and the shelters in rear of them.

The field gun batteries fire on bodies of the enemy, who may evacuate the position.

The 10 cm. guns and other heavy flat-trajectory guns open fire on the approaches, reserves, &c.

2. *Firing against artillery.*—The effect of gas shells is most marked against artillery in covered emplacements, valleys, or small woods. If the artillery is silenced, another target may be engaged, for the effect of the gas lasts for some time. In certain cases it may also be possible to put the observation stations out of action for a while.

In order to hit the gunners who may be leaving the batteries, our artillery should at the same time employ time shell as laid down when engaging infantry positions.

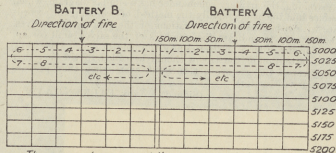
3. *Firing on a definite area with gas shells.*—The four guns of a battery are so placed that with parallel lines of fire they will cover a front of 50 metres with their fire. A series of four rounds per 50 metres of front will be fired.

The area to be covered is then searched in zones 50 metres wide and 25 metres deep, so that no gaps are left.

In order to render it impossible to cross the barrage rapidly, the latter should have a minimum depth of 200 metres. The barrage should first of all be established along its whole width, and the range should not be increased until this has been effected (see Fig. 1)

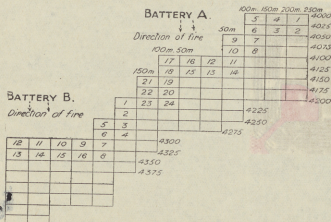
EXAMPLE OF THE FORMATION OF A GAS BARRAGE.

Fig. 1.



The numerals represent the sequence of the Salvos

Fig. 2.



The sequence in which salvos are fired will depend on the direction of the wind, the nature of the hostile positions included in the area to be shelled, and also on the intentions of our own

troops. With a ... will begin from the West; in ... towards the area in question, our salvos will begin on the rear edge of the area.

Calculations should be indicated on a diagram, the width and depth of which are proportional to those of the target. Thus Fig. 2 represents a barrage fire against a ravine situated obliquely to the angle of fire.

In order to retain control of the fire, even during the procedure of searching, the artillery commander has a similar diagram, which enables him to change rapidly the method of searching in accordance with either his own observations or the reports he receives. He has only to indicate the numbers of the salvos (omit certain salvos or else order a new series at given points).

The attention of the troops should be called to the fact that the effects of the gas are not harmful, even when they produce temporary discomfort.

(Signed) VON FALKENHAYN.

358. Memorandum
340943 regarding the
M533 employment of gas
1915 shells

RC11576.533

AUSTRALIAN WAR MEMORIAL



AWM051073