COLD WAR - Nuclear politics, 50s and 60s

Source 1

EFFECTS OF THE EXPLOSION OF A THERMO-NUCLEARBOMB

The explosion of a hydrogen bomb releases energy in three forms - blast, heat and nuclear radiation. Their relative importance depends on the distance of the bomb from the surface at the moment of explosion. Broadly speaking, the effects of blast and heat are comparatively local in all cases, whereas those of radiation may be very widespread.

2. Size of the Bomb -There is no technical limitation to the yield of this weapon. The analysis which follows is related throughout to a IO-megaton ' bomb (10M.T). The highest yield achieved in the United States experiments to date is 30M.T. The area affected-by a bomb of this yield would be about 45 per cent. greater than in the case we are considering.

3. Blast and Heat - Blast and heat are more intense from an air burst than from a ground burst. - In dull weather damage from the heat wave is somewhat less extensive than in clear air. The blast and heat resulting from the explosion of a IO-M.T. bomb would cause destruction on about the following scale:

	Air Burst 10 M.T at 20,000 feet (Radius in miles)	Ground Burst 10M.T. (Radius in miles)
(a) Surface devastation to ordinary brick houses	7.5	5.5
(b) Devastation to facilities and tunnels below ground	Nil	0.33 mile in radius and depth
© Major structural damage to brick houses	9	6.75
(d) Surface damage by fire on ordinary day	8-12	5-9

4. Radiation - The initial radiation occurring within a few seconds of detonation of a bomb, whether air burst or ground burst, is probably confined within a radius of three or four miles. The area thus affected is therefore in any case devastated by heat and blast.

The residual radiation occurring as an after-effect of the explosion varies very greatly in its effects, according to the point of burst. If the bomb bursts too high for the fire ball to reach ground level, the bulk of the radio-active materials are carried into suspension in the upper atmosphere. They are then so dispersed that they have no serious local effects when they eventually settle out.

But if the bomb bursts at or near the ground, quantities of much heavier radio-active particles are carried for a while by the winds that blow in differing directions at different levels. The pattern of precipitation is irregular, varying with the speed and direction of the air currents in the area, but a high proportion of the fall-out occurs from very high

British government report on the effects of nuclear explosions, 1954.

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Source 1 - page 2

levels where the winds are more constant in direction and speed. This tends to elongate the area of contamination in the direction of the winds there prevailing.

5. Effects of Radiation on Life.- No medical means of curing or even curbing the effects of radiation on human beings are yet known. On human beings the effects are cumulative over a considerable period, becoming lethal when a certain dosage has been absorbed. In the Marshall Islands natives on an atoll 110 miles from the explosion received about one-third of the lethal dose: Americans who remained in huts 150 miles downwind received over a tenth of the lethal dose. Both these groups were 20 miles off the main line of fall-out.

Symptoms of radiation sickness may not show for some days, or even weeks. But about one-fifth of the lethal dose produces temporary sickness, with increasing disability as absorption increases beyond this point.

On animals the direct effects are similar. (In the Marshall Islands all animal life was extinguished on an atoll 110 miles from the explosion.)

British government report on the effects of nuclear explosions, 1954.

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Source 2

DRAFT ANNOUNCEMENT

The United Kingdom will conduct a test series of nuclear explosions during 1957 in a remote part of the Pacific Ocean. The explosions will take place far from any inhabited islands and the tests will be so arranged as to avoid danger to persons or property. The tests will be high air bursts which will not involve heavy fall-out. All safety precautions will be taken in the light of our own knowledge and of experience gained from the tests of other countries.

Secret British government report advising on the reporting of Britain's nuclear testing programme, 1957.

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Source 3

SECRET

The Minister of Defence recalled that the United States Government had welcomed the assurance which had been given by the Prime Minister in the course of his meeting with President Eisenhower in March that the United Kingdom Government would be agreeable in principle to making the necessary arrangements for a United States tender and a dock for POLARIS submarines to be stationed in Scottish waters …

POLARIS submarines would be virtually invulnerable, and the United States authorities regarded them as a very important part of the diversified deterrent force which they planned to build up.

The operational characteristics of these submarines, which would cruise submerged for two or three months, would pose complex communications and other problems, and careful organisation would be required to ensure the efficiency and reliability of their crews.

The United States Government would welcome our close association with the United States Navy in this development and they hoped that the United Kingdom Government would feel able to participate, if only on a limited scale, in their POLARIS submarine plans.

The use of facilities in Scottish waters would enhance the effectiveness of the POLARIS force by about 30 per cent
…

He had explained to Mr Gates that the project raised important political and defence considerations. In order to justify it to public opinion ion this country it would have to be presented as a joint project. This could be achieved if the United States government were to give us an option to purchase or build our own Polaris submarines.

Extract from discussion in the British Cabinet about Britain's nuclear weapons, particularly the Polaris nuclear missile system.

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Source 4

CABINET DISARMAMENT

2 The Western position for the coming Disarmament talks is based on the United States Disarmament programme, presented by President Kennedy to the United Nations General Assembly in September, 1961. We played a considerable part ourselves in the drafting of this. The Russian position will be based, so far as we know, on their Disarmament Plan presented to the United Nations General Assembly in September, I960, though they may still come forward with a new plan. The main differences between the two are

(i) The Russian provision for fixed time limits (four years for the whole process of disarmament)....

(ii) Russian insistence that 'foreign bases' should be evacuated in the first stage of their plan, and foreign troops withdrawn from Europe as a preliminary measure.

(iii) Russian provision that all nuclear delivery vehicles, without distinction between "strategic" and "tactical", should be destroyed in the first stage,

(iv) United States provision for a 'cut off' of production of fissionable material for weapons purposes in the first stage (the Russians provide for a second stage cut off only).

(v) Russian insistence (made clearer in subsequent memoranda than in their plan) that "control" or "verification" should apply only to the destruction of agreed quantities of weapons, and that there should be no check on the stocks remaining, or the new weapons produced, after destruction

(vi) United States insistence that the later stages of disarmament should be accompanied by the rapid development of effective international peace- keeping machinery, including an effective international peace-keeping force.

3. The Russian proposals are quite unacceptable to us, principally because of their position on verification; their effort to restrict our deployment by demanding the evacuation of foreign bases and troops; and their proposal to abolish the nuclear deterrent completely at an early stage. In spite (or because) of this, their plan has considerable appeal to thoughtless or frightened people every- where …

… it is most likely that the opening stages of the Geneva Conference will witness an intense propaganda effort by the Russians to sell their existing plan, or something like it … and to discredit the United States Disarmament Programme.

Part of a report by the British Foreign Secretary on talks about nuclear disarmament in 1962.

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Source 4

4 Whether the Geneva Conference is to degenerate into a propaganda battle, therefore, or, as is possible, to open the way ultimately to some limited positive steps, our own task should remain the same;

to show that the Russian plans are full of contradictions and designed to give themselves one-sided advantages,

to show that our own are by contrast sober, realistic and fair, and above all to show that ours provide at a very early stage for some important concrete measures of disarmament.

Extract from the minutes of a meeting of the British War Cabinet in March 1919. This extract contains comments from Winston Churchill about the situation in Russia at that time.

Source 5

SECRET

PRIME MINISTER

Mr. Khrushchev's Monstrous Bomb

The J.I.C. are meeting tomorrow to see whether they can draw any firm conclusions about Mr. Khrushchev's recent boast in Moscow that the Russians had a weapon which could destroy the world.

The experts' preliminary view is that Mr. Khrushchev has not made a great new break through in any technological field: that is to say, he has not developed any new rocketry or form of explosion. We have known for some time that he has an enormous nuclear bomb; but the experts still do not believe that he has any method of getting it anywhere. It is possible that he may have some new biological weapon; but again, the experts do not believe that he has discovered any safe method of disseminating it.

Apparently Moscow press and radio are tending to play Mr. Khrushchev's statement down.

We shall hope to know more tomorrow, in particular we hope to have the Americans' opinion.

A.D.H.

Jo

Extracts from a report by Foreign Office officials in Moscow concerning an alleged new kind of nuclear weapon developed by the USSR in 1964.

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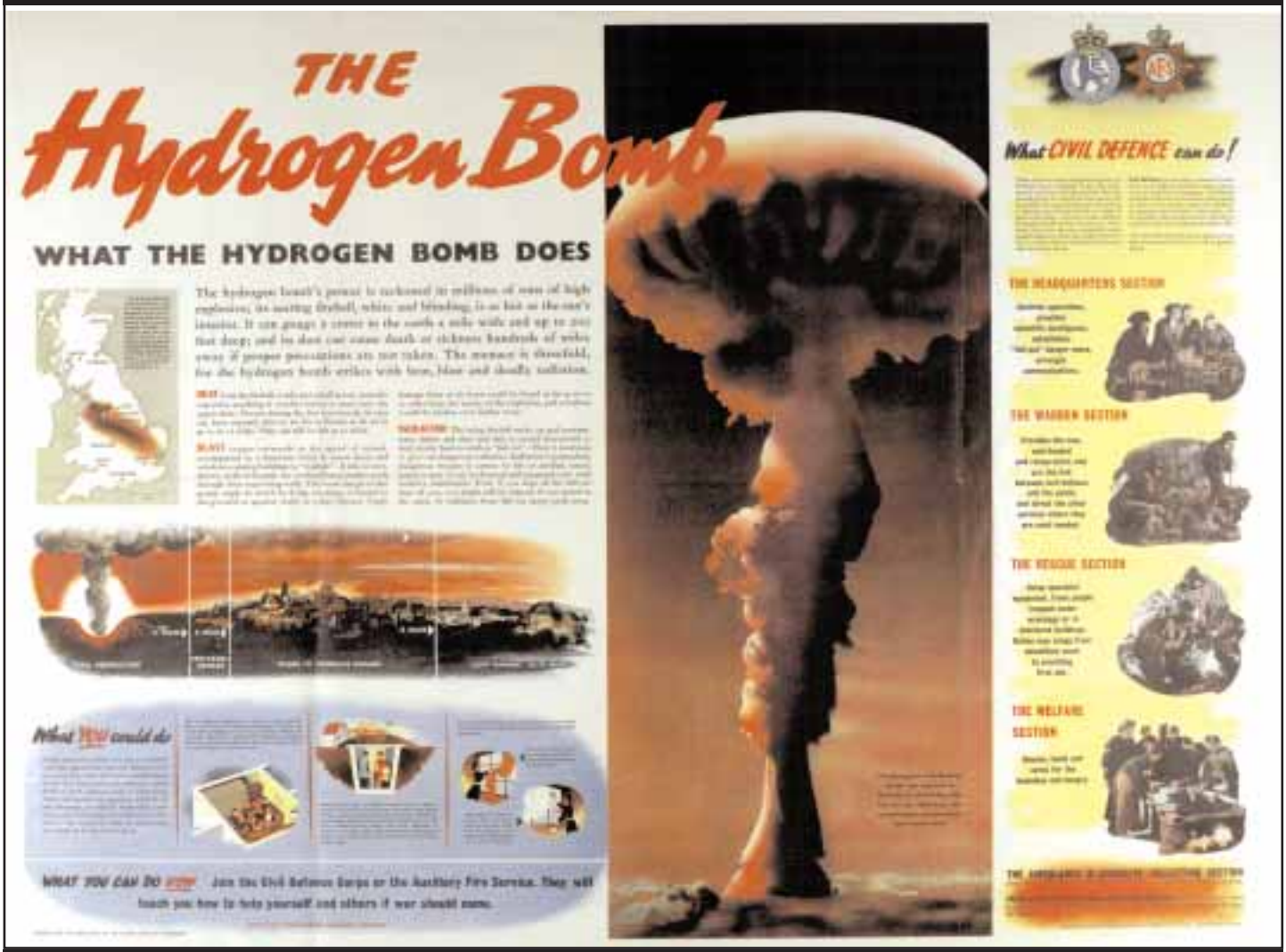
Source 6



A poster produced by the British Government's Ministry of Information in 1965 informing people about H Bombs and Civil Defence.