

HOW THE BOMB WORKS

The first photographs of The Bomb appeared in Melbourne on August 13, 1945. The Sun ran pictures of Nagasaki and Hiroshima explosions headed simply "Atom Attacks". The Argus ran one photograph of Nagasaki entitled "Smoke Mushrooms from Atomic Bomb Burst". The Age ran a small photo at the bottom of page 2. The Herald didn't run it at all.

By 1954 the response to the first American 2.8 Hydrogen Bomb was very different. The Herald ran three photographs of "The Hell Bomb" on page 1. The others followed on April, 13, 1954. The Argus ran two photographs entitled "First Horror - Bomb Pictures" on page 2, showing the 25 mile height and 100 mile width of the explosion. The Sun ran three-quarters of page 16 headed "The H (for Horror) Bomb!". The Age ran only a small front page photograph of the mushroom explosion (but see below). Telex captions received at press offices over these years described the "fantastic shapes" of the British Christmas Island test (19 June, 1955), or THE BIKINI ATOMIC BOMB - THE PILLAR OF SMOKE MUSHROOMING OUT ABOVE THE LAGOON. A CONE OF LIGHT SURROUNDS THE PILLAR AND AN EQUALLY CURIOUS LOZENGE - SHAPED CLOUD DEVELOPS AT THE SUMMIT.

Take for example, telex 91251172-3 :

WATCH YOUR CREDIT....INTERNATIONAL NEWS PHOTOS SLUG 9H-BOMB SEQUENCE)

TAPE 2 .

BIRTH OF THE H-BOMB

ENIWETOK, PACIFIC.... ON NOVEMBER 1, 1952 THE UNITED STATES EXPLODED ITS FIRST H-BOMB. THIS REMARKABLE SEQUENCE OF THE PICTURES FROM THE HISTORIC MOVIE RELEASED BY THE CIVIL DEFENSE ADMINISTRATION SHOWS THE H-BLAST STARTING FROM 1-ZERO HOUR AT THE "CUB" (SIC) OR BOMB HOUSING TO THE GIGANTIC MUSHROOM. NOTICE THE FIRST FLASH TURNING THE AREA INTO A DEEP-NIGHT DARKNESS AND THEN THE APPEARANCE OF THE FIREBALL GROWING, GROWING UNTIL IT REACHES ITS MAXIMUM DIMENSIONS, MEASURING THREE AND ONE-QUARTER MILES IN DIAMETER.

IN PHOTO 7 IT TAKES THE EERIE APPEARANCE OF ANOTHER WORLD OF GLOWING FANTASY. THE MAN-MADE CLOUD MUSHROOMS HIGHER AND HIGHER THROUGH STRATA OF CLOUDS THAT MAKE GHOSTLY DEATH'S HEAD SHADOWS UPON IT - AN ALLEGORY OF DEATH.

The observers of the bombs often saw question-marks in the explosions. The Sphere (July 13, 1946) headed a photograph, "The Atom Bomb Makes Its Own Comment : The huge question mark into which the smoke formed itself at one stage in its upward flight. This phenomenon, caused by varying winds, was a subject of general discussion among those who witnessed the explosion".

Take again, telex C1251078 :

WATCH CREDIT... INTERNATIONAL NEWS PHOTOS

SLUG (QUESTION MARK)

FUZZY QUESTION MARK

ENIWETOK, PACIFIC MOMENTS AFTER

THE H-BOMB WAS DETONATED THE THERMONUCLEAR CLOUD PUSHED THICK BILLOWS OF SMOKE TOWARD THE STRATOSPHERE. AT THIS POINT THICK CURDLES OF FIERY MATTER FORMED INTO A MASS RESEMBLING A FUZZY QUESTION MARK.

(2)

Another preoccupation in description of the bomb is the 'Power that Lights the Stars'. Architectural terms such as "a Giant Pillar" thrusting "upward 35,000 feet into the sky", reminiscent of the totalitarian desire for dimension were often used.

"The great radioactive tower which burgeoned from the explosion appeared as a pillar of orange and yellow flames, smoke and steam, which, gushing up to the stratosphere, turned to a hue of rose-red, dying out to a greyish-white and forming the curious mushroom shaped cup clearly seen in this photograph. The pillar reached a height of 60,000 feet before it began to disperse." (The Illustrated London News, July 13, 1946)

A photograph for the 1954 "Operation Ivy" bomb simply states: "ADVANCE FOR RELEASE AT 6 P.M., E ST, APRIL 7. RELEASE SET BY FEDERAL CIVIL DEFENSE ADMINISTRATION WHEN COPY WAS ISSUED IN WASHINGTON MARCH 31 (WX 17 - MARCH 31) HYDROGEN BLAST CLOUD SOARS OVER THE PACIFIC - THE CLOUD FORMATION FOLLOWING THE TEST HYDROGEN EXPLOSION IN THE PACIFIC IN THE FALL OF 1952 RISES AND SPREADS AS IT DEVELOPS TOWARDS ITS GREATEST SIZE - 25 MILES HIGH AND 100 MILES ACROSS THE EXPLOSION DESTROYED THE TEST ISLAND AND LEFT A CRATER SLOPING DOWN TO A DEPTH OF 175 FEET (U.S. AIR FORCE PHOTO VIA A.P. WIRE PHOTO) (B4140CCDA) 1954 CAUTION WATCH RELEASE DATE.

The most interesting aspect of the interpretation of the image is the mushroom metaphor. The mushroom was not yet poisonous - that came after the fallout scare in the early 1960s. The Age, it will be remembered, ran only one front page photograph of the H-Bomb on April 13, 1954. On page 2, they ran a remarkable editorial which is worth reproduction in full - not for its superficial content or shallow reflection but for its ideological thrust.

MELBOURNE, SATURDAY,
APRIL 3, 1954

T H E A G E

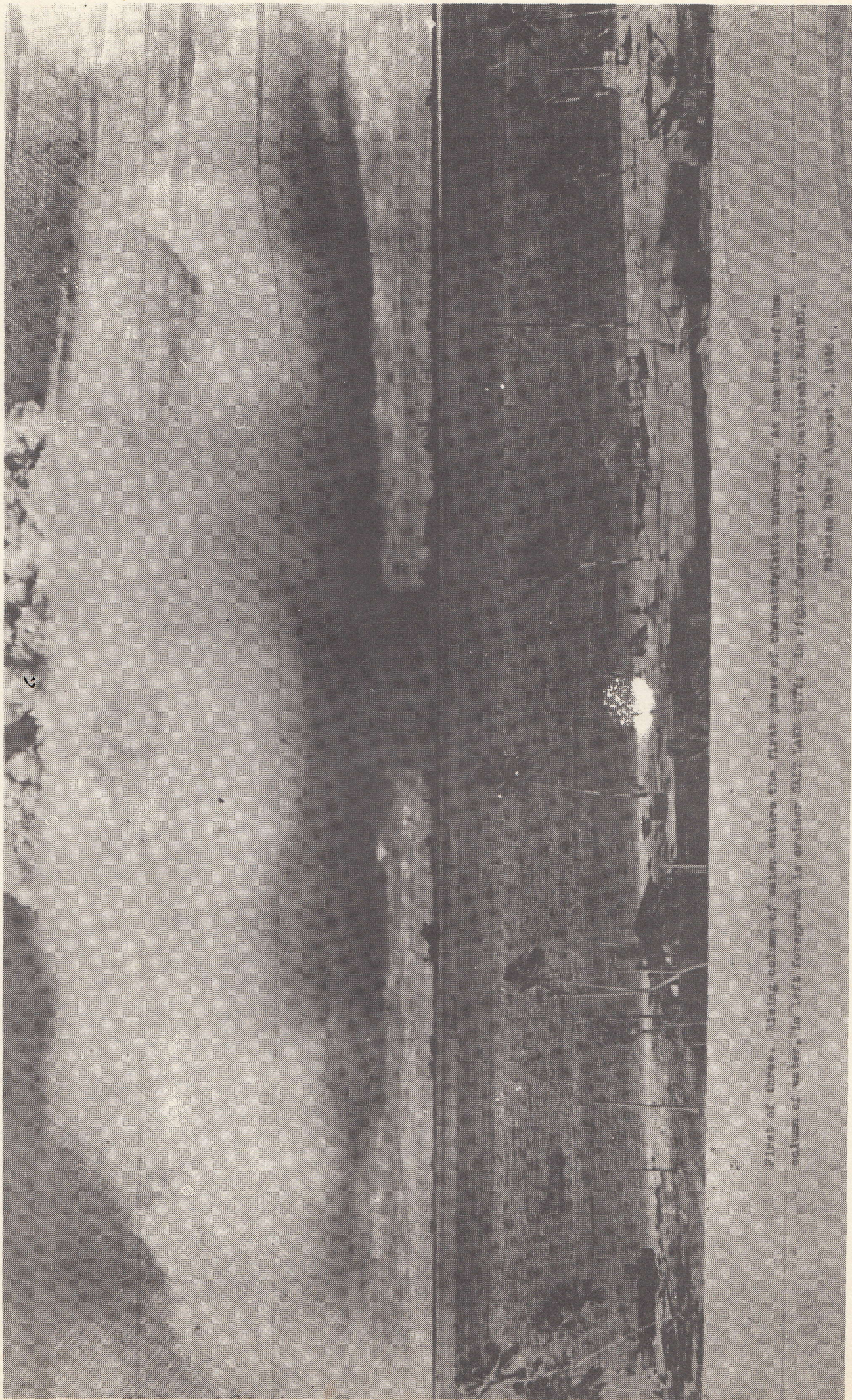
THE TROPHIES OF THE NIGHT

Up to the present, one of autumn's gifts and delights-the tasty mushroom-has failed to appear in our Victorian fields. But we continue to hope that the succulent fungi will yet shoot up when rain waters the dry countryside.

Professor W. G. Smith opens his article on the subject in the "Encyclopaedia Britannica" by declaring that there are few more useful, more easily recognised or more delicious members of the vegetable kingdom than the common mushroom. It may be that custom and association have something to do with it, for the mushrooms have a way of their own of weaving themselves into the fabric of some of our most romantic memories.

The works of such writers as Richard Jefferies, Michael Fairless and Gene Stratton Porter abound in delightful descriptions of sparkling autumn mornings in which, rising with the lark, young people stole out of the house like so many burglars and scampered with their baskets across the glittering meadows to gather the white buttons that studded the wet grass. It was part of childhood's carefree ecstasy.

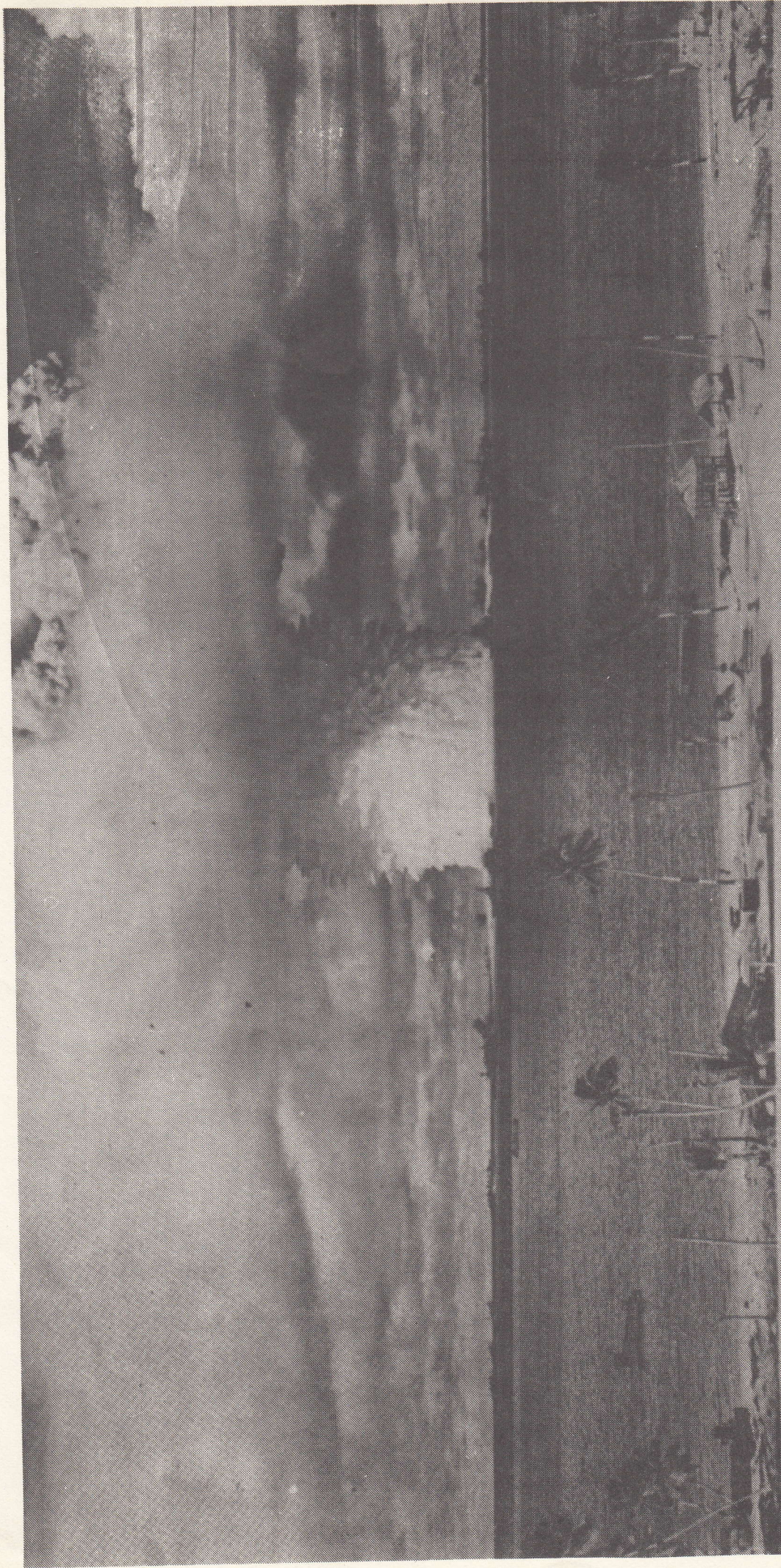
Superficial observers have sometimes selected the mushroom as the natural emblem of the ephemeral, the transitory, the evanescent, the things that are here today and gone tomorrow. Quickly come; quickly go. "They are but of a mushroom growth," the cynic declares disdainfully. Even Chesterton refers to an institution with which he has no patience as a monstrous mushroom that grows in the moonshine and dies in the dawn.



First of three. Rising column of water enters the first phase of characteristic mushroom. At the base of the column of water, in left foreground is cruiser SALT LAKE CITY. In right foreground is Jap battleship KAGATO.

Release Date : August 3, 1946.

(4)



Second of three. Cloud formation at peak shortly before rapid disintegration from mushroom shape, and as column of water starts to fall.

Release Date : August 3, 1946.

(5)

But this sort of criticism will not do. Things are not to be disposed simply because they mature quickly or because they grow in the darkness. In his famous lecture on Sleep, Sir James Crichton-Browne declares that all things that grow at all grow in the night. Nature does not put up her shutters at dusk. All through the night the earth revolves; the stars pursue their endless paths; tides ebb and flow; winds rise and fall; seeds germinate; corn ripens; flowers unfold; all living things develop. The music of the spheres becomes a kind of moonlight sonata and the mushroom plays its part in the melody.

Some of the biggest and best things in the world sprang up like mushrooms, America and Australia for example. History records nothing more sensational than the development of the Western World during the ten years between 1830 and 1840. The statistics are almost incredible. It was during that amazing decade, too, that the first steamships crossed the Atlantic and the spirit of the age reflected itself in its literary fruitage. Whittier and Longfellow, Holmes and Hawthorne, Emerson and Bancroft, Poe and Prescott all arose during that brief but eventful period.

Astonishment has often been expressed that, in so short a space of time, immense cities like Melbourne and Sydney have sprung from the primaeval wilderness. It is very largely an optical illusion. In reality the mushroom itself is not the creation of a single night. It has its roots in prehistoric rainstorms, in fallen forests and in ancient climactic experiences too subtle to trace.

It takes a million years to grow a mushroom. In the same way, young nations, like America and Australia, have their origins, not only in British history and tradition, but in Greece and Rome, Assyria and Egypt. A mushroom is a thing of hoary antiquity. He who would trace the birth of the veriest triviality will find himself threading the maze of the infinites; the child just born played his part in the Garden of Eden; the latest tick of the clock is an integral fragment of the drama of the eternities.

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The bomb is natural, for mushrooms and natural things grow at night. It is a trophy, it has been won from nature by the Americans. The logic is pure fascism. "The notion of a super-nature exists only for a humanity which attributes supernatural powers to itself and in return ascribes the powers of its superhumanity to nature." (C. Levi-Strauss) The Bomb has become part of the natural order.

The images of the bomb were not issued randomly. "Twenty official photographs of the operation which is known as 'Crossroads' were selected from half-a-million pictures made by all the services that co-operated in the test." (London Illustrated News, August 31, 1954) Furthermore, the explosions were not explained. The caption to a photograph of the March 7, 1955 Nevada test reads: "As usual, the American Atomic Energy Commission did not disclose the nature of the device being tested." (my italics)

Men have obtained supernatural power, the nature of which is secret. Such men are to be feared and obeyed. "The N-Bomb has a moral aspect. It has the aspect of moral prestige. Those who possess it stand as if they are a class apart, a superior class." (K. Singh)

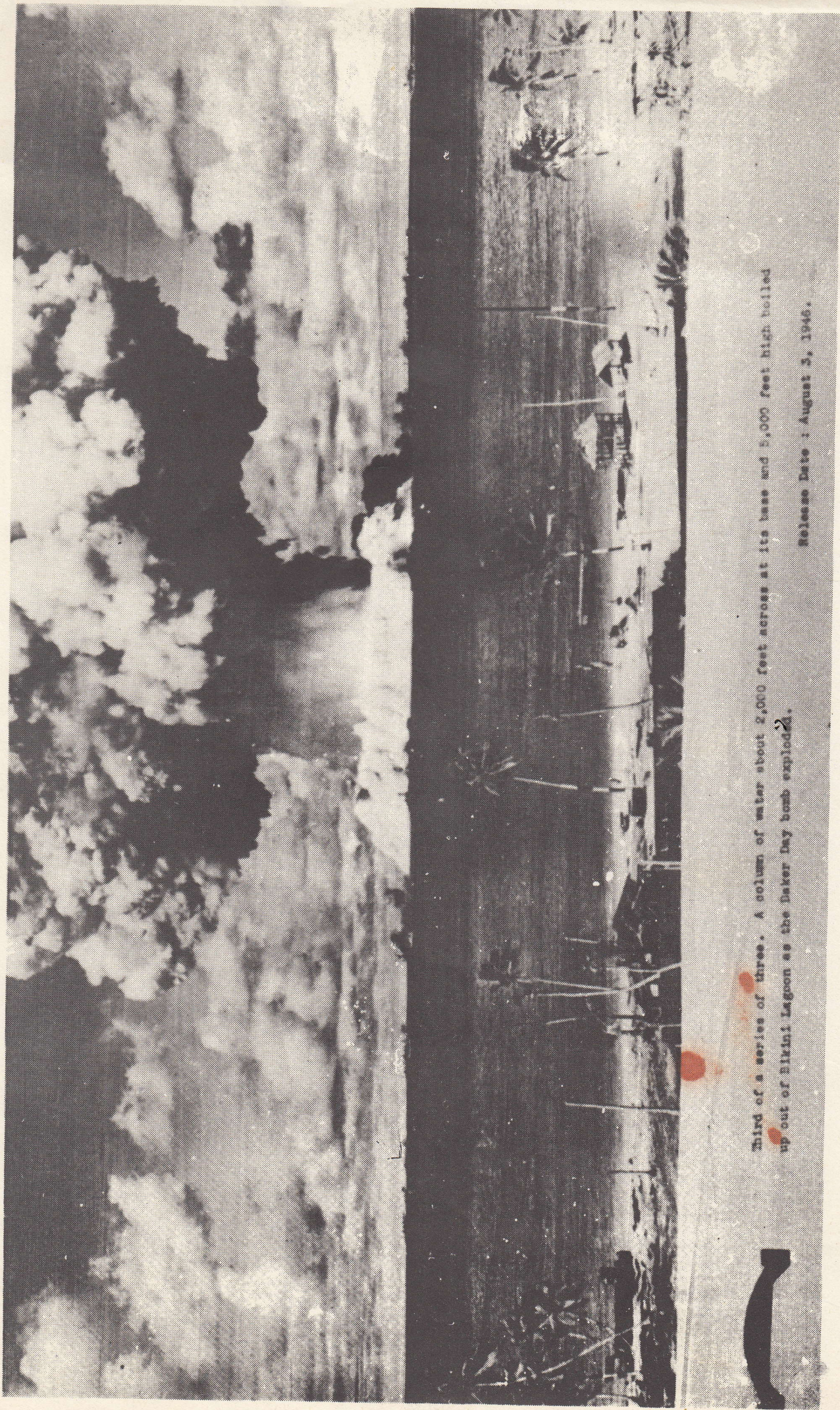
(6)

Apart from the immediate impression made upon foreign observers and members AS THEY WATCHED THE ATOMIC CLOUD SOAR SKYWARD AFTER THE "BIG APPLE" WAS DROPPED OVER THE GUINEA PIG FLEET IN BIKINI LAGOON. OBSERVERS FROM POLAND AND RUSSIA WERE AMONG THE WATCHERS ON THE FLYING BRIDGE OF THE PANAMINT, the images are a means of obtaining compliance with authority. (This raises the interesting possibility of the use of tactical atomic weapons in civil war in the overdeveloped countries.) The bomb image is a symbolic representation of power writ large and burnt indelibly into our brains. It amounts to cultural coercion.

There are over 30,000 megatons of atomic weaponry primed for immediate use. This is a concentration of power on a tectonic scale. The Soviet 1961 Hydrogen Bomb detonation had a yield of about 58 megatons or over 2,500 times the force of the Hiroshima bomb. This is about twice the force liberated in the Krakatau volcanic explosion in 1883. The means of destruction have been drawn out of the productive forces, shaped by the prevailing social relations. Energy application, mass transfer and material transformation are measures of political power and reflect that set of social relations. The application of energy has been central to the historical realisation of human goals and values. Energy and resources are the parameters within which societies have created distinctively human settlements with culturally ordered space and time and regulated natural afflictions. The application of energy has also led to the present impasse wherein humanity is beset by dirt, disease and malnutrition on the one hand and by noise, pollution and the bomb on the other. As the pinnacle of our reorganization of nature, the bomb icon encapsulates and reflects all the problems of the neglect and the appropriation of human needs. What is the meaning of this marshalling of energies in The Bomb?

Formerly time ended in the inevitable apocalypse or with the passing of the millenia. Now we face the end of Man, reproduce nature every moment we do not use the bomb. This is a fundamental difference to the past wars of attrition or times of plague which might wipe out 75% of the populace. The populace always rose again to be wiped out again. An atomic war destroys the natural basis, especially the genetic templates, which reproduce and sustain human existence. An atomic war of contrition threatens the ozone layer. That is irreplaceable. It is the nature of the powerful to monopolize social and natural resources and to determine the conditions of existence for their subjects. As long as the men who make The Bomb control the end of the future, so they determine historical time. We hold the future in our hands, or rather, the future is in the hands of fools.

Progress as a concept has always relied on the hidden hand of history (not men) for its justification. The notion depends upon a linear unfolding of history. The past is now only a world of ideas created by evidence present in the present. The past has collapsed into the present and given rise to the idea that the past is somehow obsolete. Social time, moreover, is not physical time. If time is a function of change as Galtung claims, then history is the study of the evolution of the social change whereas time is a linear measure of system development. The centre of progress will therefore be where time moves fastest. Time is experienced in two ways. Synchronic time resides in social events marked by human events such as birth and death. Diachronic time is found in



Third of a series of three. A column of water about 2,000 feet across at its base and 5,000 feet high boiled up out of Bikini Lagoon as the Deter Day bomb exploded.

Release Date : August 3, 1946.

natural periods and rhythms over which social time is stretched. Both are integrated in mythical consciousness. Our economies are no longer grounded in natural rhythms, personal, diurnal or seasonal. The bomb as the culmination of progress has now so attenuated time as to have obliterated the future. Insofar as human consciousness is a natural phenomena and insofar as human consciousness directs behaviour and creates the bomb, the bomb is a natural phenomenon. This is not a biological analogy. It merely states that the missile is subsumed in the class of natural phenomena. When the bomb explodes, it is therefore the actualisation of a natural potential implicit in the biosphere. This seems to imply that the bomb is not the result of defective human reason but a flaw in nature itself. This is a convenient error for those who wield The Bomb. They even cultivate it. (2)

The bomb explosion is the object of the photographic icon which presents an image of The Bomb. The image has been interpreted so as to impart certain meanings - anxiety and power. The image is not neutral - it has been selectively transmitted and interpreted (by the immediate observers who were presumably the most impressed?, the people who edited the telex captions and sometimes touched up the photographs received in the press offices) to the people who finally received these images. This is a patently political process. The trick is the natural metaphor which removes any possibility of exercise of personal control over The Bomb. Who controls the image in part controls the politics of The Bomb. Who controls the bomb generates the image of The Bomb.

Is it possible to dismantle the bomb, to remove the ? and ! on our mental horizons and to invent a future for the past? The history of progress has been, as Aron puts it, one of continual failure grounded in the assumption that nature is imperfect. Apathy, disengagement, contempt, renunciation are all futile options. Democratization of the bomb is dangerous, regulation of the bomb is impossible. That leaves us with design.

We cannot use our history of atomic bombs in warfare to make any predictions at all about the probability of an atomic cataclysm. Assuming technological history to be 500,000 years, this would give a probability of 1 to 5 per annum (for now we have 50,000 bombs, not 2). Or divide 32 years of complacency by two bombs, and the annual risk is 1 in 15. Such estimates are useless because the environment is changing* along with the variables. The only constant is change and we are permitted to infer nothing from such a past and continual flux about future transformations of society or of self.

In light of the threat, we had better do more than bring the washing in! We are certain of death anyway and yet we go on living. Just as there is a key distinction between caution and respect for nature, so there is a difference between being careful and being good. The achievement of justice and the creation of community is vitally important in the integrity of

* For example, the end of World War II saw two atomic bombs used. Today there are about 50,000 warheads - but the level of background conventional warfare is increasing. There have been an average of twelve wars a day since 1945 and the ambient conflict is increasing (see F. Barnaby). One can put this differently by pondering on the probability that an atomic fission explosion would occur anywhere in the solar system or on the planet earth - before it occurred. This is as useful as pondering the probability that the universe would occur.

(9)

a frontal political assault on The Bomb. The Bomb is a manifestation of deeper structural problems and only the achievement of justice and community can make The Bomb redundant. If we take the bomb to be a social problem, design for love and for resilience, assume the best and the worst, we won't be disappointed. Only when we no longer care about The Bomb icon are we free to be humble before the task of the future.

As David Moodie wrote from Hiroshima in 1975, The Bomb was a "spiritual action, a psychological action, a horrible failure of consciousness, a gross reflex born of a technological "need" created by the existence of the weapon. It was a military demonstration, a flash of pure tactical joy, an expression of mastery on many levels and a simple failure of love. Heat created by the absence of so much love. Now that flash has brought us as lovers 30 years later.

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A trail of seeds and struggle leads us here. The Destiny which has carried us here, sometimes in spite of ourselves has been gathering love along the way and now we must be part of its expression. We are nearly all of us tired or confused, caught in the broad currents which have swept us here, only partly understanding why."

August, 1977

SOME REFERENCES

- F BARNABY, World Armament and Disarmament, published in Bulletin of the Atomic Scientist, June, 1976
- B BOLT, Peaceful Nuclear Explosions - The Veil Parted, 1976.
- J GALTUNG, On Macro-History and Western Civilisation, TWC No 1, 1974; from J Galtung, Chair in Conflict and Peace Research, Universitetet I Oslo, Blindern, Postboks 1070, Oslo 3, Norway.
- C LEVI-STRAUSS, The Savage Mind, Weidenfield & Nicholson, 1966
- B MOORE JR., Reflections on the causes of human misery, Penguin, 1972.
- J NUF, War and Human Progress, Norton, 1963
- K SINGH, Lok Sabha Debates, 27 November 1964. Cols. 2273-4 India
- UNION OF INTERNATIONAL ASSOCIATIONS, Yearbook of World Problems and Human Potential, UIA, Brussels, 1976. (This is a seminal document on complex thinking--The only copy available in Australia may be had for \$30 from Peter Hayes at 61, MacArthur, Place, Carlton, Victoria 3053, who wants to sell before forthcoming departure.)