

THE

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A T O M I C A G E

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The most extraordinary story to come out of atom-bombed Hiroshima, Japan, was given an official nod last week.

As described in an International News Service dispatch datelined Tokyo, May 14, and published in the LOS ANGELES EXAMINER for May 15, 1946, the report is as follows:

"The (atomic) bomb rays bleached stone and concrete and etched metal, causing 'shadow effects' to be left forever on surfaces of Hiroshima's granite blocks."

The story continues about one "sensational shadow" which was left on the side of a huge metal vat. At the moment of the explosion, a painter wearing a peculiar hat was standing on a ladder, his hand holding a paint brush extended as he worked. This entire scene is now silhouetted on the vat.

In the February 24, 1946 issue of NEWS OF THE WORLD, a British weekly paper, the story was reported by A Noyes Thomas, who is by-lined as a "Special Correspondent" of NEWS OF THE WORLD. (The British newsmagazine, NEWS REVIEW, also noted the report under "Science" in its issue of March 7, 1946.)

According to Thomas, he first heard of the shadows from high-ranking British naval officers on the H M S Glenairn, headquarters ship of the British Commonwealth Occupation Force, which is stationed in Kure Bay, near Hiroshima.

"Only after investigating the story on the spot...was I convinced of the truth of it," he wrote.

"At one place the shadow of a vanished bridge has appeared on the street which it spanned. From a distance it seems as though the bridge is still intact."

At another spot he saw the shadow of a man leading a bullock and wagon. The shadow was so clear that details of the man's peculiar boots (having separate compartments for the big toes) were easily distinguishable.

"Elsewhere there is the shadow...of a little Japanese girl, probably aged about 12, holding under her arm what may have been a bundle of schoolbooks."

Thomas said that the Japanese name for the phenomenon was "kage" (pronounced car-gay)—"the shadow." He reported that the remaining inhabitants of Hiroshima shunned the vicinity of the permanent shadows, and were refusing to live near the places where they had been seen.

The dispatch written by Thomas gave the impression that the shadows were just then appearing—six months after the atomic bomb explosion. "Because of some unexplained delayed action of the atomic rays," he wrote, "scenes from the life of the thronged Japanese city at the instant of the explosion are now appearing as silhouettes on the barren ground."

This apparently made British scientists, who were interviewed by a NEWS OF THE WORLD reporter

on their opinions of the story, somewhat confused. Extreme disagreement on the possibility of such an occurrence was the keynote of the British interviews.

Professor Rudolph Peierls of Birmingham University, a member of the British atomic research team, gave a "probable explanation," drawing a parallel between the effect of a few moments of brilliant sunshine, and the intense heat radiated by an atomic explosion. "One's face would be deeply tanned, except in the shaded parts... Under the intense radiated heat of an atomic explosion the ground would be seared, but less deeply so in the shade..."

Professor Marcus Laurence Elvin Oliphant, also of Birmingham University and member of the British atomic research team, was present when Professor Peierls gave his opinion. Professor Oliphant's statement was: "The results reported would not be impossible in certain circumstances."

On the other hand, Sir Charles Darwin, Director of the National Physical Laboratory, said that he doubted that the shadows existed. Professor Alexander Oliver Rankine, F R S, called it a fantastic story "on the surface."

A "well-known Government authority on atomic energy," interviewed by the NEWS OF THE WORLD reporter, admitted that "terrific heat effects produce shadows" but said he would "be shy of suggesting an explanation of the phenomenon."

It is possible that the "shadow" occurrence is connected in some as yet indetermined way with the problem of mechanical pressure of light on solid bodies. SCIENCE DIGEST for May, 1946, quoted an Associated Press report that Professor Paul Harteck, formerly of the Kaiser Wilhelm Institute of Physics in Berlin, Germany, and now in the British occupation zone, had declared that the light-rays emitted during an atomic bomb explosion add to its destructive force.

Harteck, an "atom scientist," pointed out that the 10,000,000-degree temperature produced by the explosion of an atomic bomb causes the release of a great amount of light "which is beyond the visible spectrum," and is contributory in exerting a physical force on solid objects.

Photographs of the "shadows" are included in an almost three-hour film made by Nippon Newsreel Company at the request of Japanese scientists and the Japanese Ministry of Education. Cameramen rushed to the scene almost before the dust of the atomic explosions at Hiroshima and Nagasaki had settled.

The film, which is "confidential," is now in the possession of the United States Army Air Force. It is accompanied by thirty-five hundred still photographs, which illustrate every scene in the moving picture.

The INS report stated that the atomic bomb explosion bleached vegetation in its vicinity, and blasted radioactive sand into wells four miles distant, giving intestinal disorders to people who drank from them.

Photographs of complete autopsies on victims of the explosion, showing the effects of radiation on the interior body structure and tissues are a part of the documented film.

"A great many grim stories have come out of atom-bombed Hiroshima, but none so weird as (this)," is the way NEWS REVIEW commented on the almost unbelievable report.

EDITOR'S NOTE: This account, drawn from both American and British sources, is the most comprehensive report which has appeared in the United States to date on the Hiroshima "shadows." Portions of the film, "Effects of the Atom Bomb on Hiroshima and Nagasaki," have since been released to the public through various newsreels.

"7.35 ...(plutonium) does not give off penetrating radiation, but the combination of its alpha-ray activity and chemical properties makes it one of the most dangerous substances known if it once gets into the body."—Atomic Energy for Military Purposes, by Henry Dewolf Smyth.

This sentence, and others of similar content, has become a subject of intense interest to researchers in genetics, as well as many other fields. The British publication THE NEW STATESMAN AND NATION for March 23, 1946, deals with this subject in an article by Kenneth Walker, "The Biological Risks of Atomic Energy." Mr Walker says:

"Much has been written about the dangers of the atomic bomb, but little has yet been said concerning the possible risks to humanity of the widespread use of atomic energy in peace .. What is likely to be the effect of this on man's body, and more particularly on those cells of the body which are responsible for the continuation of the race? It is a well-known fact that these cells are particularly sensitive, and there are some who believe that they are occasionally affected adversely by some of the chemicals used in this industrial age...

"Under the leadership of the physicists we are now about to pass out of the chemical into the atomic age. What will be the effect of this? Nobody can yet give an answer, but there are certain biological risks which should be carefully considered..."

Mr Walker then discusses X-rays, how they may cause sterility even in comparatively small amounts, and even slight exposure to X-rays may cause changes in the genetic constitution of the germ plasm.

"While it would it would be unjustifiable...to predict that the extensive use of atomic energy will be followed by the appearance of subhuman mutants, this is a risk which must be taken into account."

WHAT IS LIFE? by Edwin Shrodinger is quoted from by Mr Walker concerning detrimental mutations which may occur even when all precautions against X-ray radiation have apparently been successful—mutations which resemble those produced by close inbreeding. He continues:

"It may be said that by the time atomic force is available for industrial purposes efficient methods of protection will have been devised. In the manufacture of the atomic bomb valuable experience has been gained which will be of use also in safeguarding workers with atomic energy. Some of the safeguards employed have been described in the Smyth report, which observes:

'Since both the scale and the variety of the radiation hazards in this enterprise were unprecedented, all reasonable precautions were taken; but no sure means were at hand for determining the adequacy of the precautions.'

"It will be noted how guarded the writers of the Report are concerning the efficacy of the protective measures... It will be noted also that the Report is solely concerned with the preservation of the general health of the workers and not with its biological effects. No attempt was made to investigate the influence of the products of atomic fission on the germ-plasm."

Mr Walker's conclusion is that, while heretofore problems of health raised by industrial and technical activities have been dealt with after they arose, this situation must now be changed. An intensive study of the effect of atomic energy on living organisms must be made, and a competent committee of doctors and biologists must be set up immediately to protect man from this manifestation of "progress"—mere assurances from the technicians and physicists that all matters have been considered will not suffice. "Larger issues are at stake; not only the well-being of the individual, but possibly over the future of the race." # # #

"The (British) Government was going into the Atomic Energy business," said NEWS REVIEW, concerning the Atomic Energy Bill which was introduced into the House of Commons on May 1, 1946. (Noted in ATOMIC AGE, May 6, 1946—Issue Number 2.)

A memorandum which accompanied the bill stated that its objects are to empower the Minister of Supply (John Wilmot) to promote the development of atomic energy, give him powers of control over the unauthorized production or use of atomic energy, and over the publication of "certain information."

The Bill gives to the Minister the general duty of promoting and controlling the development of atomic energy in Britain, and empowers him to produce and use atomic energy, to carry out research and to produce, handle, and deal in any articles connected with or needed for those purposes.

Ministry officials would be enabled to enter and inspect, without the formality of obtaining a search warrant, any premises where they have reasonable grounds for believing that atomic research is being conducted. On serving notice in writing on any person, the Minister may obtain from him information about any materials, plant, or processes involved in the production of atomic energy. Any patent referring to atomic energy developments or inventions could be kept secret.

The Minister may search in or on any land for minerals which are the source of any "prescribed substances" which are defined as uranium, thorium, plutonium, neptunium, and their compounds. Such land may be commandeered and worked, and the bill provides for compensation to the owner in such cases.

The working of minerals from which these elements can be obtained may be prohibited by Ministerial order. But these minerals, and plants for their working, are required to be made available, under license, for purposes of education and research, and for commercial purposes which do not involve the production or use of atomic energy.

A person guilty of violating the Atomic Energy Act would be liable on summary conviction to a fine of not more than \$400, not more than a six-months imprisonment, or both. If convicted on indictment, a prison term of not more than five years, a fine not exceeding \$2000 or both might be imposed.

Prime Minister Clement Attlee announced recently that the British Government proposed to set up a research establishment at Harwell, Berks, both for general work and for the production of fissionable material. Responsibility for this project also rests with the Supply Minister, and the bill invests him with powers to carry it out.

Britain is also planning steps to be in a position to promptly and effectively fulfill any obligations which may be placed on her by any plan of international control which may be devised by the United Nations Commission on Atomic Energy.

At present, an expenditure of about \$120,000,000 is seen if the bill is passed as it now reads. #

In addition to features such as have appeared in this special issue of THE ATOMIC AGE, a summary of the week's news in the field of atomics is given, and the magazine articles of the preceding week which deal with the atomic bomb and atomic energy are reviewed. THE ATOMIC AGE has a file of almost every pertinent newspaper and magazine article published since August 6, 1945. A close check is also made of many overseas publications not widely available in the United States, and material from these is discussed at length. # THE ATOMIC AGE is edited by Associates of FUTURESEARCH, Arthur Louis Joquel II, Secretary. Subscription: \$2.00 for one year (52 issues), \$1.00 for six months (26 issues). Box 3343, Los Angeles 53, California