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POWER OF THE ATOM.

Ten years ago, when this atom bomb was exploded, man had just found the key to nature's mightiest secret. In those ten years, all the world's great powers have developed nuclear science both for peace and for war, racing against time and each other, not knowing yet which way their frightening knowledge will ultimately be used. Pathe News brings you pictures never shown before, of Harwell - where Britain's finest scientists, like their opposite numbers all over the world, work in the hope that their achievements will hasten man's progress, and not destroy it. The dangerous business of atomic research is ringed with safety precautions. Special "glove boxes" are used for handling radioactive materials, while other workers have to be dressed up like spacemen to maintain and replace components which later will be fitted in the boxes themselves.

The protective suits is completed airtight; like a deep-sea diver, the man inside must be supplied with air through a long hose from outside the danger area. His only link with his colleagues a few yards away is by telephone.

Our cameraman has to film these workers through a window - for no one may enter this part of the laboratory unprotected.

Journalists are shown the Chemical Engineering Division, where atomic reactor fuel is processed. Fuel which has been in use suffers irradiation damage, and becomes clogged with fission products which absorb neutrons, and it has to be refabricated. This is an expensive process, accounting for quite a lot of the cost of nuclear power; and the scientists of this division are constantly seeking cheaper and quicker ways of fuel processing.

But from Bikini Atoll on the other side of the world comes the reminder that the atom holds a threat as well as a promise. Target rings mark the spot where a hydrogen bomb is to be dropped. To test the effect of the deadliest nuclear weapon yet, boxes will snap open 15 seconds before the explosion, containing samples of wood, paper, cloth, grass and tree branches. Radar sets prepare to follow the bomber, which will be controlled from the carrier Estes. Skiffs are launched at predetermined spots, bearing instruments which will measure radioactive fall-out.

As H-Hour nears, the bomber crew receive their final briefing - for the timing must be perfect - the pilot's skill matched with the split-second planning of hundreds of technicians on the ground. Automatic cameras are ready for the B 52 Stratofortress, with the Hydrogen bomb tucked in its belly, is airborne and approaching the target area.

Bomb gone! And at once the supersonic giant banks sharply to race for safety. It will be 15 miles away when the bomb explodes at 10,000 feet.

From another plane, 50 miles away, we watch the terrifying sight of a man-made sun searing the atmosphere with a force equal to ten million tons of T.N.T. The full, blinding brilliant of a huge fireball is shrouded in so-called "ice-caps", caused by the rapid heating and cooling of water vapour in hundreds of cubic miles of air. Here is power. Power men have dreamed of for centuries - come true in ten tense years. Power to destroy; power to create. Who will use it? And how? Man has realised his dream - now, he must control it.

And here is the reactor itself, fuelled by natural uranium whose power is brought under control by graphite moderators. The 26-foot cube contains 40 tons of uranium fuel in rod form. Intricate control panels give a complete check on the various processes. The reactor is shielded to protect workers from heat and radioactivity, and a constant watch is kept for radioactive dust.

The research done here has made possible the huge power plant at Calder Hall, which soon will be going into operation - making Britain the proud owner of the world's biggest nuclear power station.