GENERAL SCIENCE

A-Bomb Explosion Limit

"Repeated atomic explosions will lead to a degree of general radioactivity which no one can tolerate or escape," British Association for the Advancement of Science is told.

➤ THE HUMAN race can not stand more than a few thousand large atomic explosions whether they hit the target or miss, Dr. E. D. Adrian, British physiologist, warned in his presidential address to the British Association for the Advancement of Science meeting in Oxford, England.

Even if the world can survive the immense explosions and the great devastation of a major atomic war, Dr. Adrian said, "we must face the possibility that repeated atomic explosions will lead to a degree of general radioactivity which no one can tolerate or escape."

A few hundred large bombs would not raise the level of radiation to the point where it would be a general danger, Dr. Adrian said, but the known limits of radioactive contamination observed in industry and research would soon be ignored by powerful nations which might try to win quickly whatever the risk.

Dr. Adrian is president of Britain's famed Royal Society, master of Trinity College, Cambridge, and Nobelist in medicine and physiology in 1932.

"Unless we are ready to give up some of our old loyalties we may be forced into a fight which might end the human race," Dr. Adrian said.

"Our predicament is the inevitable result of our curiosity and of the physical nature of the world we live in, but if we can make our behaviour worthy of our increased knowledge we can live safely.

"The scientist, therefore, has a double responsibility. He must apply his science to learn as much as possible about the mental and physical causes which makes us behave as we do, he must study human nature to prevent its failures. But he cannot wait for the discoveries which might make us act more wisely: he must take us as we are and make it his task to point out that the human race cannot stand more than a few thousand large atomic explosions whether they hit their target or miss it.

"If we must continue to make war, there is no kind of scientific investigation which might not be used to make it more effective.

"There can be no guarantee that discoveries in the field of human conduct would be harmless. A drug or a system of education which would make us all do as we are told, a method of producing radical conversion to a new system of belief, a knowledge of new ways of rousing patriotic ardour, all these might be used with consequences almost as grim as the genetical deterioration in a radioactive world.

"The psychiatrist who discovers a cure for paranoia may find that he has also revealed a convenient way of producing it," Dr. Adrian pointed out.

Discoveries relating to our own nature may mean a painful readjustment of our beliefs, Dr. Adrian said. He recalled the great discussion over Darwin's theory of natural selection a hundred years ago and drew a close parallel with the impact of Freud's theories on our own generation.

"The theory of unconscious forces moulding our thought has certainly diminished our stature as intelligent beings," he said.

"Yet the parallel still holds, for again we have recovered our equanimity. We are reconciled to the unconscious, though we may not have digested all the elaborations of psychoanalytic theory.

"We are no doubt less sure of ourselves, inclined to spare the rod and to put nothing in its place, but, on the whole, Freud has left us with a better understanding of human conduct and we are not downhearted at finding it less rational than we used to suppose."

Dr. Adrian urged that there be more investigations in the field of the social sciences, even though it is difficult for those who study social activities, so enmeshed with human actions, to do controlled experiments.

Even after it is discovered what is likely to happen in a particular situation, the statesman who consults an expert may not be able to act to prevent trouble.

"We may find out a great deal about the tensions which lead to war without seeing the way to keep ourselves clear of it," Dr. Adrian said.

Dr. Adrian is optimistic about the future, however.

"We are constantly acquiring new habits and new ways of thought.

"It does not take us very long to see the way round old quarrels. Darwin and Freud no longer trouble us. We are no doubt born with brains like those of our remote ancestors and when we are grown up, we have no more native intelligence than they had, but our brains must have been so modified by what we have learned that they are physically and chemically different, better adapted for the complex social life of our time.

"We have more knowledge at our disposal. If all goes well with our training the brains, we have ought to be more civilized than those of our fathers and those of the next generation more civilized than ours."

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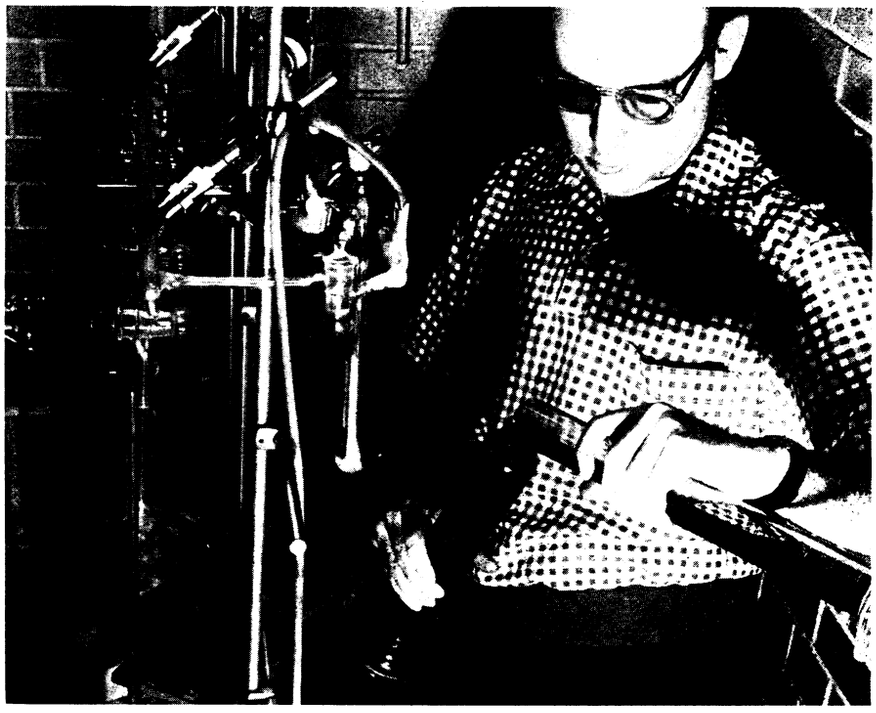

SOLUTION CERAMICS—New and flexible ceramic coatings can be applied to a wide variety of materials by the process of solution ceramics, developed at Illinois Institute of Technology's Armour Research Foundation. The coatings, whose liquid nature is shown in the photograph, can be sprayed at only a few hundred degrees Fahrenheit and will adhere to almost any solid surface.