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Excerpts from "Science and Humanity
at the Turn of the Millennium"
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We are now at the threshold of a new millennium. There can be no doubt that the 20th century has been a unique century, with more momentous changes than in any previous century: changes that have brought enormous benefits to human beings, changes that threaten the existence of the human species.

I was five years old when the First World War broke out. My formative years were spent in utter poverty and hardship. I began to develop a great passion for science, pursued not only to satisfy our thirst for knowledge, but as the means to alleviate the miseries of life that I experienced every day: death and destruction; hunger and cold; squalor and disease; degradation and cruelty. I fervently believed that science could, and would, put an end to these evils. It was this dream that sustained me in those terrible years.

Now—as a nonagenarian, looking back at this dream of a child—I am glad to note that much of the dream has come true. On the whole, the world is much better off at the end of the century than it was at its beginning. And most of the betterment is the consequence of the progress made in the natural sciences.

Sadly, however, I have also to note many negative applications of science. The benefits are not enjoyed by all people to the same degree. There is now a much wider gap between the industrialized and the developing nations, [and] between the upper and lower strata within individual nations. This has created new social tensions which may lead to strife and military confrontation.

The better-off nations—and the affluent strata within nations—do not seem to be satisfied with their high standards of living. They want ever more luxuries; greed, the hallmark of the capitalist system, is a driving force.

The result is excessive consumption of energy and squandering of natural resources. These excesses may lead to a catastrophic degradation of the environment. Unless drastic steps are initiated soon to deal with the ecological problems, we may be heading for global disaster and the destruction of many species, including the human one.

Above all, the use of science and technology to develop and produce weapons of mass destruction has created a real threat to the continued existence of the human race on this planet. Although their actual use in combat has so far been confined to the destruction of two Japanese cities, during the Cold War obscenely huge arsenals of nuclear weapons were accumulated. The arsenals were so large that if the weapons had been detonated, the result could have been the complete extinction of the human species. To a very large extent this was due to the work of scientists.

On several occasions we came very close to the ultimate catastrophe. Each time we were saved at the last moment because the leaders concerned were sane people; can we be sure that we will be so lucky next time?

I see no evidence that we are genetically condemned to commit evil. I would venture to say that we are destined to do things that are of benefit to the human species, and the capacity for aggression was acquired as a transient requisite in the struggle for survival. I start from the assumption that Man is inherently good. This has been my basic philosophy since my youth, and all the terrible events of this century that I mentioned—including personal tragedy—have not shaken this belief.

We are faced with a daunting dilemma. As part of cultural evolution, science should be allowed to develop freely, with no restrictions put on it.



Joseph Rotblat, 1995 Nobel Peace laureate, was the only scientist on the Manhattan Project who left on moral grounds, after intelligence reported that the Nazi government would not discover the atomic bomb. He was a signer of the Russell-Einstein Manifesto, and co-founded the Pugwash Conferences on Science and World Affairs that it called for.

But can we afford the luxury of uninhibited research—which may lead to an even greater potential for total destruction—in a world in which war is still a recognized social institution? For the preservation, and continuing enhancement of the human species, we need to learn to live with one another in peace and harmony. But this learning process has been slow and arduous, and is far from being complete.

The time has thus come for some kind of Hippocratic Oath to be formulated and adopted by scientists. A solemn oath, or pledge, taken when receiving a degree in science, would, at the least, have an important symbolic value, but might also generate awareness and stimulate thinking on the wider issues among young scientists. Apart from the individual expression by scientists of their social responsibility, there is a need for organizations of scientists to articulate this collectively.

Full text: <http://www.thinkwemust.com/Rotblat1999.pdf>

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