

1974

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Recommended Citation

Dobson, Virginia L. and Hamilton, George (1974) "Fate of the World Rests on Science Teachers: Asimov," *Iowa Science Teachers Journal*: Vol. 11: No. 4, Article 8.

Available at: <https://scholarworks.uni.edu/istj/vol11/iss4/8>

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FATE OF THE WORLD RESTS ON SCIENCE TEACHERS: ASIMOV

Dr. Isaac Asimov, biochemist, science writer, and former teacher, gave the Fellows Address at the 78th Science Teachers Association of New York State Conference last year. In his presentation he defined science as an attempt to understand the rules that govern the universe, an attempt that was of no practical purpose before the 18th century. The following excerpts were reported by Virginia L. Dobson and George Hamilton, Texas A & M University, College Station, Texas.

“Prior to 1752 men suspected people who tried to pry too deeply into the workings of the universe. It was always thought that if you knew what made the universe run, you could control it for your own selfish purposes. You could control it to the detriment of your enemies or the people you took a dislike to. You might release forces you couldn’t control, to the damage of all. People feared the sorcerer’s apprentice sort of thing. They feared that all people who examined the universe or studied the laws that surrounded the material world about them might do great damage. You have the Faust myth: the scientist who investigated the world and was carried off by the devil for his sins. And when proper science, modern science, began, it apparently had no practical application. It was entirely theoretical, entirely a kind of dream. You worked out systems wherein the earth goes around the sun instead of the sun going around the earth. I notice Copernicus, that great dangerous man, is on the cover of the Conference program, this being the 500th anniversary of his birth. But after all, whether the sun goes around the earth or the earth goes around the sun might be considered a matter for theorists to argue about. To the average man, it doesn’t matter.”

Science came down to earth when it became mixed up with technology. It was done in 1752 with the first conquest of a natural disaster. “There was one small natural disaster which did a lot less damage than the great ones, but which somehow had a great deal of psychological effect on mankind. That was the lightning bolt. There was something singularly individual about being struck by lightning. When the conquering army passed, when the plague struck you down, when there were floods or famines or volcanic eruptions, you at least had the comfort of knowing that all your neighbors got it in the neck too.

“Whenever there was a thunderstorm, there would be all sorts of methods for trying to ward off the lightning stroke, especially if, as was almost always the case, you had just committed a juicy sin and you felt that the heavens’ artillery was opening up for the purpose of getting you.”

Dr. Asimov pointed out that in the 18th century it was fashionable to experiment with static electricity; this was the century in which the Leyden jar was discovered. Some people noticed that when a Leyden jar discharged, there was a small spark and a little crackle and that this was a very miniature lightning and thunder arrangement. “The lightning and thunder is actually a huge Leyden jar discharge. The difficulty was in proving it.”

He continued with the story of Benjamin Franklin flying the famous kite; Franklin managed to electrify the cord of the kite with the electricity running down to the key, and when he put his knuckle to the key, he got a spark (the same sensation received from a spark from a Leyden jar). This discovery led to the lightning rod. And the wonderful thing about this? It worked. Buildings with lightning rods didn’t get damaged by lightning.

“For the first time in history a natural disaster was staved off . . . and by means of a scientific discovery. It is not an accidental development of technology by an ingenious gadgeteer. It was brought about by the study of scientific laws and by the deliberate application of those laws through humanly useful ends.” This was the turning point, the moment at which mankind began to turn to science.

Dr. Asimov went on to point out that he was not claiming that life under science was perfect now, but that “it is a heck of a lot better than it was before, for the average person.” World War I showed how technology could be used for negative purposes. It was this destructive ability that began to disillusion mankind with science, “the realization that it could be used for evil purposes, for destruction.” It came to be thought that scientists were the new mercenaries working out the destruction of humanity.

What’s to be done? “It’s important for scientists not to be in their ivory tower, but to recognize themselves as part of humanity and to deal with the issues that face humanity, and to educate the population about science, to increase interest in science, to teach the philosophy of science as it affects human beings, to deal not just with inventions and discoveries, but with the consequences of those inventions and discoveries.”

He concluded with the following: "It is when scientists can display a greater social awareness that we can defeat these people who talk about the dangers of science. We must make it clear that science is aware of its social function and that scientists are not creatures of ivory towers who work blindly for mere money toward the destruction of humanity. We must make it clear that if we do have problems and the problems have been brought by scientific advancement, that scientific advancement is not the only thing that solves problems, and that if we are going to face the problems of today and conquer them, the only solution is not less technology, but more technology and wiser technology, and this can be brought about only through science. This is the burden that falls upon science teachers.

"There are no groups in the world today who have a greater responsibility and upon whom the fate of the world rests."

PUBLICATIONS

ASSESSMENT PROGRESS REPORT

A report from the Education Commission of the States describes the findings of the National Assessment of Education Progress in several areas. The second science assessment showed an overall decline in achievement. Rural schools, however, improved over the first assessment, but are still behind the nation's average. For your copy of the nation's largest educational research project, send \$2 for Report No. 48, *National Assessment Achievers: Findings, Interpretations, and Uses*, to Education Commission of the States, Suite 300, 1860 Lincoln Street, Denver, Colorado 80203.

ENERGY-SAVERS DIRECTORY

Want to find out who is working to alleviate the energy problem? Office Research Institute figures that the topic is so hot it has compiled a directory of organizations and individuals active in energy conservation, conversion, and innovations. The directory lists those engaged in solar energy, waste utilization, wind power, energy storage, and shale oil in such fields as research and development, manufacturing, government, and education. Copies are available at P.O. Box 55-7536, Miami, Florida 33155.