

## THE SOCIAL RESPONSIBILITY OF SCIENTISTS

HOWARD TAYLOR, Oklahoma College for Women, Chickasha

There was a time when scientists were philosophers and philosophers were scientists. The history of thought has been a history of a division of labor which occurred as the volume and quality of reflective thinking increased. One by one, various groups of thinkers narrowed the scope of their thinking until at last they developed a body of subject matter which could be more or less clearly differentiated from the general field of philosophy. Truly philosophy is the mother of sciences, but many of her children are prodigals, who, having spent their spiritual substance in riotous living, have no desire to return home, and some even deny the mother who gave them birth.

However, throughout the centuries there have always been many loyal sons who not only gladly paid tribute to their mother, but contributed liberally to their scientific earnings to her support. From Pythagoras and Aristotle to Whitehead and Russell, the great thinker has frequently been both scientist and philosopher. Others of our day, such as Arthur Compton, Robert Millikan and the late Alexis Carrell, all preeminent in their chosen fields of science, have also been keenly interested in the philosophic and social implications of science. This suggests that there is a growing awareness on the part of scientists, especially here in the United States, that they, like all other human beings, are morally and socially responsible for their actions, including their research activities.

In an address given at Chicago last May before the annual meeting of the American Council of Education, President Bronk of John Hopkins emphasized the educational responsibility of scientists to consider the social consequences of science. In this connection he said: "As one makes possible, through science, new material possessions and provides new sources of power, science poses new problems regarding their distribution and utilization—imposes new moral issues regarding human rights" (1). In developing this thought, he further declared that educators must give to great numbers of our population a better understanding of the meaning of science. Surely this responsibility devolves in a very special manner upon educators who are also scientists. In the event that men and women of science do not meet this responsibility, President Bronk concluded, "we shall have failed in one of our greatest responsibilities."

The deep concern about the social attitudes of scientists, both on the part of scientists themselves and by the general public, is due to several rather clearly discernible factors. In the first place, the exacting demands of scientific research have done much to narrow the view and interests of the scientist. In the search for truth, the scientist may become so engrossed in the pursuit of facts that the larger social implications of his work may, for the time being at least, elude him entirely. Pure science, with the search for truth as an end in itself, leads ultimately to another dichotomy, namely the separation of the scientist as a scientist from the scientist as a citizen. This has far greater consequences for society than did the departure of science from the household of philosophy.

Furthermore, it has become customary to personify science and to speak of the contributions and achievements of Science, rather than of those of scientists. This identification of science with the scientist has tended to minimize the moral and social responsibility of the pure scientist. It has become commonplace to say that science answers the question, What? but is not concerned with the question, Why? For example, a woman may ask a scientist, "What is a deadly poison?" To this question he may answer, "Potassium cyanide." Why she wants to know, whether to kill rats or to murder her husband is no concern of his, as a scientist.

The distinction has often been made that science is concerned with facts, while the humanities are concerned with values. We are now coming to understand that such a distinction could be valid only if scientific truths were utterly without value. A clear recognition of the values of science brings with it a realization of social responsibility of the scientist.

Not long ago, President Conant of Harvard, in a discussion of "Scholarly Inquiry and the American Tradition," said: "—I believe that in terms of academic history and present practice, both the driving force and the frame of reference are the same for the scholar in the humanities, the social sciences, and the natural sciences."

Very recently, Stuart Chase wrote these words: "The dominating drive of social scientists, as I read their literature since Hiroshima—spurred on perhaps by the atomic physicists—is to develop world men who can rise above their culture and see the planetary shape of things. Such men can be against Martians, or soil erosion, or typhus, or slums, or famine, but they cannot be against men. They have come full circle back to their own kind."

The thing that I am trying to say is that social scientists are not the only ones who must face the question of what they must be for, and what they must be against. Many of the atomic physicists who made Hiroshima possible, did have a soul-disturbing experience as they came to grips with the social significance of their work.

It was something new in scientific research for scientists to express a sincere hope of failure in their work. Never again will scientists be able to evade or long ignore responsibility for the consequences of their achievements. Neither a ceremonial public washing of hands, after the manner of Pontius Pilate, nor a frenzied private scrubbing to wash off the "damned spot" of conscious guilt, will purge men of science of moral responsibility for their scientific deeds. Physicists, chemists, mathematicians, bacteriologists, social scientists,—men and women in every field of science—come at last to know that not only they cannot, but they must not be against their own kind.

At the annual meeting of the North Central Association of Colleges and Secondary Schools in 1947, Chancellor Gustafson, of the University of Nebraska, in an address on the "Contribution of the Physical Sciences to World Citizenship," gave a brilliant and thought-provoking review of the research work which produced the atomic bomb. He summarized this brief account in these words: "I have tried to give a few illustrations of the work of science which is driving us to be good citizens. What I have said up to this point can be summarized in a very short sentence. It says to the human race: 'Be good or be damned!'"

Without question, this admonition spoken by the voice of science is essentially true. But what voice can science have but the voice of the scientist? And is the admonition to be good, less binding upon the scientist than upon other members of the human race? Is it enough for scientists to tell the rest of mankind to be good or be damned by scientific achievement?

Mr. Gustafson closed his address with these words: "There are two great forces pushing us on: First, the great destructive capacity which comes along with scientific development, which says, 'Be good or be damned!' And a second, a great force that is creative in character, which says that man can have the good life if he will learn to create and not to destroy; if he can learn, in other words, to have a decent social morality—if he can become a world citizen." This is no mere academic utterance of scientific truth. It is an urgent mandate to workers in every field of science to accept the responsibility of leadership in making all science of service to humanity, rather than an instrument of destruction. In a very real sense, the scientist is his brother's keeper.

Today, as we meet in the various sections and groups to hear reports of advances all along the scientific frontier, may we also begin to mobilize our

moral and spiritual forces to do all that we can to make scientific achievement promote human welfare. May we, as individual workers in the many branches of science, also work together to make explicit the social values of science and accept the responsibility to do our part to realize these values in the practical affairs of our fellow men.

It seems to me that much could be done to increase the usefulness of this Academy of Science as a social force through a larger participation of social scientists in the work of the Academy. Historians, political scientists, economists, and those in other fields of social study should have a leading part in the integration and interpretation of the activities of our various sections. There surely is a place in this Academy for those working in the field of ethics.

Not only is there need for greater emphasis upon the social sciences, as such, but there is also a need for all of us to have an increased concern for the social consequences of our work. A cooperative study along this line by a committee representing all of the sections of this Academy could at least pioneer in trying to make explicit our social responsibility both as a group and as individuals.

My purpose in choosing the subject of this address has been to focus our attention and thought on the fact that there is a growing consciousness among scientists that they are morally responsible for the consequences of their scientific achievements. My hope is that we, as a group, may begin to do something constructive to prevent the use of science to destroy human values, and to help direct all scientific advancement into the service of humanity. The choice that scientists have to make is clearly and beautifully stated by Julia McGrane in these lines:

"Lovely is the world today  
Swaying on so slight a stem.  
Joy as fragile as a sigh  
Petaled round its hem.

"Man may pluck it if he will  
Man grown clever now to learn  
How to snap the stalk with one  
Quick, emphatic turn.

-----

"Man is not measure of the earth.  
Though he destroy it if he must,  
Unnumbered light-years, ether-wise,  
Its incandescent dust

"Would spell a star to shepherds camped  
On hills untutored worlds away  
Or guide men sailing wooden barks  
Into a candid bay.

"And on some artless sphere a child  
Across millenniums would say  
Her wish upon the world we loved  
And threw away."

My conviction is that men and women of science have the moral integrity to choose aright in this day of crisis. Ours is the task to see to it that our cultural heritage—this world we love—is not thrown away.

In 1916, the University of Chicago Press published a volume of *Essays in Experimental Logic* by John Dewey. Many of these *Essays* had been published earlier. For this collection, Dewey wrote an Introduction of seventy-three

pages, which was more than twice the length of any of the Essays. It has been said that this Introduction is Dewey's most heroic effort to state his thesis. Whether or not his effort is heroic, it is certain that Dr. Dewey becomes truly eloquent in his concluding appeal to philosophers and scientists to come down from their ivory towers and to accept, fully, social responsibility in their work, and to realize that the meaning and value of all scientific thought is to be found in its social consequences.

I find no better way to conclude this address than to quote at length the following words of John Dewey: "God only knows how many of the sufferings of life are due to a belief that the natural scene and operations of our life are lacking in ideal import, and to the consequent tendency to flee for the lacking ideal factors to some other world inhabited exclusively by ideals. That such a cut-off, ideal world is impotent for direction and control and change of the natural world follows as a matter of course. It is a luxury; it belongs to the 'genteel tradition' of life, the persistence of an 'upper' class given to a detached and parasitic life. Moreover, it places the scientific inquirer within that irresponsible class. If philosophers could aid in making it clear to a troubled humanity that ideals are continuous with natural events, that they must represent their possibilities, and that recognized possibilities form methods for a conduct which may realize them in fact, philosophers would enforce the sense of a social calling and responsibility." And surely we, the members of this Academy of Science are equally bound to enforce this sense of a social calling and responsibility in our work.

#### BIBLIOGRAPHY

1. BRONK, DETLEV W. 1950. The natural sciences face the world crisis. Ed. Rec. 31(3): 304-314.
2. BRYSON, L., L. FINKELSTEIN, AND R. M. MACIVER, eds. 1948. Learning and world peace. Eighth symposium, conference on science, philosophy and religion in their relation to the democratic way of life. New York: Harper and Bros.
3. COMPTON, A. H. 1935. The freedom of man. New Haven: Yale University Press.
4. CONANT, JAMES BRYANT. 1950. Scholarly inquiry and the American tradition. Ed. Rec. 31(3):275-282.
5. DEWEY, JOHN. 1916. Essays in experimental logic. Chicago: University of Chicago Press.
6. FOSTER, F. M. K., AND H. A. WATT, eds. 1941. Voice of liberty. New York: The Macmillan Co.
7. GUSTAFSON, R. G. 1948. Contribution of the physical sciences to world citizenship. N. Cen. Assn. Q. 22:277-284.
8. MILLIKAN, R. A. 1935. Evolution in science and religion. New Haven: Yale University Press.