On the basis of mutual exchange, of which we made mention in the introduction of this issue, we publish hereunder an article of one of the editors of our Unity of Science Forum, Philipp Frank. It is the text of a lecture held by Frank at the 7th Annual Conference of Science, Philosophy and Religion, at the University of Chicago, September, 1946. We are greatly indebted to the Editorial Board of the American journal „ETC“, who had the copyright of this publication, for giving us permission to print this article, dealing with problems of education, science and philosophy.

THE EDITORS.

SCIENCE TEACHING AND THE HUMANITIES
by Philipp Frank (Cambridge, Mass.)

There is a widespread belief that the rising contempt for tolerance and peace is somehow related to the rising influence of scientific thought and the declining influence of ethics, religion and art as a guidance of human actions. This contention is, of course, debatable. There is hardly a doubt that the causes of war can be traced back quite frequently to religious or quasi-religious creeds and very rarely to the doctrines of science. The humanities, including religion and ethics, have been for centuries the basis of education and the result has been, conservatively speaking, no decline in the ferocity of men. The scientists have never had a chance to shape the mind of several generations. Therefore, it would be more just to attribute the failure of our institutions to educate a peace-loving generation to the failure of ethical and religious leaders than to construe a responsibility of the scientists.

I do not think, however, that it makes much sense to discuss the share of responsibility. For I agree fullheartedly with the critics of science in the belief that the training of generations of scientists in mere science without making them familiar with the world of human behavior, would be harmful to the cause of civilization. Whether we like it or not, scientists will participate more and more in the leadership of society in the future. Also there is hardly a doubt by now that the contributions of the scientists to our political life has been more on the side of peace and tolerance than the contributions of the students of law or government, or, for that matter, of philosophy proper.

In order to make this attitude of our leading scientists a habit among the rank and file, it is important to imbue the future worker in science with an interest in human problems during his training period. Since for this purpose it is futile to argue for the supremacy of humanistic education over science education, the debate „science
versus humanities' or vice versa is, of course, without point here. But it is also of little avail to compel the student of science to 'take' some courses in the departments of 'humanities'. According to the record of all people I know, the mentality of the average science student is such that he will not sufficiently appreciate these courses, and therefore not assimilate them well. What we actually need is to bridge the gap between science and humanities which has arisen and widened more and more during the nineteenth and twentieth centuries. According to my opinion, this can be done only by starting from the human values which are intrinsic in science itself. The instruction in science has to emphasize these values and convince the science students that interest in humanities is the natural result of a thorough interest in science.

In this way the science teacher will be giving his support to the whole cause of general education as well as to his specialized teaching of science.

SPECIAL FIELDS

Everyone who has ever tried to raise his voice for the cause of general education among the faculty members of a university has been running almost regularly against one very definite objection: whatever of their time the students have to spend in classes on general education they have to subtract from the time they devote to specialized work in their own scientific field. As this field is, in any case, so vast that it cannot be covered during their stay in college, it would be almost a crime to curtail this short and valuable time. This attitude is particularly strong among the teachers of science proper.

I am going to discuss the issue 'special field versus general education' mainly from the viewpoint of science students. However, I am sure that the general picture will be about the same in any other field of study, in languages, in history, etc.

Besides this negative attitude of a great many scientists who warn us not to replace 'honest work by idle philosophical talk,' opposition to general education arises also from a group which one would hardly suspect of playing this role. The instruction in the 'special sciences' is, on the college level, regularly complemented by a 'department of philosophy' which has been supposed to emphasize human knowledge as a whole in contrast to the special types of knowledge furnished by the science departments. However, the departments of philosophy have not attended much to this great historic task. They have rather added a new specialty, technically called 'philosophy.' In this specialty the emphasis has been put not so much on the integration of the special sciences as on the creation of a technical