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SCIENTISTS, POLITICIANS, PRESS AND PUBLIC

The following remarks are intended as fairly provocative comment on the topics for Working Group 6 on "The Special Responsibilities of Scientists".

A. Role of scientists in advising governments and international organizations.

Scientific advice for governments is now well established in many countries but is open to general criticism in three important respects.

1. Scientific advice is basically concerned with future technical developments and their likely relevance to national affairs. Yet in few countries do the scientists responsible for giving the advice make systematic, coherent studies of the future significance of current science, on an interdisciplinary basis.

2. Scientists advising governments accept a civil-service role, in name or in fact; their allegiance is to the government of the day and they are party to decisions, taken behind closed doors, which affect the course of science and human affairs. That is not to imply that they behave improperly; they are performing a social duty required of them by governments. But they reinforce the technocratic, as opposed to democratic, modes of government, and it is important that this scientific influence should be counterbalanced by scientific advice to legislatures, political parties and other democratic bodies.

3. The greatest scope and the least questionable role for technocrats is in the international sphere. Most problems of administering, evaluating and applying science are shared by many countries. The power of international technocrats is checked, in a quasi-democratic way, by the right of governments to reject their proposals. Scientists who wish to see the creative and revolutionary possibilities emerging from science studied and aired fully, yet without imposing decisions on the public, should favour the growth of an international science technocracy.

B. Role of scientists in influencing public opinion.

1. The applications of science are, or should be, controversial and scientists can play a proper part in influencing public opinion only to the extent that they are prepared to engage in controversy. In

my experience of editing a science magazine, few scientists are prepared to be controversial in print, about political and social matters. I believe that the principal reason is that governments are nowadays the chief source of funds for research, and individuals come to identify their professional interests with an avoidance of controversy. Less discreditable, but equally wrong, is the reluctance of scientists to discuss or speculate about matters which are not yet scientifically established. Political decisions, including those concerned with the administration of science itself, have to be taken on the basis of imperfect information, with a large element of speculation and guesswork. Unless scientists are prepared to accept these non-scientific facts of life they cannot expect to influence public opinion before the decisions are taken. The typical behaviour of scientists is to express horror too late, after a wrong decision has been implemented - but not until sufficient evidence has accrued to make them feel confident. Nuclear weapons tests and pesticides provided striking examples of this behaviour.

2. Also characteristic of scientists is a desire for unity, typified by the large-scale petition, the unanimous statement at the end of each Pugwash Conference, and feelings of dismay when prominent scientists contradict one another in public. While a "united front" has its uses for particular purposes, they not only are limited to narrow issues on which reasonable unanimity can be achieved but also tend to conceal the very real differences of opinion which can exist among scientists. If such differences of opinion reflect genuine uncertainties or dilemmas, it is particularly important that the public should know about them. Moreover, I believe that every proposed new application of science should be forcefully opposed, not to impede progress but to make sure that the snags and possible side-effects are properly aired. This inevitably implies controversy between scientists.

3. In Western countries the chief vehicles of opinion are the rival political parties, and it is in their conflicts about important issues that Western-style democracy operates. Roughly speaking, only those topics which are matters of controversy between parties receive serious attention from the parliaments and the public. It follows that the crucial decisions about the applications of science will come within the democratic process only to the extent that party politicians develop political interests and convictions about them. The best contribution that scientists can make, to influence public opinion and reinforce the democratic process, is to develop advisory associations with legislators and party organizations. While the conduct of research should be insulated from politics, the applications of science most certainly should not be.

C. The ethical problems created by applications of modern science.

As implied in the foregoing, the proper arena for debating the ethical problems of science is to be found in the existing institutions of democracy. But a special responsibility does, of course, fall on scientists to guide public opinion by identifying ethical problems and by forming opinions about them. In this respect, the performance of scientists, so far, is inadequate.

1. There is a standard closing paragraph frequently used by scientists in articles for public consumption which, condensed and paraphrased, runs: "Plainly the implications of this research raise profound social and moral questions which scientists and non-scientists alike must ponder carefully." The trouble is that this almost invariably is the last paragraph and very rarely indeed does anyone get around to doing the pondering - at least in print.

2. Moral values are a function of the general character of a society: those of primitive hunters, agrarian communities and industrial societies tend to be significantly different. I do not believe it is feasible to come to long-term conclusions about the ethics of, say, genetic engineering, computer-communications systems, drug-taking, or even novel weapons, without having at least a shadowy impression of what society will be like in the future. Again, therefore, we can see a need for more systematic study of the future.

D. Scientists' responsibility in public education on the meaning and implications of science.

Under the earlier headings, I have emphasized the need for scientists both to engage in public controversy and to clarify their own thinking about future uses of science. As far as more general education of the public is concerned, there are growing opportunities, through the press, television and public lectures, for scientists to communicate with the general public. Scientists have responded quite well, but not perfectly.

1. In my experience, scientists rarely take the initiative in laying important scientific results or issues before the public. Most scientists are passive in this respect, and wait until a science journalist, editor or information officer invites them to say something publicly. For example, I cannot recall more than a handful of really important articles, among the thousands published in New Scientist, which were not initiated editorially. That would be all right if there were a uniformly high level of competence among journalists and editors, and if they could be relied upon to spot all the important developments. But, in fact, standards vary widely, both within countries and between countries, and the growing volume of research and application makes it increasingly difficult for journalists to cope with it unaided. Scientists who are aware of important breakthroughs or trends in their areas, or of emergent problems of public policy, should make it their business to ensure that the public is informed.

2. Besides maintaining public information on the substance and implications of science, scientists need to consider the public's appreciation of the style and character of science. In their own specialist research reports, scientists have fallen into a bad habit of making the work appear to have been perfectly conceived and executed, and not like a human process at all. More generally, the public image of science is of an inexorable and infallible machine moving in a predestined direction, independently of human wishes, choices or goals. The more that scientists strive to maintain an impression of prim objectivity and the self-confidence of superior knowledge, the longer

will the general public regard them and their work as being remote from ordinary life and humanity. Nobody will think any the less of scientists if they are more frank about the accidental and subjective elements in their work, or about the uncertainties and disagreements that prevail at the frontiers of knowledge. On the contrary, they will get a better sense of human achievement. What is more important, they will understand more clearly that the application of science is a human process subject to human control. Trite though that may seem, it is the most important single idea that needs to be communicated to scientists, politicians, press and public alike, at this stage in human history.