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## Social Responsibilities of Scientists

A few decades ago, most scientists held the view that their principal duty was to advance the frontiers of knowledge. Correspondingly, the scientific societies limited their activities to publications and meetings centered on their chosen fields. During the past few years, the activities of scientists have expanded. Many of the principal symposiums at the recent Boston meeting of AAAS dealt with public policy aspects of science and technology.

Scientists have not unanimously approved participation in policy matters by their colleagues. Some have objected that spokesmen certainly did not speak for them personally. Others have pointed out that once facts have become generally known, the scientist can no longer determine how his discoveries may be applied. To some degree, this argument is valid. Nevertheless, scientists will have continuing and important roles in determining how science is applied. One important function is that of watchdog.

In exploiting scientific discoveries, humanity will squander resources and unwittingly conduct profoundly important experiments on itself and on the environment. Who will evaluate such experiments and be alert to emerging problems? The man in the street can scarcely fill such a role. Government might, but its leadership is in the hands of politicians who rarely act until an issue is crystallized by others. Scientists or engineers in government service might act as watchdogs, but in general, politicians prefer that the bureaucrats speak only when spoken to. Employees of industry are in much the same circumstance. Thus academic scientists and the scientific societies have responsibilities that they cannot escape.

In attempting to convert opinion into action, scientists should avoid internal conflict. They form only a tiny fraction of the electorate, and at best their prestige is not such as to give much weight to partisan exhortations. In matters that are more political than scientific, members of societies are likely to be divided in their preferences. When a society attempts to achieve a monolithic position on such issues, it does so over strong objections. The outcome convinces no one, serves little purpose, and leaves debilitating wounds. The societies are more effective when they employ leverage furnished by other opinion makers. During the past decade, AAAS has met this challenge by providing forums in which technological problems that affect all of us were discussed. These presentations have been well covered by the mass media.

After the mass media begin to devote attention to a problem, public awareness increases, and politicians become interested. However, in helping to create judicious public opinion, the scientific societies can have an important role. Especially useful are fact-finding commissions and committees. Thus the Air Conservation Commission of AAAS served a valuable function in early delineation of facts concerning air pollution. Reports from committees organized by the National Academy of Sciences have been helpful in crystallizing public opinion on such issues as birth control. In general, the reports have had an effect roughly proportional to the level of scholarship and objectivity which characterized them.

The goal of opinion-making should be constructive action. A prerequisite for this is thorough planning based on an adequate fund of knowledge. Scientists can make imaginative contributions to planning, and they can help ensure that the factual bases for decisions are as sound as possible.—PHILIP H. ABELSON