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The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects are to further the work of scientists, to facilitate cooperation among them, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.

Some Needed Reforms

The scientific community has been curiously flabby in reacting to evolutionary trends which challenge the vitality of science. Modes of communication which were adequate 50 years ago have not been altered, in spite of the vast increase in numbers of scientists. The annual round of spring meetings reminds us that these great national gatherings are losing their effectiveness as media for scientific communication. At the recent Atlantic City meeting of the Federation of American Societies for Experimental Biology there were 3138 papers presented and as many as 34 simultaneous sessions. There are comparable situations in other areas of science. Planning one's program of attendance on such occasions can be frustrating, for one notes numerous papers of interest but discovers that many of the attractive presentations are being given concurrently. All too often the harassed scientist cannot make up his mind and foregoes all of the choices.

The proliferation of scientific literature has comparable negative aspects. Faced with a flood of material, no man can do more than sample the publications appearing in his immediate field and in the relevant neighboring disciplines. Here, too, each scientist has a breaking point at which he gives up on the effort to follow new developments.

Instead of tackling these communication problems we have ignored them, and we have retrogressed, for we have allowed our standards to deteriorate. We permit and even encourage scientists to deliver virtually the same lecture at meeting after meeting. It is annoying and wasteful to make a special effort to hear a paper only to find that the speaker is repeating, almost verbatim, material he has presented earlier.

This tendency toward repeated presentation has also affected the literature. I have noted instances in which basically the same article has appeared more than five times. This repetition is compounded in the structure of the usual scientific paper. A scientist will obtain one new result, the essence of which can be stated in a paragraph and a table. In the standard minuet, he expands the paragraph to ten pages as he describes his new fact in the abstract and presents it again in introduction, discussion, conclusion, and summary. When such a paper is published repeatedly, the author can easily succeed in restating his basic paragraph several dozen times.

The present communication problems could be greatly ameliorated if the scientific community would adopt a tougher standard of what is acceptable. If editorial policies were tightened, the amount of material appearing could be cut to a quarter of the present volume with no essential loss. This tougher approach might well take the form of a stern attitude toward repeated publication of the same material. It would require some reforms in the conventional structure of papers, so that key ideas would not be repeated so many times. It might be necessary to suppress the tendency toward premature publication of fragmentary results.

A parallel toughening in our approach to scientific meetings also would be useful, and the number of sessions could be cut drastically without much loss.

Such needed reforms would have obvious beneficial consequences. To implement them requires courage on the part of editors and officers of societies and generous cooperation and understanding on the part of scientists-at-large.—P.H.A.