

On Narrowing the Scientific Knowledge Gap

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IT IS NOW SEVERAL YEARS since the scientific knowledge gap was pointed out clearly by C. P. Snow (1) in his *Two Cultures*. The gap between the scientific community and the layman has received considerably more attention since that time, yet there is increasing evidence that this "scientific gap" is not narrowing and may, in fact, be growing wider. While the public demands more information about science, scientists find their information to be more "dangerous" to the public, and they are more reluctant to tell the public about it. The man on the street is beginning to believe that his survival is threatened by air pollution, nuclear wastes, starvation, and over population. He is also hopeful that science will cure his ills and lengthen his life. At the same time scientists hesitate to raise such fears or hopes in the public by announcing findings that affect these factors.

I should like to point out some examples of public interest in science on the one hand and resistance to publicizing science on the other hand. A great deal of the information will be based on current experience at the University of Wisconsin, particularly in the agricultural sciences where a great many of the current scientific frontiers are being advanced.

I should like to try to support three simple theses: (1) that the public has an increasing interest in science and wants more of it in the news, (2) that many editors still handle science as one of the lowest ranking forms of news, and (3) that scientists are finding it increasingly difficult to release science news to the public because it is potentially "dangerous" to society.

THESIS 1. *The public wants to know more about science and considers science to be newsworthy.* One of the most recent re-

ports of this was made by the Associated Press in 1968 (2), in a poll of 1,000 readers in 17 U.S. cities. They found that 49 per cent of the people wanted more news on scientific developments, 46 per cent wanted the same amount, and 5 per cent wanted less science news. A poll of 134 high school and college students in these 17 cities showed a similar trend.

THESIS 2. *Editors in the mass media rank science low in news value to their audiences.* The newspaper editor is the real "gate-keeper" on release of science news to the public, according to Johnson (3). He found that editors use a different set of values to judge the news value of science than scientists, science writers, and the public use. While scientists and newspaper readers hold similar views on what is important science news, the editors stand apart in their judgment of it.

Our own experience in sending out science news to editors confirms this in many cases. Checking with editors on a personal basis and in occasional mail surveys, we can list the following reasons why a science story may not be printed:

1. It has no local interest or news "angle."
2. It offends a specific reader group.
3. It needs to be supported with pictures.
4. Space does not permit use of science except in slack times (Saturdays and Mondays, January and August).
5. Stories are often too long (most editors like 500 words or less).
6. It has a doubtful source of authority or reputation (this is a rare complaint of college sources).
7. It lags behind the competition or it overlaps with competing news media.
8. It is uninteresting in writing style or subject matter content.

The points are not listed in order of importance, nor do they apply in every situation. They do illustrate, however, that science news does not compete favorably with other news in the judgment of many editors.

THESIS 3. *Scientists are reluctant to release some kinds of information to the general public.* In a study of selected agricultural

scientists at the University of Wisconsin, Stamm (4) found that 82 per cent of the responses indicated that public knowledge of research can cause trouble. In answering the question, "In what ways can public knowledge of your research cause you trouble?" the responses were that it can (1) over-extend implications, (2) increase extension demands of ag researchers, (3) create problems with other researchers, (4) raise false hopes, (5) involve us with an irrational public. The other 18 per cent of responses indicated no serious problems.

Van R. Potter (5), noted medical researcher, discusses the release of potentially "dangerous knowledge" by the scientist which "takes many forms, such as the mushroom cloud or the armless child of thalidomide." But he does not assume either a positive or negative position on release of scientific knowledge to society. He says, "I feel that increases in knowledge are good or evil depending on the uses to which they are put. I believe that the concept of dangerous knowledge is a valid one if for no other reason than the fact that it illustrates one of the dilemmas of our society."

The fears of scientists about their discoveries are evident in written and spoken words everywhere. The possibilities of a nuclear holocaust from knowledge of atomic power, of a silent spring because of misused pesticides, of world famine because of disease control without birth control hardly need to be mentioned. One of our newest fears was expressed late in 1969 with the discovery of gene structure — a fear that man can now control the genetics of mankind.

Another spokesman for scientists, Bentley Glass (6), points out the social responsibilities of the scientist which may be considered under the three heads of "proclamation of benefits, warning of risks, and discussion of quandaries" raised by new scientific discoveries. "The advertisement of benefits of science seems to be sufficiently promoted these days . . . the ethical problem is merely to keep a check-rein on the imagination. . . ."

"Since 1945 more and more scientists have become engaged in warning of great risks to the very future of man of certain scientific developments."

As these social problems of science become more acute, it becomes easier and safer for a scientist to withhold his information from the public than to make decisions about it for the public and to defend it in public.

My own experience at Wisconsin has given me a list of research news stories that scientists asked not to be released because of their "dangerous" nature. These reasons can be classified under 13 headings as follows:

1. It is controversial to the policy of the institution.
2. It may be harmful to a small group.
3. The research results are speculative.
4. The story has been sensationalized.
5. Results are based on too small a sample to generalize.
6. Results will create premature excitement for industry.
7. It may hurt agriculture's public image.
8. It has a process under patent proceedings.
9. It will worry or scare the public.
10. The results are awaiting clearance by the federal government.
11. It should not be released to the public before release to scientific community.
12. It misinterprets the scientist's philosophy.
13. It is irrelevant or of no interest to the public.

These can be grouped into three broad categories which are generally the converse of those responsibilities mentioned by Glass. The story should not be made public because (1) it creates unnecessary fears, (2) it sensationalizes or raises false hopes, or (3) it harms or offends a segment of the public.

In summary, lest I appear negatively biased, let me say that there are many scientists, editors, and newsmen who are helping to bring science and the layman closer together. But the fact remains that the "two cultures" today are widely separated and current conditions are not favorable toward bringing them closer together.

This short discussion is not meant to be complete. Many other experiences and studies of similar nature could be cited by other scientists, journalists, or social scientists. My purpose is to stimulate more thought and discussion, perhaps some further study, and most hopefully action on the part of scientists, laymen, and journalists to narrow the "scientific knowledge gap."

Literature Cited

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