"Current Comments"

Gatekeepers in Science

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The world's scientific community is small, and its lines of communication fragile. It is therefore imperative that we--the community of scientists--protect and maintain the unimpeded flow of scientific information.

About 500,000 scientists publish articles each year and probably an additional 500,000 scientifically-educated people attempt to read them. I say "attempt" because there are various forces which retard this fertilization of science with new knowledge. Among the impediments to a free flow of information are the physical barriers of distance and accessibility, the cultural barriers of language, the availability of libraries and indexing tools, and the government-controlled barriers by which so-called "classified" information is barred from normal discourse.

Imagine a symbolic gatekeeper standing at each of these barriers, selecting which information shall be allowed to pass and which shall not, and you will have some idea of the vastness and complexity of the worldwide scientific information network.

Gatekeepers are information-conscious, and are fully aware of their responsibility to provide access to information. For instance, since there are upwards of 200,000 readers of *Current Contents*® but only 20,000 actual subscribers to *CC*® each subscriber provides access to ten readers. The subscriber is responsible for transmitting information contained in each issue of *CC*.

Editors of scientific journals are in a different way important gatekeepers. They disseminate in their journals the kinds of articles they think their particular readership desires and needs. Increasingly, science teachers use these journals as a source of classroom instruction, and in effect they, too, become gatekeepers by selecting the textbooks and curriculum to be studied.

Some corporations offer a unique "gatekeeping" service to business executives involved in decision-making. So-called "information management systems" will supply executives with all possible computer-based information, in order that the executives may make more objective decisions. The role of gatekeeper, one may say, is completely abandoned in that there is no selection of information by the gatekeeper which is thought essential. This service merely presents more data on which a broader subjective decision is based.

Inherent in the practical act of gatekeeping is the necessity of selection. The editor must choose one article to publish from several. Lewis A. Coser

illustrated this point when he wrote: "Relations between producers of ideas and their consuming publics or audiences are typically mediated through social mechanisms that provide institutional channels for the flow of ideas. These channels, in turn, are controlled by organizations or persons who operate the sluicegates; they are gatekeepers of ideas inasmuch as they are empowered to make decisions as to what is let 'in' and what is kept 'out'."[1] Ordinarily we think of gatekeeping in a positive sense: that the right information is allowed to pass through. Nevertheless, censors do play a negative gatekeeping role, even in science.

In 1962, I received a letter from the late Samuel K. Allison, a former member of the *CC* and *SCI*® editorial advisory boards. Professor Allison enjoyed a distinguished career in nuclear science. From his letter I derived an interesting lesson on the importance of keeping the gates open, even to our adversaries.

He wrote: "The open publication of all US results on the relatively new meson scattering experiments, etc. made it impossible for the Russians to withhold their data. Putting myself in the place of a Russian scientist. I can only imagine my feelings on reading in an American journal a discovery I had made and which my government had forbidden me to publish. There must have been tremendous pressure to open up. Of course, the desire to prevent the US from being thought the only country where ultra high energy accelerators were working probably contributed."[2]

In addition to Professor Allison's observations concerning international secrecy we may add those of Nicholas Henry. "The dysfunctions of secrecy in science are manifold. Fusion energy, for example, is a promising area of nuclear research that holds immense potentiality for alleviating the fossil fuel crunch. Yet, because of Soviet secrecy concerning their considerable progress with thermonuclear machines and American secrecy over their advances in laser-induced fusion, both of which are areas vital to the fusion energy process, no one wins and everyone loses--with the possible exception of the oil companies. Conversely, American openness regarding electronic data processing technologies, which never has been a classified field, has permitted the United States to acquire and maintain a commanding, world-wide lead in computer science."[3]

Allison and Henry point to the problem of governments themselves acting as rather arbitrary gatekeepers of science. In that respect, there are indeed enormous dangers to societies in which the free flow of information is impeded, and accessibility hindered.

In the chilling novel *1984*, George Orwell described how the political party in power controlled the thoughts of its citizens by censoring or altering all printed materials: "There were the vast repositories where the corrected documents were stored, and the hidden

furnaces where the original copies were destroyed. And somehow or other, quite anonymous, there were the directing brains who coordinate the whole effort and laid down the lines of policy which made it necessary that this fragment of the past should be preserved, that one falsified, and the other rubbed out of existence."[4]

Prior to the publication of *1984*, Orwell had written that, "The best way of avoiding the danger of a scientific hierarchy would be to see to it that every member of the general public was, as far as possible, scientifically educated."[5] In order to achieve this end, scientific information must not be hoarded, and gatekeepers must not be allowed to use information as a political device.

When we act as gatekeepers we must counteract all those bureaucratic minds in and out of government who would censor the information we need to progress. Daniel Ellsberg's personal act of information disclosure of the Pentagon Papers is a dramatic example of this in the political arena. Henry warns us that, "Policies for secret knowledge can exercise debilitating effects on the progress of science....Barriers are harmful to science and are a source of weakness in the free world."[3]

The Freedom of Information Act was passed by Congress in 1966, and amended in 1974. It "seeks to reach the goal of more efficient, prompt, and full disclosure of information by effecting changes in major areas."[6] The Act promotes better indexing of topics, identifiable records, more efficient court procedures against persons withholding information, and prompter service from federal agencies on information sought.

The aims of ISI® and other information service groups reflect some of the aims of the Act. We strive to construct extensive indexes of recent journals in an attempt to bridge the information gap between scientists. This indexing helps to disseminate the ever-growing lists of scientific and technical studies and articles published worldwide, many of them translated from other languages. ISI nurtures the growth of science through its role as the disseminator of knowledge, and thus has become an important gatekeeper of science.

1. **Coser L A.** Publishers as gatekeepers of ideas. *Ann. Amer. Acad. Pol. Soc. Sci.* 421:15, 1975

2. **Allison S K.** Personal communication, 1962.

3. **Henry N.** Public policies for information management; an overview. *Inform. Processing & Management* 11(1-2):69, 1975

4. **Orwell G.** *1984.* (New York: New American Library, 1961) p. 38-9.

5. *Collected essays, journalism and letters of George Orwell.* ed. by S. Orwell & I. Angus. 4 vols. (New York: Harcourt Brace Jovanovich, 1968) vol. 4, p. 10

6. U.S. Congress. House of Representatives.Government Operations Committee. House Report No. 93-876, 5 March 1974, vol. 3 p. 6271.