

## CURRENT COMMENTS

### Radio: The Neglected Medium for Scientific Communication

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It is 8:30 AM. You have just reached your office. First you order some coffee. Then you turn on the radio. As you begin to go through the morning mail, there is a little Beethoven, Bach, or Basie. Then the news broadcast begins. Instead of the usual fire, tornado, or accident report the announcer tells you about a bill in Congress that may make your present research illegal. A few minutes of music and he introduces an interdisciplinary panel to discuss the waste disposal problems faced by your city. After more music there is a report on the meeting of the American Association for the Advancement of Science you couldn't attend. Finally, the announcer gives a brief summary of some recently published papers. The hour-long broadcast is over before you know it. If you came in a little late, you are informed that the broadcast will be repeated several times that day.

This scenario is fictional. It ought not to be. The potential value of radio as a means of scientific com-

munication has been underestimated and certainly underutilized.

The amount of science programming on US radio is amazingly small. In other nations it is probably more extensive. But in no country is it used to serve the specific needs of the scientific community. This is unfortunate because radio is a particularly appropriate medium for much scientific communication.

For one thing, radio is an almost painless way to be exposed to information. You don't have to devote your attention exclusively to it as you do with TV and print. You can listen while you are looking through papers, moving about, or setting up equipment in the lab. Even as you drive to work or sit on the beach, you could be keeping up with the latest scientific information. And it can also be a shared experience, during a coffee break or in the classroom.

A radio is an inexpensive purchase. It is easy to operate and maintain. You can take a small, battery-powered model virtually

anywhere. By using an earphone, you can listen without disturbing others. Even the morning newspaper is more intrusive. Did you ever sit beside someone on a train who is leafing through the *New York Times* or *Wall Street Journal*?

Radio offers several more advantages over other media as a means of scientific communication. Radio can transmit the latest news more quickly than print. It can provide the listener with all the energy and emotion of "live" discussion. Such human qualities are often lost in a printed transcript.

Radio is often more appropriate for science broadcasting than television because many programs of interest to scientists do not require video. Science news, discussions, talks by individual scientists, even educational courses often lose little or nothing by being aired on radio.

Moreover, the requirements of radio program production and transmission are less distracting to the participants than TV. For example, if a discussion at a conference is being aired, the members of the panel do not have to worry about makeup or to be subjected to hot lights. The broadcast equipment involved is not so cumbersome that it separates the panel from the audience. TV cameras necessarily do this.

With radio, scientists throughout the world could participate in a program merely by sending in audio cassettes of their talks. This would

avoid the travel expenses and loss of time incurred by the need to appear in person at a TV studio. Even when an on-site broadcast is necessary, the cost of sending a radio crew is far less than the cost for a TV crew.

I have often wondered why the "simple" solution offered by radio is not used more often for communicating scientific information. However, on further investigation I found that there are very real difficulties facing anyone wanting to operate an "all-science" station or network.

Using a commercial radio station in the US for this purpose would be out of the question except in a very few localities. All commercial stations are governed by a complex set of regulations, outlined by the Federal Communications Commission (FCC).<sup>1</sup> These regulations require commercial stations to meet the needs of the local communities they serve. This geographic limitation most likely means that a science-oriented station would only be sanctioned in an area with a high percentage of scientists. Among the few communities which might qualify are Bethesda, Maryland; Cambridge, Massachusetts; or Palo Alto, California.

Commercial stations, of course, do carry short science programs designed for lay audiences, since these programs are deemed in the public interest. The American Chemical Society sponsors one such program called *Man and*

*Molecules.* The ACS distributes tapes to over 500 stations in the US and other countries. But this type of programming is designed for the public, not the professional scientist.

Public radio could carry programming aimed at scientists.<sup>2</sup> Stations run by colleges, universities, and public school districts fall into this category. Sometimes known as educational radio, public radio stations provide instructional programming to teachers and students, as well as cultural, informational, public affairs and entertainment programs to the general public.

Unlike ordinary AM and FM, public radio stations carry no advertising and may be licensed only to non-profit organizations with an educational purpose. They are supported by funding from their parent institutions, state or local governments, foundations, private firms, or contributions from the listening audience.

Science programming for the professional would be a possibility on public radio only if it could be provided cheaply enough to fit public radio stations' budgets. I do not know if any large corporations have considered funding such programming. While they might be willing to support an occasional program, the costliness of a regular feature—without the chance to advertise—has probably deterred them.

With commercial or public radio seemingly beyond consideration, I

did find one viable method for broadcasting science programs and one organization that has had the initiative to do so. The organization is the Physicians Radio Network (PRN), a New York based group that transmits news, short courses, live call-in shows, and reports from various medical associations to doctors.

PRN is a for-profit enterprise, financed by drug company advertising. It is permitted to broadcast its special-interest programs over Subsidiary Communications Authorization (SCA) sidebands. Ordinary FM broadcasting uses a main channel and two sidebands. However, in 1955, the FCC granted FM stations permission to sell the use of their SCA sidebands to those who wished to transmit programs of interest to a limited segment of the general public—such as a professional group. Broadcasts over SCA bands can be picked up only by a special receiver tuned to the SCA frequency. Ordinary FM radios filter out the broadcasts that are transmitted over these bands.

PRN distributes these special receivers to physicians within the 35-mile radius of their signal in 33 cities. About 75,000 doctors are now listening to the network. Certainly as many or more scientists in both university and industrial positions would listen to all-science stations.

A science radio network patterned after PRN could distribute receivers free of charge to qualified

scientists. Revenue would be received from program sponsors. Certain advertisers should be eager to reach a guaranteed audience of scientists. Scientific and technical journal, book, and magazine publishers might be interested. They could attract new readers to their publications through commercials on an all-science station. Industry is also a potential sponsor. Science-oriented companies could attract new employees through appropriate spot announcements. Manufacturers of scientific instruments, too, might find radio an attractive supplement to journal and direct mail advertising. Of course, separation of advertising from editorial content would have to be strictly maintained.

PRN uses medical journalists to write and edit the material it presents. An all-science network would also require the services of senior science journalists able to report science news events in proper perspective. Short courses would be prepared by researchers and educators in the field, and most programs would have to be reviewed by qualified scientists.

In my opinion, one drawback to PRN is that doctors cannot as yet listen to these programs in their cars. The network has considered putting receivers in automobiles. The idea was dismissed because the task of installing them proved too difficult. The special receivers must be hooked up in addition to or in place of the regular car radio. Each

installation job is different because each car maker has different specifications for installing the equipment. An individual listener, who was willing to go to the expense and fuss of having the radio installed, could do so. PRN is considering the use of portable receivers that doctors could take with them in their cars, but an appropriate antenna needs to be devised.

PRN has been successful by aiming its programming at practicing clinical physicians. These doctors face a wide variety of medical problems and make decisions based on current information. The counterpart to the clinician in science is the engineer. In some ways engineers might benefit even more than pure scientists from a science radio network. The engineer is an applied scientist. His or her need for continuing science education is perhaps greater than that of the academic scientist doing research.

If no one else is interested in starting the network, I suppose this might be another job for ISI®. Our basic objective is to communicate scientific information effectively through any appropriate medium. Radio will not replace print. But it can help us do a better job of digesting and communicating the results of research. I can even see the various media supplementing each other. For example, additional instructional materials for short courses via radio as well as programming schedules could be in-

cluded in *Current Contents*® . I can also envision people using our TV-based SCITEL™ service to peruse the radio schedule for the day.<sup>3</sup>

An ISI radio network could, of course, provide me with a new opportunity for ego gratification. I don't know whether my essays would be as well-received were I to read them over the air. But I am sure that items in our Press Digest could be interesting "hearing."

Perhaps the Science Radio Network can only be realized through a collaborative effort involving several organizations: government (National Science Foundation and/or National Institutes of Health), societies (American Association for the Advancement of Science), and private enterprise (ISI and other science-oriented corporations). Anyone out there listening?

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#### REFERENCES

1. **Federal Communications Commission.** Broadcast services. *FCC Information Bulletin Number 3.* Washington, DC: FCC, 1977. 39 p.
2. -----, Educational radio. *FCC Information Bulletin Number 17.* Washington, DC: FCC, 1977. 18 p.
3. **Garfield E.** Viewdata and SCITEL bring interactive information systems into the home. *Current Contents* (41):5-10, 10 October 1977.