Book Reviews

The Public Impact of Science in the Mass Media. A report on a nationwide survey for the National Association of Science Writers. Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, 1958. 254 pp.

Science, the News, and the Public. Who gets what science news. Where they get it. What they think about it. A report of the National Association of Science Writers. Text by Hillier Krieghbaum. New York University Press, New York, 1958. 43 pp.

The first thing we want to know about any survey is its competence: its scope, its sampling methods, its statistical techniques, and whether or not the questions are loaded. On such points the survey covered in these two publications seems satisfactory to me. For example, each respondent was asked about his attitudes toward various categories of news *before* he learned that science was the subject. The sample consists of 1919 American adults, selected to represent a cross-section of the public. They were questioned at length (1 to 2 hours) about their habits, attitudes, and opinions. This was in the spring of 1957. The methods look good, the questions seem fair, and I was able to examine the results with confidence.

The second thing for which the antennae go out is presentation. Again, I am favorably impressed. The report is in two parts: The larger volume is an exhaustive factual record of about 250 pages, with all data in the form of tables, giving numbers of cases and percentages. This satisfies the man who wants to get down to cases, in detail. This is accompanied by an able summary of 43 pages, with text by Hillier Krieghbaum, associate professor of journalism at New York University, and with simple graphs and charts and a very few tables. The text is crisp and punchy, the visual aids clear and uncluttered.

What audience would be interested? Obviously a good many scientists, a good many of the media men, and, of course, all the people in between, some of whom are called science writers. It should be especially revealing to the decision-makers in the media: managing editors, directors, and all those who decide *what* shall appear in their medium. They would, I think, be distinctly shocked to find that the appetite for science news is a good deal larger than the amount they have permitted to appear, and that people who use the media most are quite willing to cut down on such sacred topics as sport, crime, society news, and even comics in order to get more science. And this in pre-sputnik times, at that!

Media men will also like to know what media have how much impact on whom. Newspapers were named most frequently as the medium from which science items were recalled; next came television. Magazines came next, with radio on the bottom of the heap. But among those respondents who had gone to college, magazines as a source were about twice as important as they were for the whole sample.

Scientists will be interested in the layman's view of science. When asked, in effect, "What does 'to study something scientifically' mean?" only 4 percent cited an open-minded approach; only 10 percent stressed method, describing an experimental approach; 22 percent put the emphasis on analysis, 33 percent thought it meant thorough, deep-searching study; and 27 percent would not hazard an opinion.

About 83 percent thought that the world is definitely better off because of science; 2 percent thought the world is worse off; 5 percent said it was about fifty-fifty; 6 percent qualified their answers (5 percent for, 1 percent against), and only 5 percent said they didn't know.

Asked why they thought the world was better off, 7 percent spoke of increases in knowledge; most of the others talked about applications—better health, a higher standard of living. Scientists will be comforted to learn that harmful uses of science were not usually blamed on scientists themselves (only 12 percent held this view).

About 35 percent believed that scientists will eventually understand most things that happen, as against 28 percent who did not think so. A majority (of those expressing an opinion) felt that science should not be curbed even in areas where there is a possible conflict with religion. Although science was generally regarded as a "good thing," a sizable group of people voiced suspicion and fear, mainly on atomic questions and on the rate at which our lives are being changed by technology.

Two pictures of the scientist himself were given—one widely held and highly positive, the other negative. The positive one, with percentages of frequency of mention, looks like this: creative and imaginative (1 percent); exploring the unknown, curious (6 percent); eager to benefit mankind (7 percent); methodical, hard-working (12 percent); normal, well-balanced (15 percent); educated, studious (23 percent); intelligent, brilliant, and so on (37 percent).

The negative view was this: too powerful, dangerous (under 1 percent); too intelligent (1 percent); ideologically deviant (2 percent); mildly eccentric (3 percent); overly dedicated, narrow (4 percent); neurotic, queer (4 percent); socially inept, shy (9 percent).

Since I live among scientists I naturally regard these percentages as grossly distorted in comparison with my own views; nevertheless, I find the weight of positive public opinion reassuring. I would have expected rather more of the Frankenstein view or more at least of the "eccentric" label, and I am pleased by the extent of my own misconception of the public view. These results remind me of a quotation—whose author I forget—that goes something like this: "I spend my life being praised for qualities I do not possess—and in being calumniated for defects which are not mine."

It appears then, from this survey, that the public is definitely interested in science reporting and is able to "play back" an impressive amount of what has appeared in the mass media. The readers want more. Their notions of science and of scientists are mainly favorable, though distorted; there is a hard minority whose views are both unfavorable and distorted.

Where do we go from here? In the conclusion to Krieghbaum's admirable summary, he says: "Reporters and script writers, given more training and more time in assignments, would be able to provide more details, greater background, better interpretation, and, it is hoped, higher accuracy. Such changes might help correct present distortions in the public image of science and scientists and promote the idea they are part of, not divorced from, contemporary living."

But how are the science reporters to get more training and be given more time in assignments? It seems to me that this involves the reporter's boss—the decision-maker who says what shall be done. The reporters already know what is needed; their bosses do not—they seldom have any idea of how much time, background information, and study are needed for a good item on science, and they seldom have any notion of how good a science reporter has to be. It is easy to see how this situation arose: The reporters get around among the scientists; the decision-maker does not—he

doesn't have time. I think he needs help, and expert help at that. If the boss won't listen to his own reporters, he might listen to a science consultant who is a postgraduate in his own medium.

I would now like to see a survey of scientists made to uncover and examine in detail their misconceptions about "the press"—meaning all mass media and those who work in these media. At the same time, I would like to see a survey made of the media themselves, from top to bottom, to uncover and examine *their* misconceptions about science and scientists. If, as I suspect, a need exists for a bridge between top media men and the scientists, a new profession may arise: consultants on science to the mass media or, alternatively, consultants on mass media to the scientists.

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Elementary Seismology. Charles F. Richter. Freeman, San Francisco, Calif., 1958. viii + 768 pp. Illus. $12.

This fascinating and beautifully illustrated account of the earth's shivers is composed of three parts, all emphasizing the general relation of faulting to earthquakes. The first part, "Nature and observation of earthquakes" (388 pages), provides a fine historical perspective while presenting basic phases of the science, ranging from elastic waves to earthquake risk. The second part, "Geography and geology of earthquakes" (242 pages), relates earthquakes to major and minor structural features of the earth. New Zealand, California (plus Nevada), Japan, and Formosa are selected for detailed analysis, but other regions are not neglected. The third part of the book, "Appendixes" (97 pages), includes tables, mathematical derivations, and a chronologic list of important earthquakes, with bibliography. A 29-page index completes the volume.

In a lively, conversational style Richter presents a distillation of much information, with penetrating critical interpretation in the areas of his own interests. Humor appears in unexpected places, some barbed in the direction of related sciences but always constructive, some even directed at the author himself. The treatment conveys a nice sense of strategy in attacking the scientific problems, many as yet unsolved. Although intended primarily for students, the book includes much valuable material for instructors and research workers. Richter has unlocked the mysteries of seismology for all who are interested in the earth.

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Science and Education at the Crossroads. A view from the laboratory. Joseph William Still. Public Affairs Press, Washington, D.C., 1958. xi + 140 pp. $3.25.

Joseph Still, with obvious sincerity and concern, has written, in part I of this book, a series of short essays on various aspects of scientific work and some related educational problems. In part II he discusses the potential contributions of the biological sciences (with stress upon disease control) to international affairs, especially in the tropical countries. As promised on the dust jacket, the book contains a number of interesting and even controversial observations and proposals.

Part I consists of ten short chapters—90 pages—on "The short-range view." The author contends that scientific representation at the top policy-making level in our government is essential. To accomplish this, "the President should appoint one or more Secretaries of Science, without portfolio" (page 13). At least two, representing the biological and the physical sciences, are suggested. Further, he suggests "establishment of Delegate Senators and Representatives" in the Congress. They would "have the power to introduce legislation and enjoy full floor and perhaps limited committee privileges" (page 14) but would not vote on committees or vote on the legislation.

A National Education Council of distinguished citizens is proposed "1) to constantly study and report on our total educational system, 2) to report frequently on future educational needs, and 3) to recommend in broad terms the curriculum and standards our schools must follow to prepare youngsters for the estimated future" (pages 14–15). Presumably this would be a formalization and continuation of the type of temporary study being made by James B. Conant.

Apparently Still desires some new permanent mechanism because he believes that the U.S. Office of Education, the American Council on Education, the National Education Association with its Educational Policies Commission, the separate state departments of education with their numerous nationwide committees, and many other groups are not accomplishing the task. Possibly this conclusion is correct, but strengthening one of the existing groups, which he does not suggest, might be more effective in producing quick results than would be efforts to create another agency.

Several interesting chapters are concerned with the "housekeeping" of American science. These deal with closer cooperation between existing specialized societies (but without mention of the American Association for the Advancement of Science); with current procedures for making short-term research grants; with the need for better abstracting and translating services; and with the importance of scientific libraries.

In two chapters he considers the search for the gifted student and the encouragement of curiosity. He properly warns against using only IQ scores to identify promising students. However, educators have long recognized the difference between defining the academically gifted and identifying and instructing such students in schools.

Part II, "The long-term view," stresses the world-wide social impact of disease-controlling techniques. The author stresses the effectiveness of DDT in overcoming malaria and indicates some of the social and political implications of this action. Elimination of this delibitating disease opens to many countries their first opportunity to develop a vigorous economy. But the race between production and population is still with us.

The inevitability of reaching some "world population ceiling" and the importance of population control are pointed out. The author avoids becoming entangled in arguments over various means of population control but observes that a rising standard of living has been followed by lower birth rates. This line of argument reinforces his proposal that biologists be included at policy-making levels in government.

Unfortunately the book contains no bibliography, and the sources of Still's references are not explicity cited. As claimed, this is one man's view of some of the vexing problems we face. His suggestions for action would require marked changes in public opinion; how these could be obtained still eludes many already immersed in the problems.

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Psychological Stress. Psychoanalytic and behavioral studies of surgical patients. Irving L. Janis. Wiley, New York; Chapman and Hall, London, 1958. xiv + 439 pp. $6.95.

Janis, author of the scholarly *Air War and Emotional Stress,* has in the present book approached the rather poorly defined concept of stress with quite different data—those obtained from persons in hospital undergoing surgery, and from a questionnaire survey of former surgical patients (Yale students all). The book commences with a long detailed account of the author's psychoanalytic treatment of a patient who happened to require surgery during the period of the analysis. Various hypotheses concerning interactions between psychological variables (for example, "anxiety" and "hostility") were derived from the interview notes