*Excerpts from a discussion of facts, fancy, and corruption
in the interpretation of science to the public.*

Quackery and the News

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IN the past half century, there has been a profound change in the attitude of the press, and the lay public, concerning the news of science. Editors were inclined at one time to regard the scientist as a long-haired character, a sort of modern Merlin muttering mathematical incantations over his test tubes. Today the scientist is a respected source of important news. With this has come a tremendous increase in the amount of information about science which is reaching the public.

A study on "Science, the News, and the Public," made for the National Association of Science Writers, revealed that Americans get their science news primarily from newspapers, with television and magazines ranking close together as the next most popular sources.

In 10 major categories, medical news was third in reader popularity, outranking even such topics as sports, comics, and crime. Thirty-seven percent of the newspaper readers reported that they read all the health news they can find, as compared with 28 percent who read the nonmedical science news.

Not only has there been a great increase in

the volume of medical news but it seems entirely likely that this situation will continue.

Is this good? Or is it a Frankenstein monster that we must tame, control, or learn to live with?

Certainly the dissemination of knowledge is good. Undeniably, however, lay press reporting of news on health and medicine has had some undesirable characteristics and side effects as well as good effects.

The years since World War II have seen unprecedented progress in the development of new drugs. Antibiotics, for example, have revolutionized the treatment of infectious diseases and all but wiped out some of them. But we have seen how the publicizing of these miracle drugs has in some instances led to excessive and indiscriminate use with harmful consequences. Patients and their relatives beg physicians to use this or that product. Fads and fashions in the use of newly popular preparations are familiar to the medical profession.

A standard pattern has been observed in the life history of highly publicized drugs. First is the period of "great expectations." Often this begins before the drug is on the market. Stories appear reporting that some researcher has hit on a promising new compound that may be of value in treating some more or less common affliction. For many writers these are bread-and-butter pieces—a standard item of journalistic merchandise. A series may be published on developments in a research program. Finally the great day comes when the

Mr. Janssen, director, Division of Public Information, Food and Drug Administration, U.S. Department of Health, Education, and Welfare, delivered the Williams Memorial Lecture in the 24th annual series, "Lectures to the Laity," at the New York Academy of Medicine, November 1958. Full text of the series, entitled "Science, Man's Master or Servant," will be published by the academy.

The Health of Science

In certain areas of science, where empirical data are still hazy, a point of view may acquire a kind of cult following and harden into rigid dogma. Modifications of Einstein's theory, for example, sometimes meet a resistance similar to that which met the original theory. And no doubt the reader will have at least one acquaintance for whom a particular brand of psychoanalysis has become virtually a religion, and who waxes highly indignant if its postulates are questioned by adherents of a rival brand.

Actually, a certain degree of dogma—of pig-headed orthodoxy—is both necessary and desirable for the health of science. It forces the scientist with a novel view to mass considerable evidence before his theory can be seriously entertained. If this sit-

uation did not exist, science would be reduced to shambles by having to examine every new-fangled notion that came along. Clearly, working scientists have more important tasks. If someone announces that the moon is made of green cheese, the professional astronomer cannot be expected to climb down from his telescope and write a detailed refutation. "A fairly complete textbook of physics would be only part of the answer to Velikovsky," writes Prof. Laurence J. Lafleur, in his excellent article on "Cranks and Scientists" (*Scientific Monthly*, November 1951), "and it is therefore not surprising that the scientist does not find the undertaking worthwhile."—*Excerpt from "Fads & Fallacies in the Name of Science" by Martin Gardner.*

new product goes on the market. But this does not end the process of publicity. Other newsworthy developments occur and are reported, including sometimes the discovery of unforeseen and unfortunate adverse reactions. This results in a second standard type of story, warning about the consequences that may result from improper use of a well-known and highly touted preparation.

Up to this point we have been talking about the interpretation of science via the major channels of public information, the wire services, newspapers, magazines, radio, and television. Much of their medical and health news comes from professional sources, research workers, clinicians, and the public relations people associated with the sponsoring organizations.

An increasing proportion of such news is being reported by science writers, men and women who are specializing in this field of reporting. They have an association, the National Association of Science Writers, now 25 years old.

There is no very precise definition of a science writer, but one distinction is that a growing number observe the practice of checking stories with their sources. To many general news reporters this is anathema, censorship, but the

science writer finds that it often helps to improve his story as well as to insure the confidence of his sources. There has been a marked improvement in the quality of science reporting, and this trend continues.

But there are other sources and channels of information on health, medicine, and science. And there are many who interpret science to the public. We need to be at least as much concerned about the misinterpretation of science to the public as we are about its interpretation. Pseudoscience and quackery, as well as legitimate news of science, find their way into the media of communication.

Of course, quackery is nothing new. Surprisingly, however, in this day when so much good information is available, quackery seems to be growing. More and more, people believe in miracles, not only the real miracles of scientific achievement but also the fake miracles of promoters and charlatans.

Quackery Is Big Business

Quackery in the United States is big business. The medical director of the Hoxsey cancer clinic testified he had personally seen 6,000 patients in 2 years. In his book "You Don't Have to Die," Harry M. Hoxsey said he had

10,000 patients taking his treatment, a statement the Food and Drug Administration did not think exaggerated.

Mr. Hoxsey called his medicine "chemotherapy." It cost \$400 plus \$60 of incidental expenses. The American Medical Association called it a cough sirup. It might also be called a mild laxative, since it contains cascara sagrada along with such other ingredients as prickly ash bark, burdock, poke root, and extract of red clover blossoms.

The promotion of the Hoxsey treatment is a classic illustration of how unfortunate people may be misinformed regarding a life-or-death problem—the treatment of cancer. It is the more significant in view of its success at a time when millions of dollars and the best efforts of health educators were being devoted to providing correct and reliable information on the treatment of cancer, and to urge early treatment.

A variety of methods were used and to some extent are still being used to promote the Hoxsey treatment. One of these was the purchase of editorial space in nationally circulated magazines. The late Rev. Gerald K. Winrod, of Wichita, Kans., was paid \$82,000 for promoting the treatment in his *Defender* magazine. This circulated mainly to Protestant fundamentalist groups in rural sections and small towns. A newsstand publication called *Man's Magazine* was paid for printing illustrated articles composed largely of testimonials. These were the same ones which Hoxsey has been using for years and which were investigated by the Food and Drug Administration and exposed in open court. Millions of reprints of these articles were used by Hoxsey for promotion purposes. The *National Christian Crusader*, published by Rev. Dr. Merle E. Parker of Santa Ysabel, Calif., devoted its columns to attacking the Food and Drug Administration and the medical trust, and boosting the Hoxsey treatment. Circulation of the *Crusader* was reported to exceed 1 million copies. These were not all of the periodicals which promoted the Hoxsey cure in their editorial columns.

Most of the pro-Hoxsey publicity was obtained after the issuance of the first injunction against the treatment in 1952. The publishers cooperated notwithstanding a decision of the

U.S. Court of Appeals holding that the medicine had been proved worthless for the treatment of cancer. Some of the articles, in fact, reported the Government's efforts to stop the sale of the medicine and described it as "controversial," a word which to some editors and broadcasters seems to justify copy they would not otherwise tolerate.

Is it possible, when a medical myth has been widely disseminated, to mount a successful counterattack? Many are skeptical about this, including some public health authorities. They have the idea that any publicity about a worthless remedy will only serve to advertise it.

In April 1956, when it was clear that litigation to stop distribution of the Hoxsey treatment might be prolonged for years, a nationwide public warning was issued under authority of section 705 of the Federal Food, Drug, and Cosmetic Act. It was widely published by the press, and although some papers devoted as much space to printing Mr. Hoxsey's protests and denunciations as they did to the Government's warning, the warning was effective. There was an immediate and drastic reduction in patronage of the clinics, both at Dallas, Tex., and Portage, Pa. By a conservative estimate, in the first 30 weeks after the warning was issued, at least 3,000 people had been dissuaded from being taken in by the false promise of a quick and painless cure, without recourse to methods that could really have helped them.

Especially effective was a condensed version of the warning sent to farm, lodge, and church periodicals. These reached older people and residents of rural areas, groups most exposed to the Hoxsey publicity. Some editors of these papers received numerous abusive letters from pro-Hoxsey readers. Not one of these editors retracted what they published. Several of them commented to us that the need for information was indeed serious, in view of the number of people who apparently believed in the treatment.

As any editor can tell you, a correction of a story will not reach exactly the same people who read the original incorrect story. Similarly, more publicity is needed to offset a medical lie than to spread it in the first instance. In January 1957, the public warning was reissued,

this time as a handbill for display in U.S. post offices, hospitals, and other public buildings. This poster was possibly the most effective educational medium of all.

Quackery in Nutrition

The most widespread quackery in the United States today is in the field of nutrition. The American Medical Association says it is costing some 10 million Americans \$500 million each year. This racket is based on misstatement of the facts of the science of nutrition.

More people seem to believe more bunk about food and nutrition than about any other single topic in the health field—and perhaps any other field. It is this widespread dissemination, and the zealous faith of believers in nutrition nonsense, that make it difficult to combat. Food faddism today has aspects of an organized movement that is self-supporting and actively seeking new converts.

The nature of this racket, and the false concepts which promote it, can be learned from the court actions brought by the Food and Drug Administration. The oldtime patent medicine man is back again—but this time he is a “nutrition educator” who rings your doorbell and tries to persuade you that a shotgun mixture of vitamins and minerals, plus some secret factor which nutrition scientists have not yet identified, is the answer to all your health problems.

Vitamin products have a recognized place in modern preventive medicine, but they are not cure-alls, and it is dangerous for anyone to assume that such products can be relied on to treat unidentified ailments. The price charged for only one package of some of these products is enough to pay for several visits to a doctor.

Numerous self-styled “authorities” on nutrition write books and articles, lecture, and sometimes even teach in our colleges. Some of them have no training whatever in nutrition science. A number of so-called “health food lecturers” have been the target of court actions brought by the Food and Drug Administration. One of them recently completed a 1-year prison term. He was convicted on misbranding charges, resulting from claims that his peppermint tea, vegetable soup mix, and wheat germ oil would restore sexual power and cure such conditions as arthritis, cancer, and diabetes.

Recent court actions under the Federal Food, Drug, and Cosmetic Act include these cases:

Capsules of unsaturated fatty acid from safflower oil with vitamin B. This was recommended by a health food store for preventing and treating practically all heart ailments, obesity, and glandular disorders.

Liquid unsaturated fatty acid from safflower oil with vitamin E, represented as effective for maintaining low blood cholesterol levels and overcoming heart disease.

Lecithin, falsely represented as a cure for hardening of the arteries, high blood pressure, coronary thrombosis, diabetes, prostate trouble, and other conditions.

An especially disturbing feature of food faddism is persistent emphasis on the theme that the American food supply, unmatched in quality throughout the world, is deficient, over-processed, or poisoned by fertilizers, pesticides, and food additives. There are indeed serious new problems of food protection brought about by changing technology that are under constant study, but nothing to warrant the grossly irresponsible and inaccurate statements which have appeared in some faddist books and sensational magazines.

Effective Counteraction

Broadly speaking, effective counteraction against faddism and quackery requires the interest and cooperation of all organizations and agencies concerned with the problem, private and public, lay and professional, local, State, and national. This is particularly the case in the field of information and education. I am glad to say that there is already a great deal of such cooperation.

The Commissioner of Food and Drugs recently pointed out that the public has always had difficulty in distinguishing the orthodox from the unorthodox remedy or practitioner, but that “science today has given us the means of distinguishing with considerable certainty the effective from the ineffective. Likewise our laws, based upon medical knowledge, distinguish between what is legal and what is illegal.” More should be done in explaining these distinctions to the public, as well as applying them in law enforcement.