Comments and Communications

Scientific Ethics

In the article by Pigman and Carmichael in SCIENCE (1950, **111**, 643–47), on page 645 is the suggestion that scientists in general should follow the principles of medical ethics and ban all advertising and publicity-seeking by scientists. This policy has certain drawbacks when applied to the commercial consulting scientists who deal directly with the public, usually with business enterprises.

The medical code was drawn up primarily because the medical profession deals with human illnesses, and there is need to prevent the exploitation of individuals in their time of trouble. The work of the consulting scientist who maintains his own office and laboratory is usually concerned with normal business problems and only rarely with the distress of an individual.

The consulting scientist is normally a specialist in the technology of a relatively narrow segment of industry. As a result his practice tends to be very widespread geographically. It is only by having a sizable number of such widely scattered clients that the modern consultant can maintain his investment in modern laboratory equipment. In order to build and hold such a clientele, practically all consultants have found it essential to maintain a sales program. This may include professional and trade paper advertising, direct mail contacts, and personal salesmanship.

It appears to be essential that the consulting scientist be permitted to advertise in an ethical manner. Any scientific code of ethics should make provision for this work. The exploitation of scientists by their employers' advertising of products is another problem which should receive attention. In this field there is much advertising of a questionable nature.

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What Dr. Markley may have in mind is perhaps illustrated in another letter, which was not submitted for publication, but part of which the editors would like to quote, without revealing the identity of the author:

There is one serious situation in which the industrial scientist on the staff of commercial organizations frequently finds himself. This is when the advertising man decides he wants to run a series of technical ads blowing up the technical know-how and control back of the product.

The normal course is for the advertising man to notify the chemist that he is coming over with a photographer and to be dressed in the proper white uniform and to have the laboratory shining. Then he wants the chemist to pose with an impressive but meaningless collection of glassware. The resulting pictures are then used in display advertising.

The chemist cannot refuse, because he would be guilty of failing to cooperate, and would then lose his position. At the present his only defense is to prevail upon the advertising man to use the most photogenic of the girl lab assistants in his place. If there were a scientific code of ethics defining what is proper in advertising then this situation could usually be controlled by the chemist.

The Use of Sodium Propionate in Isolating Actinomycetes from Soils

The problem of isolating pure cultures of actinomycetes from soil and other heterogeneous samples has never been satisfactorily solved, because the bacteria and molds soon overgrow the slower-growing actinomycete colonies. The use of special media favoring growth of actinomycetes helps but does not solve the problem; neither is the use of inhibiting dyes a success. Since, in our laboratory, research is being done on the isolation and identification of actinomycetes, it was decided that some method of inhibiting other organisms on soil plates should be studied.

The success of the baking industry in reducing mold contamination of bread and other bakery products by the use of sodium propionate, and the discovery by one of our graduate students that the growth of actinomycetes is not adversely affected by sodium propionate, suggested that the incorporation of this compound into actinomycete media might prevent overgrowth of actinomycete colonies by undesired organisms.

To test the efficacy of such a treatment, therefore, glucose asparagine agar, containing various concentrations of sodium propionate, was prepared. The concentrations tested ranged from 0.1% to 6.4%. Treated and control media were used to plate out a 1 : 10,000 soil dilution. These were incubated at 25° C and observed, and results were recorded after 48-, 72-, 96-, and 144-hr intervals.

It was found that concentrations of sodium propionate above 0.8% inhibited actinomycetes, as well as the undesired microorganisms. A concentration of about 0.4% sodium propionate seemed to be optimum for actinomycete isolation. Although both bacteria and molds grew at this concentration, the rate was sufficiently retarded to allow for the growth and subsequent isolation of the actinomycetes. Even after 144 hr incubation the usual spreading types of bacteria and filamentous fungi did not overgrow the actinomycete colonies.

Our experience so far indicates that the above procedure allows easier isolation of actinomycetes, especially the slower-growing forms. As a result of using such treated media in plating certain soils, we have obtained actinomycetes that were not found when standard media were used.

A more detailed report will be given in the near future.

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