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Chemicals, Cancer, and Conjecture

A STATEMENT that should help to clear the air on the question of possible relationship between chemicals in foods and the occurrence of cancer in man has been issued by the National Academy of Sciences-National Research Council. Having studied the facts available concerning this question, the Food Protection Committee, Food and Nutrition Board, has concluded that most of the apprehension recently engendered among consumers is based on failure to recognize conjecture—and label it—as strictly conjecture and not established fact.

To those (the press and other media for public information) chiefly responsible for the surge of public apprehension, the committee charitably attributes no error more serious than having "forgotten, misconstrued, or poorly stated" the conjectural nature of scientists' discussions on cause-and-effect relationships in carcinogenesis. A good many well-informed individuals go considerably further on this score, and in a few cases charge that misrepresentations or exaggerations have been deliberate. Some of the scientists themselves must share the blame, also, for having exercised too little care in their public statements, and too little diligence in helping public information media to report fact and conjecture in proper perspective.

The facts surely do not point to our food supply as a threat to our health. The Food and Drug Administration recognizes that there are in use in food today perhaps 150 chemicals which have not been studied sufficiently to be sure that they are not hazardous in some way. However, the FDA—part of whose job it is to stop immediately the use of any food ingredient known to be detrimental to health—regards the American food supply as the world's safest. At the very conference in Rome from which many of the recent misconceptions were launched, the FDA's A. J. Lehman and A. A. Nelson declared that "no pesticide used in agricultural practice in the United States has shown carcinogenetic tendencies in animals such that the residues ingested by man would be a danger." On the matter of food processing chemicals and intentional additives, they stated further that "no intentional food additive presently used in the United States is carcinogenic by the route normally used." There is, they concluded, no reason for concern with present usage.

These are reassuring comments, and the statement of the Food Protection Committee should help strengthen consumers' confidence in the quality of their food supply. It is true, the committee notes, that investigators studying cancer have been able to produce tumors in experimental animals by purposely exposing them to a variety of chemicals. From this evidence and knowledge of how man may resemble or differ from the experimental animals in the metabolism, excretion, or storage of a particular chemical, the specialist can form a hypothesis as to man's possible reaction to ingestion of the chemical.

In moving from test animal results to predictions concerning human reaction, however, scientists are moving from the realm of fact into that of conjecture, and they know it. Substances which cause malignant (or benign) new growth in experimental animals are not necessarily carcinogenic to man—or vice versa—and there is considerable disagreement among the experts as to whether the word "cancer" should even be applied to animals other than man.

Surely conjecture is in itself no evil. Conjecture based on sound knowledge has frequently pointed the way toward new knowledge in every field of science. The specialists studying the food additives and cancer question recognize conjectures as such, and utilize them to stimulate inquiry which will lead to new knowledge.

The trouble begins when the line between theory and knowledge becomes obscured, or when actual knowledge is misinterpreted in support of theory. Those who distort the relationship between the two, whether through ignorance, negligence, or intent, perform a disservice to the very public they profess to serve.