hygienic practices, and the reduction of nose cancer in nickel industry workers following the introduction of dust control measures. In these examples, it can reasonably be assumed that there has been a reduction in the exposure to the carcinogen rather than a complete removal of the cancer producing substance.

From the experience obtained in animal experiments and study of humans who have been exposed to carcinogens in the course of their work such as cited above, the panel believes that the probability of cancer induction from a particular carcinogen in minute doses may be eventually assessed by weighing scientific evidence as it becomes available.

Conclusions and Recommendations

The rapidly increasing number of new chemicals potentially useful in agriculture and food production demands vigilant and careful scrutiny of the compounds offered in order to safeguard the consumer from those that may present carcinogenic and other toxic hazards.

In applying the provisions of Section 409 (c) (3) the enforcing agency must employ the "rule of reason." . . .

The definition of a carcinogen implicit in the language of Section 409 (c) (3) requires discretion in its interpretation because so many variables enter into a judgment as to whether a particular substance is or is not carcinogenic.

It is to be emphasized that the present difficulty in establishing whether there are permissible levels for certain possibly carcinogenic food additives is accentuated by the limited relevant scientific information available. From the experience obtained in animal experiments and study of humans who have been exposed to carcinogens in the course of their work such as cited above, the panel believes that the probability of cancer induction from a particular carcinogen in minute doses may be eventually assessed by weighing scientific evidence as it becomes available.

The special emphasis placed by the Congress on the protection of the public from the dangers resulting from the addition of possible carcinogens to food calls for prudent administration of Section 409 (c) (3) of the Food Additives Amendment of the Food, Drug, and Cosmetic Act. Since an area of administrative discretion based on the rule of reason is unavoidable if the clause is to be workable, it is essential that this discretion be based on the most informed and expert scientific advice available. Until the causes of carcinogenesis are better understood, each situation must be judged in the light of all applicable evidence. In this way the protection of public health can best be assured.

Accordingly, the following recommendations are made:

. . . That the Secretary of Health, Education, and Welfare appoint a board advisory to him to assist in the evaluation of scientific evidence on the basis of which decisions have to be made prohibiting or permitting the use of certain possibly carcinogenic compounds.

The advisory board should be composed of scientists from the National Cancer Institute, the Food and Drug Administration, the U.S. Department of Agriculture, and the scientists outside the Government from a panel nominated by the National Academy of Sciences.

It would be the function of the board to weigh evidence and to make recommendations to the Secretary of the Department of Health, Education, and Welfare on the basis of available scientific data, both on applications for approval of new food additives and in all cases where the withdrawal of a prior approval or sanction is under consideration. . . .

If existing legislation does not permit the Secretary of Health, Education, and Welfare to exercise discretion consistent with the recommendations of this report, it is recommended that appropriate modifications in the law be sought. . . .

Members of the Panel

Detlev W. Bronk, chairman, president, Rockefeller Institute and president, National Academy of Sciences.

Robert F. Loeb, vice chairman, Bard Professor of Medicine, Columbia University—on leave.

Edwin B. Astwood, professor of medicine, Tufts University School of Medicine, New England Center Hospital.

Alfred Gellhorn, director of the Institute of Cancer Research, and professor of medicine, Columbia University.

J. George Harrar, vice president, Rockefeller Foundation.

Harold C. Hodge, professor of pharmacology and toxicology, University of Rochester.

James G. Horsfall, director, Connecticut Agricultural Experiment Station.

C. N. Hugh Long, Sterling professor of physiology, Yale University.

C. Chester Stock, scientific director, Sloan-Kettering Institute for Cancer Research.

Biological Sciences Curriculum Study To Test New Courses

The Biological Sciences Curriculum Study has announced the establishment of centers for testing proposed new courses to improve the quality of biology taught in American high schools. Approximately 15,000 high-school pupils and 100 teachers in 28 school systems will cooperate throughout the 1960–61 school year in testing both the scientific content and the design of instructional materials.

At each center, seven high-school biology teachers and a university biologist, serving an consultant, will take part, according to Arnold B. Grobman, director of the Curriculum Study. The nationwide evaluation program will begin in September.

The Biological Sciences Curriculum Study is an educational program of the American Institute of Biological Sciences. Funds for the study have been provided by the National Science Foundation in grants totaling $738,000.

The Curriculum Study has its headquarters at the University of Colorado. It is an autonomous activity, directed by a steering committee of 26 outstanding biologists and educators, of which H. Bentley Glass, professor of biology at Johns Hopkins University is chairman.

Elementary School TV Biology

The television series "21-inch Classroom," in cooperation with the Children's Museum of Boston and the Massachusetts Audubon Society, has been presenting a series of 30 half-hour television programs dealing with the principles of biology. Teacher for the series is professor William H. Weston of Harvard University, and the producer is Charles Walcott. The programs have included presentation at the fifth-grade level of some of the major ideas of biology. This has involved the extensive use of live animals and plants, original film, and special art work.

During the current year the series is being used in several thousand New