Letters

Mercury Residues

August Curley, in his letter (3 Dec. 1971, p. 979) concerning mercury in foods, misses the point of my previous communication (2 July 1971, p. 8) entirely, and we feel that it is necessary to set the record straight. The 0.5 part per million (ppm) mercury guideline set by the Food and Drug Administration (FDA) relates only to fish and shellfish. This is a level at which we will charge that the fish represents a health hazard and will take regulatory action to remove it from the market.

There are no established tolerances or guidelines covering mercury residues in other foods, and therefore no mercury above the normal background amount is permitted. We will institute legal action against these other foods containing mercury residues at any level if the contamination is deemed by our scientists to represent a health hazard. This is also the approach taken by the U.S. Department of Agriculture (USDA), which has primary responsibility to establish and enforce similar regulations concerning mercury and other toxic contaminants in meat and poultry.

Curley's statement ". . . it is surprising that there has been little attention given to the problem of mercury in foods in this country" is contrary to the facts of the matter, which the interested reader can easily ascertain by direct inquiry to the responsible agencies, FDA and USDA. The coverage given to mercury residues in the nation's food supply by the FDA has been extensive and comprehensive. Since April 1970, literally thousands of samples of tuna, swordfish, and other fish of commercial significance have been analyzed by FDA laboratories.

In addition the agency conducted a nationwide "Mercury in Foods Survey" to examine certain high-consumption foods for mercury content. Included in this survey were flour, nonfat dry milk, sugar, whole eggs, fluid whole milk, ground beef, beef liver, shrimp, chicken breasts, and potatoes. No mercury above the sensitivity of the method (0.02 ppm) was detected in any of the commodities except shrimp; of the 34 shrimp samples, four were found to be above 0.02 ppm (two at 0.03 ppm and one each at 0.04 ppm and 0.05 ppm).

Mercury was included as one of the toxic contaminants to be surveyed in the "Pesticide Residues—Total Diet Studies" (Market Basket Survey) program for the year 1967. It was again included in the October 1970 Market Basket Survey and has been determined in each subsequent sampling since that time. The results of these studies indicate that mercury levels present in the bulk of the food supply are very low; only in fish and fishery products were significant mercury residues detected.

Most of the aforementioned studies were completed in fiscal year 1971. The "Mercury in Foods Survey" however is being expanded to include other foods and is continuing. The "Total Diet Studies" program is ongoing and therefore provides a continuous mechanism for monitoring mercury levels in a broad spectrum of foods.

The FDA has been involved for several years in activities designed to prevent mercury-treated seed grain from entering normal food channels. Our district offices were instructed to maintain surveillance of food and feed channels so that colored seed grain would not be diverted to human or animal use. These activities have resulted in many seizures of food grains contaminated with mercury. However, no surveillance activity can prevent the deliberate misuse of treated seed grain once it is in the hands of the ultimate consumer.

The recent action by the U.S. Department of Agriculture to disallow registration of all mercurial compounds for treatment is perhaps the only sure means of preventing a recurrence of the tragic New Mexico incident, in which several family members were poisoned after eating pork from a hog that had been fed mercury-treated grain, an obvious misuse of treated seed.

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Objectives of Cancer Research

I am troubled by the diffuse verbiage and the relative emphasis of the seven objectives of the Cancer Conquest Program (Letters, 3 Dec., p. 980). A restatement of the objectives with more emphasis on the improvement of patient care and less commitment to research areas with unknown future promise seems reasonable. General objectives are extremely important in government programs; they should be understandable to nonprofessionals and still reflect as accurately as possible the intent of the planners. The following is my restatement of the seven objectives.

1) Identify and eliminate or reduce probable causes of cancer.

2) Identify individuals and groups of people who are most apt to develop one of the malignant diseases.

3) Develop means of finding and destroying precancerous cells and preventing their change into cancerous cells.

4) Seek new diagnostic tests for the malignant diseases in an early stage.

5) Improve the survival and cure of cancer patients by seeking new methods, and improving existing methods, of surgery, radiation therapy, chemotherapy, and immunotherapy and by providing special treatment facilities.

6) Establish special task forces of physicians and scientists for the intensive study of those kinds of cancer that are the greatest killers—lung cancer, cancer of the colon and rectum, breast cancer, cancer of the uterus, and for the study of those malignancies that require unique and complex treatment, such as the leukemias and Hodgkin's disease.

7) Develop and provide special facilities for the care, treatment, and restoration of patients with uncured cancers.

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Baker outlines, in seven points, the measures necessary to contain cancer and asks for suggestions on how to implement them. Not being much of a cancer-minded researcher and never having been connected with the National Institutes of Health (NIH), I feel that this project is a very costly exercise in futility. Why is everybody interested in cancer per se and hardly anyone in

the patients? Have we ever tried to develop a cancer-prone patient profile as we did with cardiovascular patients? We don't know what produces a coronary incident, but we know who is physically, biochemically, and emotionally likely to become a victim—and instead of curing the disease we have a chance to prevent it. (Predictive medicine?) Isn't it time for someone at NIH or another institution to become patient-oriented rather than disease-oriented?

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Captive Audience

Nonsmokers are a captive audience at scientific meetings. They must tolerate the annoyance and unpleasantness of being soaked in polluted air for many hours. I propose a simple solution in which the rights of both nonsmokers and smokers are respected. Smokers should be permitted to sit in only one part of the lecture room. For example, if signs are posted and ashtrays are distributed to show that smoking is allowed on the left side only, a convention would soon be established. It might even spread to other public gatherings.

This suggested segregation of smokers from nonsmokers is already in effect on trains and some airplanes. It has been tried without objection at one meeting. Smokers must appreciate how extremely unpleasant their habit is to many people.

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Fusion by 1990?

The Creutz-Hosmer colloquy "How soon for fusion?" (News and Comment, 7 Jan., p. 43) exposes a fatuous rationale for accelerating the rate of controlled thermonuclear research; fusion by 1990 instead of 2000 would be "exciting" for the citizenry and would make plasma physicists "feel good."

There is, however, a truly compelling reason for increasing the fusion budget. Commercial fusion in 1990 would render the fast breeder (fission) reactor obsolete less than a decade after approximately $4 billion in public funds had made it feasible. If the fusion optimists are correct, then the development of breeders may and should be bypassed—a strategy with manifold environmental advantages.

According to Deborah Shapley (News and Comment, 9 Apr. 1971, p. 143), a power economy based on breeders would produce, by the year 2000, 720,000 kilograms of plutonium under civilian control, and a likely worldwide black market in plutonium. International security hazards aside, this would pose a public health problem of terrifying magnitude; the maximum permissible body burden of plutonium is less than a microgram. A quarter century of effort has still not yielded a safe, permanent storage method for the highly radioactive waste from fission reactors.

The most cogent argument *for* breeders is that continued deployment of current (nonbreeding) reactors will exhaust U.S. supplies of ^{235}U by the 1990's. Put this way, the argument suggests a moratorium on the deployment of nonbreeding reactors.

What kind of new power plants before 1990? One possibility is to redirect the funds for the breeder program to subsidization of pollution controls on fossil-fueled plants. U.S. coal reserves will be sufficient for centuries (*1*).

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Reference

1. H. H. Landsberg and S. H. Schura, *Energy in the United States* (Random House, New York, 1968), p. 82.

In "How soon for fusion?" my questioning of Edward C. Creutz of the National Science Foundation is characterized as that of a skeptic "who chided scientists for their proclivity to do what seems possible mainly because it seems possible." The unabridged record of this colloquy during Joint Committee on Atomic Energy hearings clearly indicates that my questions simply sought to elicit any compelling reasons for spending the extra resources required to implement Creutz's plea to accelerate the advent of electric power from controlled fusion by about 10 years, from 2000 to 1990. To do so would mean diversion of substantial sums from other scientific and nonscientific priorities. Its costs and benefits deserve the forthright