Letters

Mercury in Foods

I appreciate the correction expressed in Albert C. Kolbye's letter of 2 July (p. 8) concerning a statement in our report "Organic mercury identified as the cause of poisoning in humans and hogs."

Indeed, *Webster's Third New International Dictionary* definition of the word "meat" as ". . . **3a**: animal tissue used as food: (1): FLESH 2b ⟨preferring ~ to fish⟩ (2): FLESH 1b; *specif*: flesh of domesticated cattle, swine, sheep, and goats—distinguished esp. in legal and commercial usage from *meat by-product* and from flesh of other kinds of mammals . . ." obviously and precisely delineates the kinds of animal tissues or flesh that are considered "meat" or "meat products." Granting the imprecise use of the word "meat," it was our understanding at the time, and even now, that it was a common practice among the chemists in the Food and Drug Administration (FDA) laboratories to apply the "interim guideline for fish" to all meats (fish, mammals, and fowl). "Meat" samples, we thought, that were found to contain unusually high mercury concentrations (about or above 0.5 part per million) were flagged and further evaluated for possible embargo, seizure, and destruction. Kolbye implies that this is not true. Corneliussen substantiates our view in what we believe is the lastest nationwide market-basket survey of pesticide residues in the total diet (*1*). He states that the samples (meat, fish, and poultry) were analyzed for the presence of chlorinated hydrocarbons, organic phosphates, chlorophenoxy acids, bromides, arsenic, amitrole, carbaryl, cadmium, and dithiocarbamate residues. The *National Agricultural Chemicals Association News* (*2*) published a compilation of those FDA tolerances that appeared in the U.S. Federal Register up to and including the year 1969. In the section "Eggs, Meat, Milk and Poultry" there are no tolerances listed for any inorganic anions or cations, except the zinc ion and Maneb (manganese ethylenebisdithiocarbamate) in kidney and liver,

After the Minamata and Niigata poisoning episodes a decade ago and the recent concern about mercury contamination of fish in Sweden, it is surprising that there has been little attention given to the problem of mercury in foods in this country. Our paper clearly points out that whether there are tolerances or guidelines in "meat" or not, and whether there is exposure naturally or through error, the upper limits of toxicity were painfully evident in the Huckleby family.

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References

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2. *Nat. Agr. Chem. Ass. News Pestic. Rev.* **28**, 23 (1970).

Shortage of Physicians

I am troubled by many aspects of the program described by Harrington *et al.* ("Alleviating the shortage of physicians," 11 June, p. 1109). As both a medical student in my fourth year and a Ph.D. candidate in my third year of study in a biomedical sciences program, I find that the training in the two programs is very different. From the first, a medical student, although in a sense being trained as a biological scientist, starts to appreciate that the object of his concern is a complex involving a disease, a patient, and a particular social setting. A graduate student studies within a narrower framework and is often not expected to think about his work in a social context.

That recently trained Ph.D.'s from diverse fields, including metallurgy, physics, and the more classical biological sciences, should enter medical school with 2 years in which to obtain an M.D. seems unfair to them, to the field in which they trained, and to the medical profession. Two years is not enough time to fully appreciate the wider aspects of being a physician; the contemplated 3-year programs will have this same failing.

Some of the present pressure to increase medical school enrollments stems, no doubt, from the current political and economic climate. The draft is still a threat, and a new Ph.D. may not be able to find work in the field in which he trained. Medical school should not be used as an escape from these troublesome conditions.

Undoubtedly there are many reasons why Ph.D.'s would like to be physicians; with their varied backgrounds, they could make valuable contributions. But all the problems in the basic sciences have not been solved, and I wonder how much such a highly trained doctor would help to relieve the shortage of patient care.

Both my medical and graduate training are proving valuable, but each in its own distinct way. I fear that the accelerated program will not serve the interests of any party concerned.

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The report of an accelerated M.D. program for Ph.D.'s, in itself, represents a laudable attempt to narrow the alleged shortage of physicians in the nation. However, several fundamental questions should be answered before these or other changes in medical education can be considered more than symptomatic.

1) Should the M.D. degree be more clearly recognized as an instrument for entry into a variety of medical activities, rather than as an end in itself?

2) What evidence is there that the selection of medical students and the available medical curricula lead to end products—physicians—who can best fulfill the needs of society 5, 10, and 25 years after receiving their M.D. degrees?

3) What kinds of work by holders of the M.D. degree are most needed, and how should this affect medical student selection and training? Should there be different selection methods and education for M.D. candidates depending on whether they expect to enter a specialty, academic medicine, family practice, group practice, hospital administration, government service, or industry?

4) If medical school curricula are so changed that graduates may have entirely omitted such topics as obstetrics, psychiatry, or surgery, is the significance of the M.D. degree basically altered? Is there a case for more, rather than less, uniformity in the formal medical curriculum, so that all who complete it will have at least some insight into the work of their colleagues?

The "shortage" of physicians is not

purely quantitative but also involves what physicians are doing now and will do in the future (for example, more cardiovascular surgery and less care of tuberculosis or poliomyelitis), and the efficiency with which they can perform their functions.

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The accelerated M.D. program for Ph.D.'s at the University of Miami School of Medicine represents a historical turning point and should be highly commended.

Every printed commentary on medical education and the crisis in medicine makes allusion to pre- and post-Flexnerian periods. Perhaps we are still too close to the revolution wrought by Flexner's so-called reforms to fully appreciate their significance. It has been tacitly assumed that medical schools are for the purpose of producing doctors. Flexner's reforms wedded doctors to science. The real product of the modern university medical school was a growth in medical science; the scientific doctor, the Oslerian generalist, was merely a by-product.

The crisis in our medical care system has now forced a challenge upon the Flexner-model medical school, with the clear implication that the modern medical school fails somehow to fulfill its role.

Our understanding of the role of the medical school might better be clarified if we reexamine the concept of the doctor. Anyone who has gone through medical school and gets an M.D. degree is automatically a doctor. Although pundits like to remind us that the word "doctor" has its derivation in the noble title of "teacher," it has little meaning in reality. An identity is assumed between the M.D. who goes into private practice and gradually degenerates to the level of a technician and the academician who never has a private practice but goes on to become a great educator and ends his career with accolades and honorary awards.

One answer to this confusing game of concepts and roles is to consider medical schools as centers of medical learning and research and to forget about "doctors." Medical schools should be open to a great variety of students, with a great variety of ultimate goals. The field of health care alone embraces a variety of workers with an as yet untabulated number of roles.

Harrington's article suggests that giving an M.D. to a Ph.D. in medical science will alleviate the shortage of practicing physicians. Giving an M.D. to a Ph.D. isn't going to change his colors, and I fail to see how it is going to free some other M.D. who is actually a Ph.D. without the title, but doing research.

The history of medical science makes it quite clear that an expanding cadre of workers in research will be needed just as vitally as an expanding army of health care workers.

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Cancer Conquest Program

President Nixon, in this year's State of the Union speech and in his health message, called for a new intensified attack on cancer and stated that he was asking the Congress for an extra $100 million for expanded research and development efforts. He called for commitments to a national program for the conquest of cancer. The Congress appropriated this sum as well as an increased regular appropriation and thereby laid the foundation for the initation of such a program.

A national planning effort is under way in which representative members of the biomedical community who are engaged in all aspects of cancer research will contribute to the formulation of a national cancer plan. This plan will include strategies for both research and operations and will serve as the basis for the Cancer Conquest Program.

Based on discussions with the National Advisory Cancer Council, the advisory committee to the Director of the National Institutes of Health, and several other groups, it was determined that the basis for the planning effort should be a clear statement of program objectives, expressed in broad terms understandable to laymen; a bridge can thus be formed between the scientific efforts and the kinds of problems in the cancer field that the public wants solved. The following are the seven objectives of the Cancer Conquest Program.

1) To reduce the effectiveness with which external agents increase the probabilities of the development of cancers in existing individuals or in individuals of subsequent generations.

2) To modify individuals (for example, by vaccination) to decrease the likelihood of cancer development, both