Letters

Mortality and Fertility: Causal Link

Frederiksen's article "Feedbacks in economic and demographic transition" (14 Nov., p. 837) lends substance to what was previously only a "strong clinical impression" of mine. While working at the Pakistan SEATO Cholera Research Laboratory in East Pakistan, I was concerned, and in fact told by many people, that the control of mortality from cholera and cholera-like diarrheal illness or any other cause was not a good thing in such an overpopulated area. In fact the neo-Malthusian party line would have it that we were actually hurrying the day of a catastrophic famine in the area. The village people I talked with and treated who had experienced the loss of one or more of their children as a frequent and expected occurrence seemed to be little inclined to control their fertility. In fact in this context the woman who was unable to bear children was a very unhappy individual indeed. It was also a myth that grief over the loss of family members was any less real or intense simply because of the frequency with which this event occurred. Thus in one particular overpopulated area at a personal level it seemed crystal clear that the regular loss of a very large number of offspring provided an urgent drive toward a high birth rate. This should not be surprising to any biologist since it is not unique to the human animal but is a rather general rule that populations of organisms with high rates of attrition will have high birth rates.

Fortunately, some answers will become available in the next 5 to 10 years as improved practices in preventive and curative medicine reduce loss of life in babies and children in the vaccine trial area of the Cholera Research Laboratory in rural East Pakistan. In the meantime, however, in lieu of experimental evidence which may be forthcoming in the future, Frederiksen's article certainly gives substance to those who argue for a closer look at the actual effects of mortality control in the real world. As in other biological systems the simplest way to control fertility may in the long run be to guarantee survival of larger numbers of progeny. Such an approach is also more consistent with the humanities of medicine and civilization as aspired to by our culture.

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What's behind a Label?

We have observed an increasing carelessness among suppliers of radioactive biochemical products. Some examples are:

1) A compound, labeled as 98 percent radiochemically pure C^{14}-phenylalanine, was shown to consist of about 2 percent C^{14}-phenylalanine with the remaining radioactivity distributed among three other components.

2) A compound, packaged as 99 percent radiochemically pure C^{14}-deoxyadenosine, was in fact rather pure C^{14}-adenine.

3) A wipe, taken on the outside of an intact vial of P^{32}-orthophosphate, was counted by liquid scintillation and showed over 20,000 count/min. The package showed no gross evidence of spillage or leakage. Investigators working with low-level radioisotope counting equipment eventually become aware, to their chagrin, of the havoc that can be caused by a few nanocuries of P^{32} introduced into a lab as a dust from a package.

Until recently, such slovenliness was confined mostly to companies that enjoyed earned reputations for unreliability. The worrisome aspect of this problem is that the more reliable suppliers are now allowing this decline of standards. What to do? The problem of contaminated packages is handled here by requesting our investigators to assume that all incoming radiochemical packages are contaminated until a wipe test proves otherwise.

Not so easily solved is the problem of questionable purity or reliability of descriptive labels of radiochemicals. However, it may save some users of radiobiochemicals many frustrating hours if they are made aware of these facts. It might help all concerned if investigators would report such incidents promptly to their colleagues and forcefully to their suppliers.

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Herbicides: No Margin of Safety

Bryce Nelson's otherwise accurate article on 2,4,5-T (21 Nov., p. 977) contains one error. I estimated that, after a spray operation of 27 pounds per acre of 2,4-D and 2,4,5-T and a 1-inch rainfall, 2,4,5-T in Vietnamese drinking water would reach a concentration of about 50 milligrams per liter. A pregnant woman consuming 1 liter of water per day would thus ingest 50 milligrams per day of this teratogenic agent, not 50 milligrams per kilogram of body weight, as Nelson had me saying. Even so, the more than 1 milligram per kilogram of body weight ingested per day is not far enough below the minimum teratogenic dose in mice and rats to give us any margin of safety. It is for this reason that many of us are pressing for further investigations on the use of the phenoxyacetic acid herbicides at home and in Vietnam. In the meantime, prudence would dictate further restrictions on the use of these compounds until we know more about their teratogenicity in humans.

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Purified Transfer RNA's

A number of purified transfer RNA's from *Escherichia coli* have been produced in gram-size quantities and are available without charge from Oak Ridge National Laboratory, as a result of a continuing National Institute