Letters

Recycling

Thomas H. E. Quimby's letter (2 Mar., p. 854) concerning the ambiguity of the term "recycling" gets to the bottom of the pile of semantic trash. Since all paper is now and has always been made from natural plant fibers, all paper in some sense is recycled.

The present issue is just how far along the trail of use and discard did the fiber go before it was recycled. The ends and scraps from the highest grade, pure linen shirts are used for paper; however, are they really "recycled"?

Truly recycled paper is known in the industry as: "nondeinked postconsumer waste." This means it was once printed paper that was used by consumers and then totally recycled with all of the oils and inks left in (without fouling more water to clean them out).

Contrary to most opinions, very fine grade scientific books can be printed on this stock. A prime example is the new reference work, *The North American Reference Encylopedia of Ecology and Pollution* by William White, Jr., and Frank J. Little, Jr. (North American, Philadelphia, 1972). It is a pioneering effort to publish a serious ecological work on 100 percent used material. With a lot of effort and a little expertise it can be done.

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AAAS Vietnam Resolutions

I must protest, in the strongest terms possible, the Vietnam Resolutions passed by the AAAS Council. The council has no business whatever becoming involved in political considerations. Even if council members would prefer to designate the Vietnam war as a moral consideration, it is outside their realm of competence and authority. They do not represent my views nor those of a vast number of other members of the AAAS.

If council members cannot refrain from attempting to impose their political concepts on the AAAS membership by virtue of their council affiliation, they should resign. If they do not, conscientious members of the AAAS should resign from the association. Any further abuse of privilege by council members will result in my instant resignation.

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Mercury in Benthopelagic Fish

In their report "Mercury concentrations in recent and ninety-year old benthopelagic fish," R. T. Barber, A. Vijayakumar, and F. A. Cross (10 Nov. 1972, p. 637) state that there is "evidence that there has not been a change in Hg [mercury] concentration in these benthopelagic fish during the last century," which is not supported and, in fact, is apparently contradicted by the data presented in the report itself.

In Fig. 1 of the report by Barber *et al.* the distribution of values obtained for the Hg concentration in the 1883 fish does not overlap and lies considerably below the distribution of values found in two current fish of the same species and size. In Table 1 of the report, where mean values are given, the Hg content of an *Antimora rostrata* of current vintage that is 45.7 centimeters long is 40 percent greater than that of the comparable 1883 fish, a difference of more than 10 standard deviations.

If these data do not show an increase of the concentration of Hg with time, they certainly cast profound doubt on the possibility that the concentration in these fishes has remained unchanged with time.

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In our report we stated that "The relatively good fit of the 1883 *Antimora* to the size-concentration regression line for nine 1971 fish is evidence that there has not been a change in mercury concentration in these benthopelagic fish during the last century. . . ." Saperstein wishes to compare our single 1883 fish with the two recent fish of the same length; we prefer to compare data on the 1883 fish to the regression line based on all nine contemporary fish. To do this we compared the mean Hg concentration of the 1883 fish with the 99 percent confidence interval around the regression line. The mean Hg concentration of the 1883 fish was 0.50 ± 0.03 part per million (ppm) (wet weight). The lower 99 percent confidence value predicted by the regression for a fish the same length as the 1883 fish (45.7 centimeters) is 0.51 ppm (wet weight). On the basis of this evidence (0.51 versus 0.50 ± 0.03) we considered the date on the old fish not to differ from the regression line of the contemporary fish. The choice of a method for making the comparison is obviously important in this discussion. We did not make the kind of comparison Saperstein did because our data for recent fish did not enable us to estimate the variation that exists between individual fish of a given size, but our data did enable us to estimate the variation around the size-concentration regression line. Readers may decide for themselves which method of comparison they prefer.

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Pregnancy and Famine

In the article "Nutrition and mental performance" by Stein *et al.* (17 Nov. 1972, p. 708), the authors conclude that no apparent relation exists between mental performance at age 19 and prenatal exposure to the Dutch famine of 1944–1945. Before the validity of this conclusion can be accepted, there are several related questions that should be answered. First, is there some threshold of nutritional deficiency of the mother beyond which the mentality

of the offspring is affected? Second, was the average nutritional intake of the affected population below this threshold? Third, was the nutritional intake of the pregnant mothers within the affected population below this threshold?

Another way of viewing these questions is to consider normal protective family behavior toward a pregnant woman in such a crisis situation. Certainly it is reasonable to expect that the husband might tend to offer a portion of his meager ration to his wife, and in larger family groups the proportionate reduction in share for each family member to support the woman's nutritional needs becomes less. Thus, it is possible (even probable) that the actual nutritional intake of these women may have been considerably higher than might be inferred from the averages given in Table 1 of the article.

The authors touch upon this question when they consider the reservations in "Ecological fallacies," but their thrust seems aimed at "variations in performance within groups." I am suggesting the possible existence of a large systematic bias that would tend to mask the true famine effect. The existence of such a bias might, even at this late date, be revealed by a sampling survey of the parents of the famine-affected youths.

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We have concluded from our Netherlands data that there were indeed caloric values above which the growth of the fetus was little affected by nutritional deprivation of the mother. The average food intake of the population certainly fell below this threshold for fetal growth, and so too did the intake of pregnant women, since the growth of their infants was retarded. No threshold below which mental performance is affected could be detected in our data, however. If there is such a threshold, it must be very close to that below which reproduction cannot be maintained.

In our quantitative analyses of the effect of nutritional deficiency on intrauterine growth (in preparation), we found nonlinear and conditional relations between caloric rations and fetal dimensions. There were values of caloric rations above which growth was little affected and below which it was markedly affected. Among the fetal dimensions analyzed by us, the threshold value was highest for birth weight (around an average daily caloric ration of 1500 calories), probably lower for length at birth, and lowest for head size. Thus length was affected by the famine relatively less than birth weight, and head size less than length.

The average daily ration was reduced to 565 calories in the worst month, and for five consecutive months did not rise above 725 calories. In this period fertility fell to one-third of the prefamine norm. Clinical reports and our further quantitative analyses support the view that among the causes of this decline in fertility, loss of fecundity was important. The experience of the famine during the Leningrad siege of World War II suggests that, where famine is any more prolonged and severe than it was in the Netherlands, reproduction can hardly be sustained at all.

We cannot argue that pregnant women were not sheltered from the worst of the famine by their families, although we have no evidence of this; during the famine, pregnant women did not get preferential rations officially. Rations were certainly supplemented from extralegal sources, and the caloric thresholds for fetal growth should be assessed with these supplements in mind. Bradley's idea of a sample survey to test for such systematic bias might therefore be an attractive one, but we do not judge it necessary in the light of our recent work. Even if pregnant women were sheltered, they and their infants experienced severe effects of the famine. Maternal weight immediately after birth was depressed to 4 standard deviation units below the postfamine norm. Their infants experienced, in addition to intrauterine growth retardation, an excessive mortality that persisted through the first 90 days of life.

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Lobster Flavor

As a native of the Greek northwest coast, I have attempted to titillate my palate with the essence of the indigenous crustaceans, commercially available in sizes considerably larger than those of their New England cousins, only to discover, alas, that length and warm waters do not a tasty lobster make.

Hughes, Sullivan, and Shleser (22 Sept. 1972, p. 1110) should have also determined the environmental effect on taste by consuming some of their gargantuan arthropods.

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The New England lobster, *Homarus americanus*, reaches a size of up to 40 pounds. Most lobsters caught in conventional wooden pots weigh less than 5 pounds, and these are the lobsters commonly served in restaurants. However, more than 1 million pounds of large lobsters (ranging from 5 to 40 pounds) are landed each year from New England deep waters. Most people who have cooked and eaten these large lobsters prefer them to the smaller ones for two reasons: (i) they cost less per pound and (ii) the texture and flavor