Letters

Environment: "Goods" and "Bads"

In "Man and his environment" (9 Oct., p. 132), Ansley Coale considers the bearing of economic factors on the problems of resource depletion, overpopulation, and pollution. I agree that the solution requires internalizing what have hitherto been "externalities"; that is, making people pay for the "bads" they inflict on society, just as they are now recompensed for the goods they place on the market.

However, I seriously question both the utility and the validity of considering nonfuel minerals as renewable resources. While it is true that elementary physics tells us that matter can never be created or destroyed (although it can be transformed into energy), it seems abundantly obvious that, despite the most earnest efforts at recycling, most industrial uses of ores irrevocably remove from future access a substantial proportion of the minerals they contain. If that's not nonrenewable, what is?

I also fear his suggestion that current estimates projecting the exhaustion of certain resources within the near future are exaggerated because "long before the last drop . . . is used, (the resource) will have become much more expensive." This will only give false comfort to the enemies of rational "ecomanagement." If 80 percent of our accessible oil reserves were gone, it would be small comfort to me to know that there was still 20 percent left but that it cost $10 an ounce. To be at all meaningful, "exhaustion" and "depletion" must be defined in terms of economic accessibility and recoverability. To define them in "last drop" terms is to engender dangerous self-delusions and false feelings of security. As Coleridge might have put it: What good is oil, oil everywhere, if there's not a drop to burn?

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Coale made a critically important assessment when he proposed that safe and skillful abortions be provided upon request. That such a situation would result in nearly stable replacement rates seems reasonable.

It seems important to note that neither abortions nor vasectomies should be available only to those who are financially able to pay for them. Such discrimination seems particularly unwarranted when we consider the societal cost due to unwanted children. Studies have shown the increased likelihood of a child's becoming delinquent when he grows up in a fatherless home. It seems plausible that delinquency and other antisocial activities would be more likely among those people who have been unwanted children than those who have been wanted and loved. In fact, it may be that the cost to society of providing nondiscriminatory vasectomies and abortions may be substantially less than the cost to society of those who have grown up having been unwanted children.

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In his consideration of policies that would affect the growth of population of the United States, Coale in an otherwise excellent article has neglected the substantial role immigration in its broadest sense plays in our population growth. The excess of arrivals over departures has been accelerating in recent years and in 1969 reached 771,000, a figure which may be compared with the excess of births over deaths of 1.6 million. Even with stabilization of the present birth and net immigration (whether permanent or temporary) levels, one third of the 100 million population increase that Coale anticipated for the year 2000 will result from population movement into this country.

We may be on the horns of a dilemma. Reduction of the population influx to achieve population stability would tend to deprive this country of the cultural diversity which has been so vital in its development. Permitting the net population inflow to continue suggests that stabilization of the birthrate at a low level is not as urgent as some suggest. Any government policies designed to regulate total population numbers must come to grips with the regulations governing immigration, citizenship, and residency as well as with birth and death rates.

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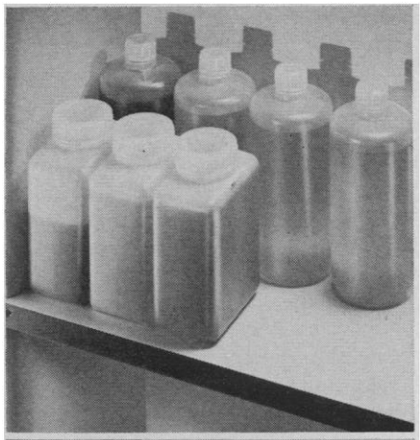
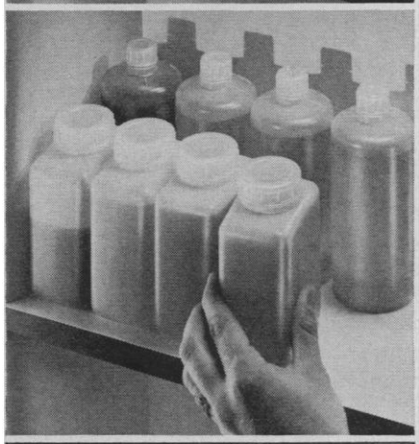
I fully concur with William Gross's position that access to effective contraception or to medically safe abortion should not be limited to the affluent, and I also agree with Ronald A. Munson that policies cannot be formulated to affect the future growth of our population without taking account of the contribution of immigration to our overall increase.

I accept much of what Kenneth S. Kamlet says, especially that "exhaustion" and "depletion" must be defined in terms of economic accessibility and recoverability. However, his statement that "despite the most earnest efforts at recycling, most industrial uses of ores irrevocably remove from future access a substantial proportion of the minerals they contain" is less acceptable. How earnest the efforts at recycling are depends on the price of virgin metal. Gold is an extreme example of the effect of price on the maintenance of a metal once it is mined. There are today about 64,000 tons of gold in bars held by national and international monetary authorities or by banks and speculators, and a further stock of many thousands of tons incorporated in jewelry, fillings for teeth, and industrial inventories. The total world stock is probably over 100,000 tons. Annual production is about 2 percent of this stock. About half of the freshly mined gold is added to monetary stocks, and half employed in industrial uses or jewelry. It is a safe bet that a large fraction of annual production is a net addition to the world total holding of the metal in a "useful" form; at $35 per ounce not much gold is lost or thrown away.

If the price of iron ore were two or three times as high as it is, "earnest efforts" at recycling could become more earnest and more effective. In fact a geologist (Kenneth Landes) has written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a personal letter objecting to the statement that "it does not pay to recycle these minerals," pointing out that when the price of virgin metals rises, there is a well-known tendency for scrap to appear in abundant quantity at the furnaces. A doubling of the average cost of raw materials would make feasible forms of recycling that are now too expensive to consider; yet a doubled price of raw materials would not raise their share of the total cost of the national product to as much as 10 percent.

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Hydra-Headed Pesticides

In his presentation of the rationale for pest control by the Agricultural Research Service (19 June, p. 1419), George W. Irving, Jr., capsulizes the many alternatives or complements to the use of the synthetic organic pesticides. . . . [He] states that American agriculture has evolved a monoculture system and that the use of persistent pesticides has been an essential element in the successful production of the cheapest, highest quality food with only 5 percent of the labor force. One would infer that our monoculture system and its results are good and provide the only viable pattern for the world in the future. But the burgeoning degradation of our natural and social environment indicates that perhaps we are paying too little for food that is unnecessarily free of blemishes, that we have driven more people off the land than our cities can support, and that we have an unrealistic standard of living which the environment cannot sustain and the rest of the world can never achieve. Neither the world's fossil fuel and mineral reserves nor the capital resources of the developing nations can long support any major expansion of modern agriculture or U.S. life-styles. Serious doubt exists as to whether the quality and essential diversity of the environment can be maintained either.

The reasoning of the pest control specialist seems to be that man must "fight" so-called pests to survive and that the "balance of nature is not an achievable ideal, if it is an ideal at all." Man creates pests when he so simplifies an ecosystem that a particular insect group experiences a massive population increase. His repeated retaliation with chemical pesticides further unbalances the ecology by stimulating the development of resistant pests and eliminating effective natural controls. Man must achieve a viable, dynamic balance within the global biosphere of which he is a part. The alternatives are frightening.

Alternatives do exist to the inexorable increase in use of pesticides, fertilizers, and machinery. Irving mentions several innovative plant protection systems being investigated by ARS. Unfortunately these techniques are not always economical in a monocultural system, particularly in the absence of long-term environmental cost accounting.

Extensive research, education, and incentives will be required to develop practical, ecologically sound systems of agriculture in which truly integrated insect control can function. Less conventional practices which tap the productivity of an agriculture modeled after natural ecosystems must replace the forcing of output through heavy energy and chemical subsidies. Such systems are particularly suited to the developing nations where capital inputs are scarce and conventional monoculture has had limited success.

We should question the assumption that agriculture has the responsibility to raise agricultural productivity to feed unlimited numbers of people. To irreparably damage the earth's life support system in an effort to extend conventional agriculture would be technologically difficult, economically unsound, and poor ecology.

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Rachel Carson (*1*) emphasized the importance of thoroughly testing all pesticides under controlled laboratory and *field* conditions before introduction of any chemical into the marketplace. The broadcast application of mirex is contrary to these scientific principles (*2*); for example, studies on mammalian systems are practically nonexistent (*3*).

Mirex, included with aldrin, dieldrin, and heptachlor in the same chemical family, may degrade into intermediates with a similar or higher level of general toxicity. I am not aware that such tests have been made or whether medical procedures exist to diagnose acute or chronic mirex poisoning. Human fetuses contain dieldrin and hepta-