Letters

Environment: Emotion Takes Over

Leuba's letter (1 Aug.) and Barrons' article ("Some ecological benefits of woody plant control with herbicides," p. 465) are reminders of the need for greater philosophical accuracy in discussion of environmental questions. Many people who never heard of ecology until rather recently are now actively concerned about preserving the quality of the environment for a wide variety of purposes or just on general principles. Pronouncements of individuals and groups frequently imply, if they do not state flatly, that this, that, or the other action or condition is ecologically bad, or even bad for the ecology of some organism. There seems to be a failure to realize that the stated value judgment usually relates only to man's perceived needs and wishes. "Bad ecology" can mean only study of relations between organism and environment that is carried on incompetently in some respect. "Bad for ecology" means detrimental to the study of organism-environment relations. "Ecologically bad" can describe an environmental condition that is harmful to the organism(s) involved, but the phrase usually interprets man's regard for the particular organism(s).

Except from the standpoint of man or some other organism, as of a specific time, no change in environment is bad (or good). Natural forces have changed every square foot of the earth's surface many times, both gradually and cataclysmically. Some, including fire, ice, water, and weather, were the same forces man now strives to control for the sake of his own well-being. Others, such as competition and predation, were unplanned and undirected acts of organisms that have parallels in man's wars, economic and social struggles, and efforts to control unwanted organisms with their side effects on desirable ones. Except in relation to his own ego and scale of values, what man does to the world means no more than what the dinosaurs did. (The religious concept that "The Earth is the Lord's" and man has an obligation to maintain it in good condition is regarded here as part of the human value scale.)

Among human values there is need to distinguish the necessary from the desirable. Man must have air, water, food, and shelter; environmental changes that promote man's ability to obtain these things are "ecologically good" for him, and vice versa. Man tends to grasp obvious present good and discount possible future harm. He has a fondness, based on familiarity, for certain plants, animals, and environmental complexes; therefore, environmental changes that threaten these are "ecologically bad." And here is where emotion takes over. One would think the world were going to hell in a handbasket because DDT threatens the bald eagle, or too few old redwoods may be saved, or complete wilderness ecosystems may be invaded by civilization. Yet we seem to be getting along pretty well without the moa, the dodo, and the passenger pigeon; and the vast majority of the people in the world probably neither know nor care about wilderness.

My point is that the ecologically necessary must take precedence over the ecologically desirable. We must both grow sufficient food and fiber now and prevent the environment from deteriorating to the extent that man cannot survive. If emotional appeals to save the bald eagle will help to produce the necessary result, well and good; but the eagle himself is, as the Cajun says, "lagniappe." I'm for all the lagniappe we can retain but not to the extent of letting the "environmentalists" make it the primary objective. Scientists have an obligation to use terms and thoughts precisely and honestly and to distinguish between functional need and emotional wish. Leuba and Barrons have helped to put this obligation in perspective.

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Publication Savings and Shortcuts

In view of the correspondence on cost of publications, page charges, and similar problems, readers of *Science* may be interested in recent actions of the American Geophysical Union. Like every other scientific organization, the AGU is faced with an information explosion. In the earth sciences, it has been particularly pronounced because of the great developments associated with federal expenditures in space research, atmospheric science, oceanography, and solid earth geophysics. A year ago the Council of the AGU set up a publications planning committee to develop both short-range and longer-range policies. Among the recommendations adopted so far are the following.

1) Splitting the *Journal of Geophysical Research* into three sections: solid earth geophysics, oceanography and atmospheric science, and space physics. Members of the AGU will receive fewer pages per year and save bookshelf space, and the AGU will save a great deal of money. With the increasing number of pages, every additional member and every additional subscriber produced a financial loss for the AGU.

2) A review of the quality as well as of the length of papers by a group which is separate from the editors. This amounts to post-factum refereeing of the papers and should provide guidance to editors, to the publications planning committee, and to the AGU Council.

3) Escalating page charges in order to encourage shorter papers. We have concluded that page charges are still a good way of financing journals. Publication is part of the cost of doing research; the authors and the supporting agencies have a responsibility for the dissemination of research results and, therefore, for publication.

4) A tightening-up on the policy prohibiting dual publication. It covers symposium proceedings and reports which are generally available to the public. The policy calls for the author to disclose related publications to allow the editor to make a final judgment.

5) The use of microfiche for archival and supporting material. This is frankly an experiment, but, as set up now, it is at the option and by mutual agreement of editor and author. The whole paper is refereed; a portion of the paper is printed; another portion is put on microfiche and is available at cost to those who order it. We feel that it will, in time, lead to a much wider use of

microfiche. It will cut into the "grey" literature, and will make what has been available on a private basis available on a much wider basis through libraries and archives.

Among its longer-range recommendations, the publications planning committee is considering the following:

1) The pros and cons of publishing extended abstracts in the *Journal*, with the main equations and main figures, while the paper itself is available on microfiche to those who order it.

2) Investigation of new composing and printing techniques to see if they can reduce publication cost or increase publication services substantially.

3) More emphasis on the *Reviews of Geophysics* which publishes review articles covering all of the areas of interest to the members of the AGU.

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Plea of the Philatelist

As an avid collector of stamps and occasional author of biological papers, which even more occasionally elicit reprint requests, I deplore the trend among senders of reprints or request cards of allowing machine stamping on their envelopes instead of regular postage stamps. Surely, whether one collects stamps or not, one of the pleasures of receiving reprints or request cards, partially offsetting the tedium of reading or processing these, is the sight of exotic and colorful stamps, enlivening an otherwise humdrum heap of mail. Must we forever lose this splash of color from our working day? The price of this minor increase in efficiency is, I believe, too high.

I wish to exhort all scientists to insist on the use of postage stamps and I don't mean a never-ending tribute to Franklin D. Roosevelt or Queen Elizabeth II. Decorative commemoratives should always be at the fingertips of any competent secretary. Add some sparkle to your mail. Who knows—it may increase the impact of your publications.

A special plea to ecologists working in the Solomon Islands, Fiji, San Marino. . . .

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More about Abrus Precatorius

I wish to add more information to Gunn's letter (18 Apr.) about *Abrus precatorius*, the pretty but poisonous seed. The plant is native to India, and its seeds, known locally as *rati*, have been used here from time immemorial as weights by goldsmiths since it is presumed, though without any good reason, that the weight of all *rati* seeds is equal. Actually, each weighs about 1.75 grains troy. The seeds are extensively used as beads for necklaces. That they are poisonous has been well known from early times. The principal poisonous constituent is abrin which was formerly used as a remedy for granular eyelids, but a dangerous one, as it frequently proved. The bruised seeds have often been used as darts for criminal purposes such as poisoning cattle and even human beings. A poultice of the seeds is said to bring about abortion. Strangely enough, the boiled seeds have been used as a famine food in Egypt and India!

In addition, the roots and leaves of *A. precatorius* contain glycyrrhizin, the active ingredient in licorice which accounts for its being known as Indian licorice. The leaves taste sweet, and a decoction of the leaves and roots is widely used for coughs, colds, and colic.

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DDT: Maxwell's Demon

It appears from the letter by J. L. Fischer (15 Aug., p. 645) that DDT is well on its way to becoming a sort of reversible Maxwell's demon. If a species of wildlife *declines* in numbers, it is being poisoned by DDT; if it *increases* in numbers, this is because its natural enemy is being destroyed by DDT. Apparently, the hypothetical and unidentified predator of starfish, according to Fischer, has been eliminated by DDT, but there are no indications that DDT was present, or whether, if present, it would have killed the free-swimming and fragile larvae of the starfish themselves.

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