Letters

Congressional Invitation

In discussing the activities of ecologists in public policy the distinguished Connecticut ecologist, Paul B. Sears of Yale said (Letters, 8 Mar.):

> It should be noted that professional groups, such as ESA, enjoy a tax-free status which inhibits political activity. They must, instead, rely largely on the informed action of their individual members as citizens.

Sears is correct in saying that the tax laws do provide certain restrictions, but the general tenor of his letter indicates a common misconception as to the extent of these restrictions.

My subcommittee has made a detailed study of the role which professional societies may play in providing scientific advice and information to Congress. We found that the Internal Revenue Code does not limit communications to Congress when the initiative has been taken by Congress; that is, when Congress has requested the information. In addition, I have issued a standing invitation to professional societies to give us their views on scientific and technical issues on which Congress must deal.

Even without such an invitation, however, an organization may communicate with Congress provided such communications do not constitute a substantial part of the organization's activities. I would point out also that the "no substantial part" limitation found in section 501(c)(3) of the Internal Revenue Code applies to "carrying on propaganda or otherwise attempting to influence legislation." Therefore, the limitation would not apply to the investigative, as opposed to the legislative, activities of Congress.

I believe we should have a diversity of opinions in formulating science policy, and urge the participation of scientists everywhere. I can appreciate the hesitancy of organizations committing actions which would endanger their tax exempt status, but I believe that needless caution is a luxury we cannot afford in view of the issues facing society today. If an organization has any question regarding its tax exempt status, I urge it to contact the Exempt Organization Branch of the Internal Revenue Service in Washington, and if it wants a specific invitation, I will be happy to provide it.

EMILIO Q. DADDARIO
Subcommittee on Science, Research and Development, House of Representatives, Washington, D.C. 20515

Forestry Expedition in the Andes

Heltne, Fletcher, Buchinger, and Portig (Letters, 14 July, 1 Sept., 10 Nov., and 26 Jan.) have described conservation problems in Latin America. In particular, Heltne emphasizes the danger in overlooking the protection of species in the Amazon forests. He criticizes the opinion that the activity of man sacrifices only very isolated specimens. I should like to add personal observations about similar environments in the North Patagonian Andes and to draw attention to some conservation problems in those more southern latitudes.

During a search with other scientists of millenary year ring samples for the carbon-14 assay in the Southern Hemisphere, we examined *Fitzroya cupressoides* and *Araucaria araucana* growing in the rain forests on both slopes of the Cordillera de los Andes near latitude 40°. On the Argentine side, these are found mainly in two national parks created for their protection: Parque Nacional Los Alerces and Parque Nacional Lanín. But few trees were suitable for our investigation. Local woodsmen, we observed, were capable of destroying a species by selecting the most healthy trees and leaving the uneconomical, sickly specimens.

We sought trees with a long succession of year rings and with the wood in good condition for radiocarbon analyses. "Good" *Fitzroya* and *Araucaria* specimens were not to be found where man had been or was still active. The pith of these species readily becomes rotten and useless both for our work and as lumber. While it appeared to the park rangers that "good" trees could be found in accessible places near rivers and lakes, we verified by boring that the unexploited trees were in all cases "bad" specimens.

At Parque Nacional Los Alerces, the continuous use of a machete is essential for progressing through the thick rain forest. Although *Fitzroya* have not been exploited for 20 years and the forest is now covering the marks of man's past activities, hardly any seedlings are to be found which can, in time, replace 1000 years' growth. A few men working every summer with very simple tools and selecting the species and the specimens most suitable for their interests have threatened the *Fitzroya.* When conservation was enforced and the region converted into a national park with prohibited areas, the lower parts of the valleys were already irreversibly injured. Upstream of the rivers we eventually found "good" trees almost 2 millenniums old and took our samples.

I agree with Heltne that not only is it difficult to detect by aerial inspection selective exploitation within thick rain forests, but it is impossible to evaluate the state of the remaining trees of the species and the damage done to its seedlings if they exist at all. In the air this *Fitzroya* probably appears as a "green virgin forest," as it does to the machete explorer until he begins to find stump after stump hidden by other replacing species.

Araucaria grows in more populated areas of the North Patagonian Andes in less thick forests. Here the situation is more critical. In Parque Nacional Lanín there are three areas: a prohibited one, the most isolated; an exploited one, the most accessible; and a burned-out area, the most extensive and tragic. In the lumbering area, one could see how a determinate tree could be decimated even in difficult locations. Felled *Araucaria* are dragged down steep slopes, destroying their own seedlings and saplings. No bulldozers are used, but oxen and human beings are as destructively exploited as the trees themselves. Such depredation is evidently more intensive than that of the

Fitzroya. The burned area was destroyed by fire which probably originated beyond the Andes where forests are usually burned for so-called agriculture reasons. I shall avoid describing an extensive area in flames which we crossed. Perhaps 100,000 trees were burning.

"Good" samples, one millennium old, were rescued from the lumber mill and consequently the prohibited region was not visited although very probably "good" *Araucaria* trees exist there.

Let us act now to conserve these and other Andean forests. Conservation will provide both a refuge for the animal life which is threatened by commercial safaris, and will preserve the sources of a vast hydrological system. Biologists and environmental scientists will be grateful and forthcoming generations will enjoy a natural beauty.

J. C. LERMAN
Natuurkundig Laboratorium der Rijks-Universiteit, Groningen, Netherlands

Symbolic Eskimo Mask

In response to Engel's letter (16 Feb.), the mask on the 29 December cover of *Science* manifestly depicts a classic lower motor neuron facial palsy. But we would be doing a disservice to the disciplines of anthropology, sociology, and psychoanalysis as well as the cultures that produced these artifacts if we were to dismiss the mask with having no latent meaning. In any society, no matter the level of its technology, decoration may be of two general forms: (i) accidental to the process, as in the fluting of the edges of a stone blade; or (ii) purposive to enhance the value of the object, as in the stylized carving on Haida oil bowls.

The enhancement of value brings the object into the area of emotional significance rather than mere utilitarian use. The value of the mask may be strictly utilitarian, that is, it might be a protective facial covering against the elements. But then undoubtedly masks made of hide would be more easily fashioned from more readily available materials and most certainly with greater symmetry. . . .

The expenditure of time and energy in carving an object out of a relatively scarce material presumes a purpose on the part of the craftsman not wholly utilitarian but perhaps one with an emotional significance. The mask could be symbolic of an emotional state delineated in a local myth. The mask and legend are interrelated and correspond to the same symbolism within this myth. This particular mask type appears in many diverse cultures in a variety of forms. In shamanistic ceremonies it is used to exorcise the spirit of disease. Variations of the "crooked face" myth have survived the decline of those cultures that had produced the mask artifacts. These myths ascertain the purpose of the masks and elaborate their use in healing. . . .

EDWARD HOLTZMAN
10 Old Mamaroneck Road, White Plains, New York

. . . The mask represents the "half-man half-animal," a well-known spiritual being that was widely distributed in western Alaska. It belonged to a category of spirits who lived in their own communities, and did not "belong" to other objects or animals as many spirits did.

Several groups of Eskimos from around the Bering Strait personified spirits in amulets and masks, which had been interpreted for the carver by the angutkuk (or medicine man). This particular spirit everywhere had a human and an animal (usually a red fox) side to his face. Some masks had a line or ridge placed in the middle of the face, but the King Islanders (whose mask was illustrated) disdained such devices, although the division between man and animal as seen on the mask was conceptually inflexible.

Man and animal were further differentiated by shape, size, and placement of mouths and eyes. These were purely artistic conventionalizations, not indications of physical disabilities. The upturned half of the mouth in all masks represented the animal, and the downturned mouth, the man. In my book, *Eskimo Masks* (Univ. of Washington Press, Seattle, 1967), from which the illustration was taken, a more complex rendering from Nunivak Island is also illustrated. The distinction between man and animal is terrifyingly clear in this mask. The red fox's mouth is a wide, deep gash that rips the left cheek apart at a 45° angle from the middle of the mouth almost to the edge of the cheek and up to the height of the eye and is inlaid with 12 dog's teeth. The left eye is placed at the same angle to the gash. The right side of the mask is a human face.

DOROTHY JEAN RAY
3001 Veazey Terrace, NW, Washington, D.C. 20008

Cambridge: Molecular Biology

I read Walsh's report ("Geneva: Molecular biology research comes of age," 16 Feb., p. 718) with great interest, not least because it gives due prominence to the work of my friend Alfred Tissières. There is, however, a statement in the report which is erroneous on two counts: that Tissières was at the "Cambridge Laboratory of Molecular Biology" from 1947 to 1957. In fact he and I were both working at the Molteno Institute, Cambridge, during that period. Walsh takes no cognizance of the great debt that Tissières (as I am sure he would admit), like myself and many others who worked there, owes to the late David Keilin whose discovery of cytochrome opened a new era in biochemistry.

The second error is more fundamental. In 1947 there was no molecular biology laboratory in Cambridge, nor for that matter elsewhere. The term *molecular biology* was brought into use considerably later, largely at the instigation of a certain group of x-ray crystallographers working at the Cavendish Laboratory. This group had taken on the incredibly difficult task of interpreting, in terms of molecular structure, the x-ray diffraction patterns given by crystals of oxyhemoglobin. In 1947 the future of this work was placed in jeopardy by lack of funds and it was due largely to the insight and influence of David Keilin that the work received adequate support and that Cambridge, in due course, saw the birth of that vigorous extrovert offspring of the physical and biological sciences: molecular biology.

E. F. HARTREE
Animal Research Station, Cambridge, England

Population Growth: Crash Program Needed

The Committee on Population of the National Academy of Sciences has given us (Letters, 23 Feb.) another wonderful example of the "safe, sane, slow, and responsible" school of dealing with population and other crucial problems of the day. They inform us that a zero rate of population growth "may be essential in the long run but as a goal within the time horizon of current policy it has little support in either the developing or the developed world, certainly not among governments."