LETTERS

U.S. Pullout from IIASA

The briefing "U.S. announces pullout from IIASA in Vienna" (News and Comment, 11 Dec., p. 1222) reviews arguments against our participation in the International Institute for Applied Systems Analysis, namely Administration pressures to reduce expenditures for nonmilitary purposes and the dangers of espionage activity (conducted, presumably, by all interested parties). Not mentioned, however, are the arguments in favor of our participation in IIASA, that is, its function and raison d'être.

The more than 100 researchers at IIASA work at a variety of public policy projects, including, to mention a few, dam and reservoir control, planning and analysis of agricultural and food resources, analysis and perception of risks, and regional economic interaction. IIASA addresses itself to social and economic problems faced by all societies. Furthermore, projects appear to be organized with a view toward involving, to as great an extent as possible, investigators from both East and West.

During a recent trip to Europe, I had the opportunity to visit IIASA briefly. I found it an exciting place; not only are important issues of public policy being studied, but the studies take place in a context of international cooperation.

In a period of rising world tension we need more, not fewer, bridges over troubled waters.

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Photon Counting

Constance Holden's excellent article "New focus on replacing animals in the lab" (News and Comment, 1 Jan., p. 35) omits photon counting as a promising noninvasive technique. Although measuring the spontaneous weak chemiluminescence of whole unperturbed organisms is not so highly developed as nuclear magnetic resonance or positron emission tomography, it is routine in the case of cells and rapid progress is being made in determining the chemistry and physics of this problem. The extension to humans is being studied in our laboratory with major emphasis on breath chemiluminescence (*1*). We have also measured the spontaneous luminescence of parts of the body including the hand and head. Noninvasive techniques offer much greater clinical potential than Holden indicated.

Because reduction of human suffering is a major objective of much biological research, techniques that permit actual study of humans with no perturbation of their condition could quickly become a major source of health-related data. The effectiveness and mechanisms of therapeutic regimens could be followed during the standard treatments of diseases and economical population screens for diseases developed. More sophisticated instruments that are capable of imaging might be possible, as might applications to bronchoscopy and endoscopy. The most significant advantage of photon counting, however, is the fact that it has a very large spatial and temporal range. The whole organism or a few molecules may be studied, and very highly developed optical theories that cover this entire range of application may be brought to bear. Related theories cover the time spans that can be measured using photon counting, 10^{-16} to 10^{3} (or more) seconds. The present cost of equipment is less than $10,000, including a computer to log and analyze the data.

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References

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Columbia River Gorge

The recent cover photograph (20 Nov.) of the Columbia River Gorge is especially timely when one considers the legislation to be introduced in Congress in early 1982 to designate it a National Scenic Recreation Area. Scientists may be able to help. The Gorge is home to dozens of rare, threatened, or endangered plants and animals (many are endemic) and displays outstanding evidence of catastrophic Pleistocene flooding. The mighty Columbia River has been harnessed with many dams and has absorbed considerable radioactivity (Reports, 20 Nov., p. 913). The immediate future is bleak, and the development of subdivisions, condominiums, and industry is imminent. Nevertheless, its scenic, biological, and geological integrity are largely intact. The area needs federal attention because the Columbia River forms a state border and because interstate cooperative efforts at management have failed. Regional support for protective legislation is strong. Letters to Congress from elsewhere would help call attention to the national significance of the Gorge.

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Animal Welfare

Constance Holden's account (News and Comment, 11 Dec., p. 1218) of Edward Taub's trial does not indicate that, as two experts from the University of Pennsylvania who testified for the defense, we are both veterinarians. Furthermore, we are neuroscientists and have direct knowledge of the problems encountered in dealing with deafferentation of monkeys. Some deafferented monkey limbs are not pretty sights, and we fear this greatly influenced the judge's decision. However, the monkeys to which these limbs were attached appeared alert, bright-eyed, well-fleshed, and well-groomed in the photographs shown to us by both the prosecution and the defense. This impression of good general health was supported by reports of normal body temperature by other examining veterinarians. In other words, the monkeys were not in need of care by veterinarians in our opinion because they were tolerating well the chronic problems in their deafferented limbs. Such monkeys rapidly counter attempts at local therapy with ointments and bandages by licking, chewing, or biting the treated parts so that the best course to follow is conservative local treatment and administration of systemic antibiotics when there is actually evidence of systemic infection. Taub has come to this approach in consultation with veterinarians over a period of years of working with these animals.

Holden also emphasizes that we "found it difficult to defend the dirty cages and piles of feces shown in the photographs," but we were fully aware that each photograph represented only one instant in time and that monkeys require little time to create a pile of feces and dirty their cages.

Finally, given the prolonged collection of selected evidence and the prepared news release at the time of the seizure of the animals from Taub's laboratory, we do not regard this as a case of isolated