Letters

Flora of North America

The report by John Walsh, "Flora North America: Project nipped in the bud" (News and Comment, 23 Feb., p. 778), reminds us not only that the U.S. scientific effort is slackening because of budgetary stringencies, but also that we are falling far behind other countries in various areas. The Chinese are currently producing a comprehensive flora of their country. During my second visit to Peking in June 1972, I participated in a research discussion at the Botanical Institute of the Academy of Sciences in Peking. Following this meeting, I was presented with a handsome 1157-page, hard-bound volume entitled *Iconographia Cormophytorum Sinicorum*. Volume 1, dated 1972, covers Bryophytes, Pteridophytes, Gymnosperms, and a small portion of Angiosperms. Each plant is described extensively in Chinese; excellently drawn line illustrations and the Latin binomial accompany the description. Subsequent volumes are expected to appear in the next several years, with the project scheduled for completion by the end of this decade.

If the Chinese and the Russians can afford to prepare comprehensive floras of their countries, I fail to see how the United States can possibly assert its fiscal incapability to do the same.

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Insulin Synthesis

An error appeared in my article, "Science policy for the 1970's: Canada debates the options" (12 Jan., p. 151). The article credits two Canadian researchers, Frederick Banting and Charles Best, with the "synthesis of insulin." Actually, their pioneering achievement was the preparation of an active extract of this substance from animal tissue for the first time. The synthesis of insulin was achieved more recently by American and Chinese researchers. I am indebted to R. A. Cleghorn of McGill University for calling my attention to this regrettable slip.

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Arms Control

Nigel Hawkes (20 Oct. 1972, p. 286) articulates how hard it is to sustain a high level of morale in working for international conciliation and disarmament. He also gives due credit to the Stockholm International Peace Research Institute (SIPRI) for its indispensable reportorial work in documenting the world's preoccupation with armaments.

It is, however, a mistake to judge SALT (Strategic Arms Limitations Talks) and other diplomatic efforts solely by their failure to reduce the global expenditure on arms. Many elements of the arms account, for example, the rapidly changing strategic power of China and its geopolitical impact, were simply beyond the reach of SALT. Dramatic political reorientations in other spheres have now transformed the context of efforts at arms control.

If strategic disarmament were an end in itself, the scene today would be the most discouraging in history. Expenditures on arms remain a vicious drain on resources needed for economic development. However, the overriding peril of strategic weapons is not that they will be stockpiled, but that they may be used. Most of us would agree that we are safer today in that respect than we were 10 or 15 years ago. SALT has contributed a measure of stability through its formal arrangements of mutual limitation. Perhaps more important, the dialogue has reduced one of the gravest threats—thermonuclear war founded on miscalculation.

SALT has disseminated a far more sophisticated understanding of what each side must do to protect its own security in the face of others' efforts at self-defense. The banning of nationwide missile defenses (ABM) implies the acceptance of mutual deterrence as national policy by the United States and the Soviet Union and has been an important and necessary first step toward the vital goal of stopping the arms race. This is far from the "hoax" claimed by SIPRI director Frank Barnaby, for it makes the MIRV (Multiple Independently Targetable Reentry Vehicle) race far less significant—and one that can hopefully also be constrained when SALT II gets down to the very difficult task of qualitative constraints. Besides reducing the threat of strategic war, this atmosphere of mutual problem-solving—unless disturbed by other major political confrontations—can for the first time lead to rational schemes of mutual arms reductions that leave national securities unimpaired.

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One Man's Family

The article by Chapman, Tyrrell, and Mount, "Electricity demand growth and the energy crisis" (17 Nov. 1972, p. 703), might be subtitled "The wife, teen-age daughters, and the energy crisis." Returning home from an energy conference, I found 21 lights on, and a washer-dryer consuming large amounts of power in its "hot water" and "drying" cycles as one pair of blue jeans and one brassiere were being washed. My search of the house disclosed one daughter at home watching television in a darkened room.

If my wife and other daughters had been home there would have been more lights on, in addition to at least one record player, possibly another television set, one hair dryer, certainly one iron, and an overcharged "muscle" car being revved up by a guy waiting for one of my daughters to complete a series of electricity-consuming procedures essential for an evening of en-

tertainment (whatever happened to rouge and powder!).

The evening's entertainment was provided by a guitar rock band that used electricity instead of fingers, and by painting signs protesting the thermal pollution from the proposed new power facility on the north edge of the lake. (The thermal pollution from such a facility would be about the equivalent of that which my daughters and their friends contribute to the lake getting ready for a night out with their bathing, hair-washing, and clothes-washing.)

With more girls at home there should be an offset in power use. A few more things could be washed in one cycle. However, there is often a last-minute, second cycle of consumption by one of the others of some forgotten unmentionables. I can shower in 3 minutes with a few gallons of water. One of my daughters needs at least 20 minutes and at least 70 gallons of water for a bath or shower or whatever she does up there. I see little hope of retarding the growth of the residential power demand until scientists can apply highly skilled analysis to the female and the particular, unanalyzable, unscientific, uncontrolled phenomena of their power consumption. (I never hear them running the power lawn mower.)

Philosophically and financially I hope the authors are right that the "crisis" has been overestimated, but I hold out no hope whatsoever.

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Frog Health

Science has appropriately alerted its readers to the poor health of frogs available for research (see T. H. Maugh, Research News, 27 Oct. 1972, p. 387) and noted that septicemia and malnutrition are the predominant causes of death. Gibbs *et al.* (*1*) demonstrated how simple treatment with tetracycline and food was sufficient to eliminate these causes of death. Following their suggestion, we have treated frogs received from large midwestern and eastern suppliers by injections of tetracycline [5 percent, weight to volume, in water; 0.5 milliliter per frog (weight, 100 to 150 grams)] via soft polyethylene tubing (PE 90) into the stomach once or twice per day. Ninety percent survival is the routine result. In addition, if investigators refused to pay for frogs received dead, suppliers might investigate simple modes of treatment in the housing ponds to avoid the loss of captured stock.

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1. E. L. Gibbs, T. J. Gibbs, P. C. Van Dyke, *Lab. Anim. Care* **16**, 142 (1966).

Latin American Development

In the last year, several *Science* editorials have dealt with Latin American development. Two of them by Philip Abelson (9 June 1972, p. 1077; and 6 Oct. 1972, p. 13) merit some comment.

As a Latin American, I cannot help noting the widespread misunderstanding of American engineers and scientists about the social, political, economic, and scientific problems of Latin American countries. I do not blame them, but rather find they have great difficulty understanding what underdevelopment really means. As Abelson correctly observes, "If the poorer countries are to develop, they must do so largely by their own efforts." Although in many of these countries the state has played a strategic role in promoting the development of the industrialized sector, internal structural conditions have oriented the production of goods to satisfy the consumption of the middle and upper classes. Moreover, as a new form of economic domination—the multinational corporation—is spreading throughout the world, the planning, decision-making, and financial, scientific, and technological knowledge are located in the industrialized countries (*1*). The result is a new form of the well-known "center-periphery" model (*2*), in which manufacturing activities are concentrated in industrial (center) countries, while the peripheral ones specialize in those products needed by the former for their economic expansion.

Abelson suggests that "The Latin American countries might try to utilize the bounteous resources of scientists and engineers in developed countries,"