LETTERS

Peace Supporters

Constance Holden's timely article "Antinuclear movement gains momentum" (12 Feb., p. 878) unfortunately misrepresents the nature and purpose of our organization, High Technology Professionals for Peace. The employment agency for professionals who seek alternatives to defense work which she mentions is but one of a number of active projects which the group has under way.

We are organized as a nonprofit corporation under Massachusetts law. Our primary purpose as a group of individuals familiar with the technology of weapons systems is "to educate members and nonmembers about the nuclear arms race, about the economic, societal, environmental, and security impacts of nuclear weapons, and about the capabilities of current and proposed nuclear weapons and to conduct educational, scientific, and cultural activities which will contribute to reducing the threat of nuclear war." To these ends we have undertaken a variety of projects, including talks and papers describing existing and proposed nuclear weapons systems and their impact, dissemination to recent graduates of information on professional considerations of employment in the defense industries, a lecture series open to the public in the Boston area on aspects of the arms race, analysis of U.S. strategic military policy, support of the National Freeze Campaign, and analysis of related topics such as civil defense in response to nuclear war.

Professionally we serve also as a support group for individuals who have moral and ethical reservations about weapons-related work. The employment agency project represents one end of the spectrum of our activities under this support function.

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Quasar Boundary

The observed absence of quasar redshifts larger than 3.53 is erroneously attributed to Richard Green and myself in "A boundary for the quasars" (Research News, 22 Jan., p. 388). Our survey of bright quasars does not cover redshifts larger than 2.2 because in choosing candidates we rely on the ultraviolet excess, which tends to disappear at larger redshifts. The apparent absence of redshifts larger than 3.53 is primarily based on the results of a search just published in the 1 February issue of the *Astrophysical Journal* (vol. 253, p. 28) by Patrick S. Osmer of the Cerro Tololo Inter-American Observatory. The cosmic epoch corresponding to this redshift is around 4 billion years after the Big Bang if the mean density in the universe is low (for a Hubble constant of 50 kilometers per second per megaparsec). If the mean density is critical, such that the universal expansion slows down but never quite turns around into contraction, then redshift 3.53 corresponds to an epoch only 1.3 billion years after the Big Bang.

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Pleistocene Seed Dispersal

In proposing tests for their hypothesis of anachronistic seed dispersal, Daniel H. Janzen and Paul S. Martin (1 Jan. 1982, p. 19) state that the isolated land masses of Australia and New Guinea "never had a mammalian fauna that would select for a well-developed megafauna [seed] dispersal syndrome" (p. 24). This statement is incorrect. Indeed, Australia and its land-bridge island, New Guinea, may provide support for their theory through an extinct megafauna and extant flora that still show adaptations of past coevolution.

The largest native land mammal in Australia is the gray kangaroo (50 kilograms), a medium-sized reminder of a remarkable, extinct, marsupial megafauna. In Australia, fossil faunas of large marsupials date from the early Miocene to about 12,000 years before present. Pleistocene faunas include several genera of macropodids (kangaroos and wallabies) larger than the gray kangaroo, two families of diprotodontids, and a giant wombat (*1*). Diprotodontids are among the most abundant vertebrate fossils of Australia. One species was as large as a rhinoceros.

New Guinea is virtually unexplored for fossils (*2*). A Pliocene deposit contained three species of diprotodontids and three wallabies. Fossil diprotodontids of Pleistocene age have also been discovered in New Guinea.

Among the largest surviving animals in Australia and New Guinea are the emu and three species of cassowary. Related ratites of the extinct Australian family Dromornithidae extended from the Miocene to the late Pleistocene (*3*). These huge flightless birds ranged in size from that of the modern emu to a gigantic form 3 meters tall. At least one genus represented this family in the Pleistocene.

Modern large macropodids are grazers, but some of the Pleistocene genera presumably were browsers, as were the diprotodontids. Perhaps some of the marsupial megafauna ate fruits manifesting the various adaptations described by Janzen and Martin. Emus and cassowaries eat fruit; the dromornithids may have done so as well. Cassowaries swallow fruit to a size of 350 grams and would have an advantage over mammals as dispersal vectors because they pass all seeds intact (*4*).

Many trees endemic or indigenous to New Guinea bear fruits with characteristics for potential megafaunal dispersal, that is, large size, sweet flesh, fragrance, stonelike or otherwise unchewable seeds, and early abscission. Examples are species of *Terminalia*, *Calophyllum*, *Mangifera*, *Endiandra*, *Garcinia*, *Mastixiodendron*, and *Planchonella*.

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1. M. Archer, in *Ecological Biogeography of Australia*, A. Keast, Ed. (Junk, The Hague, 1981), pp. 1435–1488.
2. S. Bulmer, in *Biogeography and Ecology of New Guinea*, J. L. Gressitt, Ed. (Junk, The Hague, 1982), pp. 169–206.
3. A. Keast, in *Ecological Biogeography of Australia*, A. Keast, Ed. (Junk, The Hague, 1981), pp. 1585–1635.
4. T. K. Pratt, *Emu*, in press.

We agree with Pratt that the extinct Australian and New Guinea megafauna (*1*) may have selected for seed dispersal by it, and that there may be extant plants with traits best explained in this context. In addition to emus, extant Australian cassowaries also eat large fruits and disperse their large seeds (*2*) just as we expect did their Pleistocene (and earlier) ancestors.

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References and Notes

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2. G. C. Stocker, personal communication.