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Editorial and Business Offices  
1719 N Street, N.W., Washington, D. C. 20036

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## Letters

### Nightmare alternatives

Your hypothetical wetlands nightmare scenario (SN: 7/24/82, p. 56) has alternatives in spite of the unfortunate changes enacted in section 404.

Commercial and residential development constructed on sand-filled marsh will, for a 25-year economic investment, destroy that marsh. If the development is genuinely in the public interest, increasing job opportunities etc., and the preservation of the marsh, our future, then both should be possible.

Technically, as are pole structure villages in southeast Asia built high above river flood planes, a shopping mall or condominium can be built above a marsh, much like seashore architecture.

Economically, a cooperative agreement between developer and government (the public interest) should be possible, subsidizing an environmentally sensitive solution in order to maintain the project's economic viability. It has all been done before in different situations.

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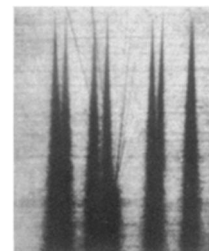
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Cover: The ability to accelerate uranium (and other heavy ions) to relativistic energies opens a new realm in nuclear physics. Here four  $U^{98+}$  ions enter a detector (from bottom of picture). Three of them fission (possibly the fourth, too), one with a spray of very light fragments. See p. 106. (Photo courtesy of Lawrence Berkeley Laboratory)



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How do we care to proceed? The future survival of our ecosystems demands that we make a higher first cost investment in all of our development projects. That doesn't automatically mean a go-no-go struggle between profit seekers and environmentalists. The aims of both can and should be accepted as legitimate. We need new ways of doing business to make the systems work.

R. J. Reynolds AIA  
Woodbury, N.J.

### Animal experimentation

The statement "... the question of whether it is ethical to use animals in biomedical research boils down, essentially, to whether animals are morally equal to humans" (SN: 7/24/82, p. 59) is not only vague in the extreme but fallacious. I won't waste time delineating what *morally equal* could mean because no matter what it means it is senseless.

I am not an antivivisectionist. I have recently spent months exploring the subject for a special report on ABC's "Nightline" and visited laboratories and scientists all over the country, as I

have been for years as an ABC special correspondent.

The pros and cons have nothing whatever to do with moral equality but moral responsibility, on our part, obviously. No one, scientist or not, has any right to inflict any more pain or fear than is absolutely essential. That goes for people as well as animals. No doctor has the right to be careless or callous when working on any patient whether that patient lives on Park Avenue, Rodeo Drive or in a slum. No researcher has a right to skip anesthesia or analgesics as long as they won't negate his or her findings. Whatever in the world has that to do with moral equality? That concept is one of those angels-on-pinheads that give philosophers games to play but have nothing to do with real morality.

Real morality dictates, demands, mandates minimum suffering of any kind. We don't try to conserve wildlife species, or plant species, or habitats, or scenic splendors because a waterfall, an orchid or a blackfooted ferret is our moral equal, again, whatever that means.

Continued on p. 110

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# BOOKS

BOOKS is an editorial service for readers' information. To order any book listed or any U.S. book in print please remit retail price, plus \$1.00 handling charge for each book, to **Book Order Service**, Science News, 1719 N Street, N.W., Washington, D.C. 20036. All books sent postpaid. Domestic orders only.

**ARTIFICIAL INTELLIGENCE: AN MIT PERSPECTIVE, Vol. 1: Expert Problem Solving, Natural Language Understanding, Intelligent Computer Coaches, Representation and Learning** — Patrick Henry Winston and Richard Henry Brown, Eds. A representative compendium of work done at MIT in the Artificial Intelligence Laboratory, a major center for artificial intelligence research. Originally published in hardback in 1979. MIT Pr, 1982, 492 p., illus., paper, \$12.50.

**ARTIFICIAL INTELLIGENCE: AN MIT PERSPECTIVE, Vol. 2: Understanding Vision, Manipulation, Computer Design, Symbol Manipulation** — Patrick Henry Winston and Richard Henry Brown, Eds. Originally published in hardback in 1979. MIT Pr, 1982, 486 p., illus., paper, \$12.50.

**THE BOOK OF NATURE PHOTOGRAPHY** — Heather Angel. Magnificent photographs illustrate this detailed introduction to photographing the natural world. The author's aim is "to produce pictures that are biologically truthful and that are at the same time exciting images that will communicate to others [her] appreciation of the natural world." Knopf, 1982, 168 p., color/b&w illus., \$16.50.

## ... Letters

I know a lot of people who are not my moral equal and I wouldn't inflict suffering on them.

If an animal model must be used to defeat disease in man or animal then the animal should be used with as much protection before, during and after the procedure as possible. Moral equal be damned.

Pain and fear are things to be avoided and philosophical games have nothing to do with it. Only a savage would think otherwise and a lot of savages have agreed. Hermann Goering, as I am sure you know, and Adolph Hitler were violent antivivisectionists and threatened to put anyone using animals into concentration camps — where they would be experimented on.

Roger Caras  
Kew Gardens, N.Y.

Your treatise on animal welfare belongs in Moral Philosophy News. Good science doesn't utilize torture to prove ideas. Those pictures are also in poor taste for a magazine of your calibre.

Tony Cohen, M.D.  
Wayne, N.J.

## Cantius clarifications

The recent finds by Bakker and Goepf (SN: 6/5/82, p. 372) will undoubtedly contribute to our knowledge of early primate postcranial morphology and paleontologists welcome this additional data. I would like to point out, however, that foot bones of *Cantius* (more commonly known as *Pelycodus*) have been known for many years. W.D. Matthew and W. Granger described and illustrated an astragalus, calcaneum and entocuneiform of *Pelycodus frugivorus* in 1915 (1). This material is now considered to belong to *P. trigonodus* (2), the

**A FIELD GUIDE TO THE ATLANTIC SEASHORE: Invertebrates and Seaweeds of the Atlantic Coast from the Bay of Fundy to Cape Hatteras** — Kenneth L. Gosner. An "informal" book intended to serve the untrained eye of the amateur in identifying saltwater plants and invertebrate animals. The book should be useful considerably farther north and south of its designated limits. Originally published in hardback in 1979. HM, Peterson Field Guide Series, 1982, 329 p., color/b&w illus., paper, \$9.95.

**A FIELD GUIDE TO EDIBLE WILD PLANTS: Eastern and Central North America** — Lee Allen Peterson. Information for identifying, harvesting and preparing nearly 400 species. Plants are described and well illustrated. Common poisonous plants that resemble edible ones are discussed and depicted. Originally published in hardback in 1978. HM, Peterson Field Guide Series, 1982, 330 p., color/b&w illus., paper, \$9.95.

**IMAGINEERING: How to Profit from Your Creative Powers** — Michael LeBoeuf. Shows how to make your creative ability work for you. Practical techniques are suggested for generating new ideas and turning the ideas into successful realities. Originally published in hardback in 1980. McGraw, 1982, 256 p., paper, \$5.95.

**MATHEMATICAL FALLACIES AND PARADOXES** — Bryan H. Bunch. A collection and analysis of the interesting paradoxes and fallacies from mathematics, logic, physics and language. Also treats important results in mathematics that are based in paradox, notably Godel's theorem of 1931, as well as decision problems in general. Van Nos Reinhold, 1982, 216 p., illus., \$16.95.

same species discussed by Bakker. As stated by Matthew and Granger, the foot bones of *Pelycodus* are very similar to those of its later relative *Notharctus*. The entocuneiform in particular indicates that *P. trigonodus* possessed a large, opposable big toe.

In addition to this initial report, the postcranial bones of *P. trigonodus* were studied by W.K. Gregory in 1920 (3) and more recently by R.L. Decker and F.S. Szalay (4). Both of these authors, as have many others, stressed the importance of postcranial modifications, especially the grasping big toe in primate evolution. The most recent discussion of this issue was that by F.S. Szalay and myself (5). We proposed that a form of locomotion we called "grasp-leaping" (which is self-evidently named for the ability of the animals that practice it to use both a strong grasp and leaping to move about in the trees) was the locomotor behavior practiced by the first euprimate (euprimates is the name of the group which includes all primates except the Plesiadapiformes). We further argued, as has Le Gros Clark (6), that it was this locomotor difference, more than anything else, which separates the archaic primates from the euprimates and was responsible for later evolutionary developments within the order. So, although I agree with Bakker when he stresses the importance of postcranial modifications, it should be noted that this idea has been articulated several times before.

One other point should be made. Although the Plesiadapiformes have a more primitive postcranium than their Eocene relatives (they have, for example, claws instead of nails) there is as yet little evidence relating to the relative size or grasping ability of the big toe in these animals. To exclude them from the Order Pri-

**MICROCOMPUTER SYSTEMS** — Ivan Flores and Christopher Terry. Tells how the parts of a computer system work and how they fit together. Discusses such components as computer circuits, peripheral devices, programs, operation systems, terminals and printers. Typical systems are given special attention. Van Nos Reinhold, 1982, 290 p., illus., \$22.50.

**STATISTICS WITHOUT TEARS: A Primer for Non-mathematicians** — Derek Rowntree. Teaches how to understand the key concepts of statistics and the use of these concepts in "thinking statistically" about relevant real-world problems. The text is interspersed with questions to help in thinking about the subjects covered and to use the ideas discussed. Scribner, 1982, 199 p., charts & graphs, \$12.95.

**SUNLIGHT TO ELECTRICITY: Photovoltaic Technology and Business Prospects** — Joseph A. Merrigan. A 1980 assessment of the economic and technological prospects for commercially feasible development of solar cells. This updated look at the prospects for solar energy use by photovoltaics reveals many changes in the factors that influence the growth of the solar cell business. MIT Pr, 2nd ed., 1982, 215 p., illus., \$19.95.

**VIOLENT PHENOMENA IN THE UNIVERSE** — Jayant Narlikar. There are many types of astronomical objects that are now being seen as sources of violent activity. This is an account of some of these violent phenomena and of the attempts by astrophysicists to make sense of these observations. The final chapter questions whether Einstein's general relativity theory is adequate for describing the nature of gravity. Oxford U Pr, 1982, 218 p., illus., \$19.95.

mates based on this negative evidence is surely not valid taxonomic practice. What we do know of plesiadapiform postcranial morphology, due mainly to the efforts of G.G. Simpson (7) and F.S. Szalay (8), is that in many ways the Plesiadapiformes are more similar to the Primates than to any other group of mammals, and that they were undoubtedly adapted for life in the trees. If arboreal existence is chosen as the rubicon of "primatehood," the first evidence of this is in the plesiadapiform primates, not in their Eocene descendants. The postcranial resemblances, plus those of the dentition and basicranium, clearly align the Plesiadapiformes with the Order Primates.

Marian Dagosto  
New York, N.Y.

- 1 W.D. Matthew and W. Granger, *Bull. Am. Mus. Nat. Hist.* 34, 429 (1915).
- 2 P.D. Gingerich and E.L. Simons, *Contrib. Mus. Paleontol. Univ. Mich.* 24, 245 (1977).
- 3 W.K. Gregory, *Mem. Amer. Mus. Nat. Hist. n.s.* 3, 51 (1920).
- 4 R.L. Decker and F.S. Szalay, in *Primate Locomotion*, F.A. Jenkins, Jr., Ed. (Academic Press, New York, 1974), p. 261.
- 5 F.S. Szalay and M. Dagosto, *Folia primatol.* 34, 1 (1980).
- 6 W.E. Le Gros Clark, *The Antecedents of Man* (University Press, Edinburgh, 1959).
- 7 G.G. Simpson, *Amer. Mus. Nov.* 816, 1 (1935).
- 8 F.S. Szalay and R.L. Decker, in *Primate Locomotion*, F.A. Jenkins, Jr., Ed. (Academic Press, New York, 1974), p. 223.  
F.S. Szalay, I. Tattersall, and R.L. Decker, in *Contributions to Primatology*, vol. 5, F.S. Szalay, Ed. (Karger, Basel, 1975), p. 136.

*Correction: In "Can You Count on Your Computer?" (SN: 7/31/82, p. 72), on p. 75,  $\cos \pi = -1$  instead of 1.*