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COVER: Sirens and mermaids in nautical lore that seaweary sailors claim to have sighted were probably manatees, hence the animal's name — Sirenia. Cavorting Florida manatees *(Trichechus manatus)* are endangered primarily by the state's recreational boaters. Research may pinpoint ways to save them from extinction. See story p. 91. (Drawing by Erica Abt, reprinted with permission from DEFENDERS [of Wildlife] magazine, © 1979)

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LETTERS

Curtailing nuclear power

In your article on the *Energy in Transition* report by the Committee on Nuclear and Alternative Energy Systems (SN: 1/19/80, p. 36), you mention that one of their conclusions is that "the risk of nuclear-weapons proliferation is probably the most serious catastrophic problem associated with nuclear power." This conclusion seems to have been, long before the report was made public, one of the main reasons for curtailing our nuclear power development in general and in particular the development of breeder-reactor technology. This might have been a reasonable and responsible reaction if these developments were somehow restricted or controlled by the United States. But for the most part they are not. Not anymore. Without even mentioning the Soviet Union, which will certainly not abide by our restrictions, we have for instance a country like France, which is ahead of us in breeder reactors, or Germany, which is selling nuclear power know-how to developing countries that have ambitious nuclear programs of their own.

What, then, will we accomplish by limiting and discouraging our own nuclear energy development? What we will accomplish is to remain dependent or become even more dependent on foreign energy supplies and in the process become weaker and more vulnerable. The risk of not making full use of all our immediately available large-scale energy resources and awaiting the development of renewable energy technologies is not only the "probability of considerably higher energy prices" (as stated in Professor Holdren's dissenting opinion). The main risk consists in weakening our economic and technological preeminence and consequently losing what is left of our capability to exercise world leadership.

Peter Thieberger
Brookhaven National Laboratory
Upton, N.Y.

Some weak links

The Carl Sagan et al. report in SCIENCE (Dec. 21) as commented on in SCIENCE NEWS (SN: 1/5/80, p. 4) is not convincing that early man, perhaps as far back as one million years, induced significant climatic changes.

A weak link in such a hypothesis is in ignoring that the impact of human activities upon the biosphere is a function of population. From the present population of 4 billion back to the beginning of the Christian era with a population of only about 300 million, a backward extrapolation to hundreds of thousands of years ago would indicate a population of only a few million at most. If they used fire to make hunting easier, it would have had only a minor impact upon climate because the food need was also a function of population.

Another weak link in the "Sagan hypothesis" is that it does not deal with the Milankovitch theory (SN: 11/17/79, p. 324) that the ice ages are the result of regular, periodic variations in the earth's orbit. All four variations of 23,000, 41,000, 93,000 and 413,000 years have been solidly supported by the examination of 2-million-year-old sediment cores which reveal that climatic changes in the past do coincide with orbital changes of the earth around the sun.

If past climates have been free from the effects of man's activities, it does not mean that the climates of the future will be independent of man's burgeoning population and technology. Exponential growth in population and technology is the major threat to the biosphere's stability.

Richard D. Mathews
Philomath, Ore.

Billions of lens effects

I found your article on "Gravity's Lens" (SN: 1/19/80, p. 36) quite interesting. Some years ago I came up with a similar idea concerning another astronomical phenomenon. It seems logical to me that with all the mass represented by the billions of stars in our own galaxy that we are living in the midst of virtually billions of such lens effects. There must be more evidence of these effects than a single double quasar and, like most evidence, I think it has been showing itself for centuries. I propose that some of the novas recorded in history were the result of the earth moving into the focal point of some star "lens." I wish someone would comment on the plausibility of this theory. I am tired of wondering if I am viewing this whole idea from my own slant.

Steve Sumerel
Americus, Ga.

(Novas are stellar explosions. The evidence is spectroscopic and there is no question of it. Within our galaxy the masses are too small to produce any but the slightest gravitational light bending. For the lens effect, the mass must be that of a galaxy and a highly condensed one at that, and the lines of sight between the earth and the distant object must be extremely fortuitous. The earth moves so little with regard to extragalactic objects that the situation can be regarded as static. However many gravitational lenses are there, are there. They do not develop. — D.E.T.)

Correction: In "Now — asteroid caused extinctions" (SN: 1/12/80, p. 22) the force of the hypothetical asteroid should have been described as 100 million *megatons.*

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