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COVER: Pair of horseshoe crabs spawning on sandy beach. A product manufactured from the blood of these animals—not true crabs—is the most sensitive detector of a ubiquitous and dangerous bacterial toxin. See article p. 44.

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

Subscription Department
231 West Center Street
Marion, Ohio 43302

To subscribe call: (1) 800—247-2160

Subscription rate: 1 yr., \$15.50; 2 yrs., \$27.00; 3 yrs., \$37.50 (Add \$3 a year for Canada and Mexico, \$4 for all other countries.) Change of address: Four to six weeks' notice is required. Please state exactly how magazine is to be addressed. Include zip code.

Printed in U.S.A. Second class postage paid at Washington, D.C. Title registered as trademark U.S. and Canadian Patent Offices.

Published every Saturday by SCIENCE SERVICE, Inc. 1719 N St., N.W., Washington, D.C. 20036. (202-785-2255)
ISSN 0036-8423

LETTERS

Year-end thanks

The year-ending issue with the semi-annual index will have a special place on my shelf.

It must have taken long hours of painstaking work to gather that information and I wish to extend my personal appreciation to the staff of SCIENCE NEWS; new luck during the next year. I'll be looking forward to reading each edition.

I only wish the information embodied in your text was the basis for alternative Saturday morning viewing for kids.

I feel the visual aspects of present day technology should hold the interest of today's young people... think about it!

J. W. Allen
Richmond, Va.

Hypothetical solutions

In your Jan. 5, 1980 edition, two articles got me thinking—ozone (p. 5) and vermicomposting (p. 13).

As a nation, we are concerned with the problems of ozone depletion, solar power, substitute fuels, fertilizers and sewage disposal.

Here is a hypothetical plant:

Large solar generators to be located in the Southwest, with the power obtained used to break down water into hydrogen and oxygen. The hydrogen would be supplied by tanker or pipeline to airline companies, to power jet aircraft, thus reducing one aspect of ozone depletion. The oxygen would be piped to a sludge treatment center using the process of vermicomposting. The sludge would be bathed in an oxygen-rich atmosphere (assuming the worms could accept this), thus furthering the destruction of the microbes responsible for mercaptans and hydrogen sulfide. The resultant fertilizer, while still not totally pathogen free, could be used on farms to speed growth of corn for feed lots.

Now, if we just had a few hundred million for development...

Ross L. Riddell
Windsor, Ontario

Preposterous thesis?

The thesis of Sagan et al. of anthropogenic climate change as long as a million years ago (SN: 1/5/80, p. 4) is preposterous. The prehistoric population was far too small and concentrated on far too little of the earth's surface to have had an effect even approaching that of modern man, much less a greater effect. By far the greatest changes in the earth's albedo have been due to glaciation, and ice ages have come and gone with fair regularity with little regard for the absence or presence of man.

Michael J. Zimmerman
Annandale, Va.

Kudos for NASA

Bert Cowlan's criticism of NASA for its blunders (SN: 12/8/79, p. 387) fails to take some basic facts of life into account. In any undertaking, whether it be industrial or governmental, there is a certain amount of risk involved. The risks may be safety- economy- or feasibility-related. Remember the DC-10? Or the 1973 Pinto? How does this compare with the one in 150 risk for injury in connection with Skylab? Take the Concorde, for instance, which began commercial service years behind schedule and had a cost overrun of about 1,000 percent. Compared to this, the year delay and accompanying 30 percent cost overrun of the space shuttle program (which was underfunded to begin with) seems like peanuts. One must also take into account the inherent complexities of space projects, which make accurate planning and funding more difficult. Take the Mariner 10 mission to Venus and Mercury, for example, which was conducted successfully on a fixed budget of \$100 million, despite numerous problems encountered during the program. In fact, the great majority of programs undertaken by NASA have been carried out successfully on time and very close to the projected budget. Remember the great successes of Apollo, and the unprecedented precision landings on Mars of the Vikings (where, incidentally, a barrage of Soviet spacecraft had failed)? And not to speak of the ongoing Pioneer and Voyager mission.

It seems to me, then, that NASA should be one of the last organizations to be criticized as uncareful or incompetent. Judging, then, from past performance, the Halley's Comet/Tempel 2 mission (which Mr. Cowlan so strongly objects to) should be a successful and exciting mission extremely valuable to the understanding of the origin and history of our solar system.

Joakim Lindblom
Los Altos, Calif.

Nibbling plants, not grasses

I was surprised to read that *Brontosaurus* was a grass nibbler (SN: 11/3/79, p. 314). Although it has been quite a few years since my courses in paleobotany, I was under the impression that grasses did not evolve until either the late Cretaceous or the early Cenozoic. Of course, my information might be dated, and the time of grasses on the geological time scale pushed back. I have not been able to find references in our local library. Perhaps one of your writers, editors or readers can shed some light on this.

Charles J. Mott
Professor, Natural Sciences
St. Petersburg Jr. College
Clearwater, Fla.

(We stand corrected. Grasses did not evolve until the mid-Tertiary, about 30 million to 40 million years ago. According to Nicholas Hotton of the Smithsonian, Brontosaurus was, nevertheless, a plant eater. Just what plants it ate is unclear.—Ed.)

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