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COVER: The supercritical wing, which helped win its NASA designer the National Medal of Science, promises higher speeds, better mileage and smoother flying near the speed of sound. Tested in simplified form on an F-8 fighter (drawing), it has this month begun advanced testing on an F-111. See p. 315. (Illustrations: NASA)

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to the editor

Nuclear power: Oversimplified

In your article "Neglected dangers of thermal pollution" (SN: 10/20/73, p. 253), your conclusion that nuclear power plants are less efficient than fossil plants (and thereby generate more waste heat) is accurate—but oversimplified. There are two types of nuclear plants, light-water-cooled reactors (LWR) and high-temperature gas-cooled reactors (HTGR).

When it comes to the environment, the HTGR clearly outstrips the LWR. Because of higher temperatures, the HTGR produces 25 percent less waste heat than the LWR. In addition, the HTGR has added a new element—thorium—to the world's fuel reserves and the HTGR releases 1/1,000 the radioactivity of the LWR.

Considering these facts, together with a total absence of combustion products, the HTGR is certainly the most environmentally attractive source of energy available today.

Douglas J. Holloway
Encinitas, Calif.

Finback whales' deep-bass tone

I always enjoy reading your entire magazine as it is extremely interesting. I found an article of special interest "Booms of the finback whale" (SN: 10/13/73, p. 231). You report that the finback whales may be the producers of a deep-bass tone that might be used for long-distance undersea communication. Are you aware that Farley Mowat in his book *A Whale for the Killing*, 1972, mentions this same phenomenon. He states that he has actually heard, through the air, a mysterious deep-bass tone while viewing a fin whale. He also mentions the possibility of the long-distance communication use of these tones through special corridors in the sea.

Keep up your excellent coverage of news in the universe of science.

Kenneth L. Hansen
University of Illinois
Urbana, Ill.

The atmosphere of physics teaching

Concerning the article on a survey of why students dislike physics and physicists (SN: 10/13/73, p. 230), I don't think it is dislike so much as a reflection that physics is an oversupplied field presently, with many people holding doctorates wondering how long their job will exist and cursing the fact that they are considered "overqualified." People, like me, who are in sciences other than physics, frequently are unable to take more than the required physics courses because of our schedules. The required courses are generally surveys that never allow any great depth of interest in a particular area. This is frustrating because neither problems to be dealt with nor theories to be studied are fairly presented. This may be quite satisfactory for people who will be going into physics as such or into a highly technical field requiring this type of background, because this is a preliminary to greater in-depth study. Great! But what about the rest of us? We also like physics, but because of practical reasons we may never be able to take other than introductory courses. Yet, no courses in pure theory are offered, at least not on an introductory level. Some of us were favored in that we had the opportunity to take a course where not only problems were studied as a matter of course, but the theories behind them were analyzed and dissected, and expounded upon. I am aware that mostly this is not the case due to lack of facilities or unavailability of the facility due to various reasons, or whatever.

Could it not be that the students in the survey did not like physics because they had never been introduced to the ideas in a *favorable educational atmosphere* that promoted *free discussion of ideas*, and an *availability* to the faculty members involved?

I. K. Zvargulis
St. Albans, W.Va.

It was the boiling point

Re: "Warming up superconductivity" (SN: 9/22/73, p. 179): Inasmuch as the freezing point of hydrogen is less than 14 degrees K. for pressures below 7 atmospheres, the increase in critical superconducting temperatures from 20.8 to 22.3 hardly seems significant in relation to the freezing point. What may be significant is the relation to the normal boiling point of hydrogen, 20.3 degrees K.

R. P. Warren
Morrison, Colo.

(A slip of the pen. "Boiling point" was intended. The point is that if the critical temperature is above the boiling point, whenever you have liquid hydrogen you have a cool enough environment for superconductivity in the alloy—Ed.)

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