After a 32-year Navy career and 5 1/2 years at the Woods Hole Oceanographic Institution (WHOI) that WHOI operates as part of UNOLS, it is my view that the Navy's oceanographic fleet was neither cheaper to operate nor better. Driven by bottom-line considerations, the contractor-operators appeared to feel little obligation to strive for excellence. Reviews by the Federal Oceanographic Fleet Coordinating Council, which I chaired, showed that UNOLS was well operated, well maintained, and well equipped. In 1995, the UNOLS deep submersible *DSV Alvin* made three times as many dives as the Navy's two deep submersibles (*Sea Cliff* and *Turtle*) at one-fifth the cost. The quality of science services provided by *Alvin* far exceeds that of Navy submersibles. The Navy's large oceanographic ships cost at least 50% more to operate than UNOLS's large ships. Similar comparisons with the National Oceanic and Atmospheric Administration's (NOAA's) fleet indicate that NOAA's costs are at least as high, possibly more.

Going to sea safely and effectively is never going to be cheap. UNOLS is well tailored to support the stated needs of our ocean science community thanks to a great deal of work by that community and the dedicated support of Congress and the funding agencies. We should continue to properly support it.

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Linac-Based Free Electron Lasers

I was surprised to discover from Alexander Helleman's article (News & Comment, 16 Feb., p. 902) that we had reached "consensus" on future x-ray generation at the International Committee on Future Accelerators Workshop on 4th Generation Light Sources, hosted by the European Synchrotron Radiation Facility in Grenoble, France. In fact, the group of more than 100 international scientists found it difficult even to agree on the definition of "4th Generation," let alone have a precise view of the future. While linear accelerator (linac)–based free electron lasers (FELs) did have their strong advocates, as Helleman describes, there was more to the meeting than that.

FELs have already demonstrated success as powerful infrared facilities in Europe, the United States, and elsewhere, mostly on the basis of relatively low-energy electron linacs. However, electron storage rings are likely to remain better value for the money in the higher energy range from 100 megaelectron volts to at least several gigaelectron volts; such energies are needed for the next step of user facilities using very ultraviolet, extreme ultraviolet, and even soft x-ray output. Of course, if an accelerator has already been funded for other purposes [such as the TESLA linac at DESY (Germany's particle physics laboratory near Hamburg)], then it makes sense to exploit it for FEL development. In contrast to such unusual (and technologically demanding) linacs, there are already large numbers of storage rings in use or planned around the world, and it seems logical to explore the use of FELs on these as a favored option. Successful demonstrations have been conducted for more than 10 years, and one UV user facility now exists at the LURE center near Paris. It seems likely that the present Russian world record for FEL output wavelength [240 nanometers (nm)] will be broken later this year as the Duke University storage ring in the United States comes on stream. The workshop concluded that storage ring FEL technology should reach 50 nm within 2 years and 20 nm soon afterwards (the possibility of 4 nm was also discussed).

It is far too early to write an obituary for both the 3rd Generation Light Sources and the FELs they are likely to contain in the future. As usual, a number of complementary sources are going to emerge, and each will have its application.

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Corrections and Clarifications

The beginning of the last sentence of the cover caption for the issue of 5 April should have directed the reader to the article by E. C. Butcher and L. J. Picker on page 60 (not page 54).

Letters to the Editor

Letters may be submitted by e-mail (at science_letters@aaas.org), fax (202-289-7562), or regular mail (*Science*, 1333 H Street, NW, Washington, DC 20005, USA). Letters are not routinely acknowledged. Full addresses, signatures, and daytime phone numbers should be included. Letters should be brief (300 words or less) and may be edited for reasons of clarity or space. They may appear in print and/or on the World Wide Web. Letter writers are not consulted before publication.