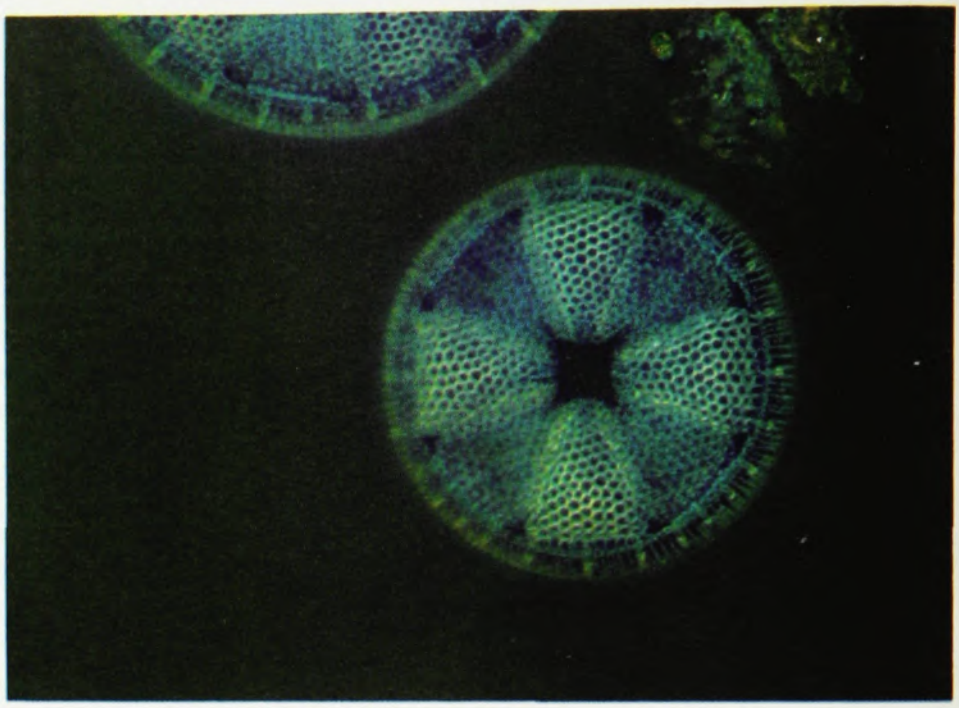
Physics and Environment

In this issue our feature articles focus on the subject of environmental problems. On page 26 Marvin Goldberger explains generally how physicists can contribute in this area. Following him on page 32 Hans Panofsky points out how heavily modern meteorology draws on various branches of physics. On page 38 Ali Cambel reviews the projected increases in demand for energy and the ways that these increases might be achieved with minimum threat to the environment. The three authors originally presented their papers at the recent Annual Meeting of Society Officers and Corporate Associates of the American Institute of Physics. Besides "Physics and Environment," speakers at the meeting also presented papers concerned with "Physics and Life Sciences" and "Physics and Energy Sources." The prize winners of the photographic competition held by PHYSICS TODAY for each of these three subject areas were first announced at this meeting. Each winner received an award of $200. Following are reproductions of the prize-winning photographs.

Environment

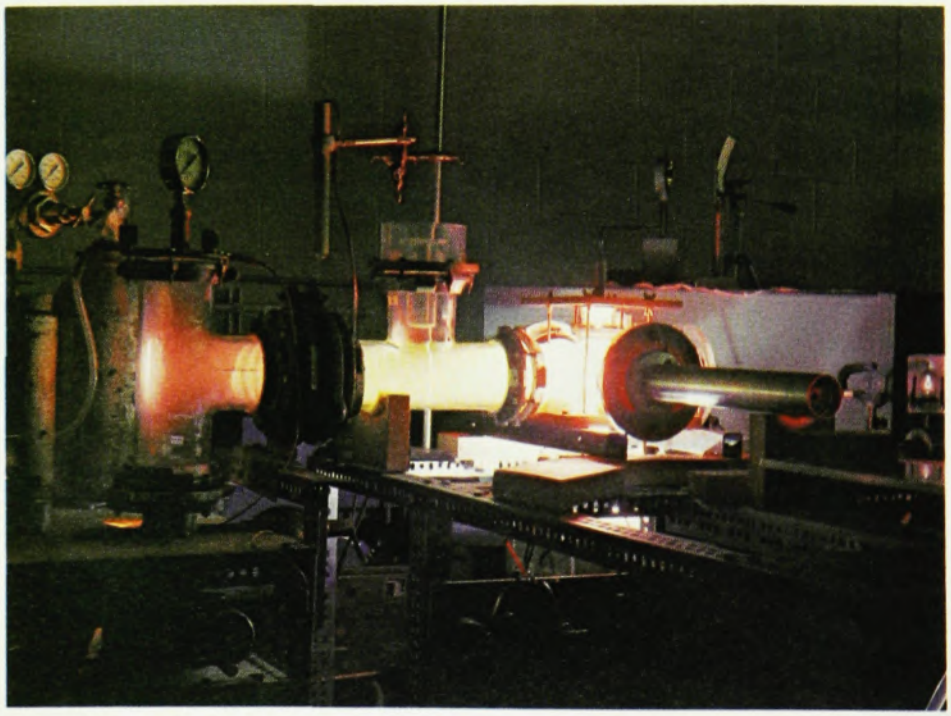
Walter A. Feibelman is a physicist at NASA's Goddard Spaceflight Center, Greenbelt, Md. He was formerly a member of the physics faculty of the University of Pittsburgh, and it was at Pittsburgh a few years ago that he took this photograph through a small telescope. The apparent distortion of the sun's disc is caused by contrails from the plane.

Physics and Environment



Life Sciences

Richard B. Hoover, a physicist at the NASA Marshall Spaceflight Center in Huntsville, Ala., took up photomicrography of diatoms as a hobby two years ago and is now looking into diatometry as a monitor of water pollution. He points out that biologists need some knowledge of physics to understand that the color of the diatom in this photograph, *Actinoptychus heliopelta*, is the "Tyndall blue" arising from Rayleigh scattering of white light at small pores, themselves invisible in the optical microscope.



Energy Sources

Thomas A. Leonard is a graduate student at the University of Michigan, Ann Arbor (Department of Nuclear Engineering) where he uses photographs like this one for plasma diagnostics. A thin lithium wire exploded by a peak current of about 100 000 amps makes a rather dense but cool lithium plasma. Light from a Q-switched ruby laser focused on the plasma is scattered and analyzed to give a measure of the plasma density ($n_e = 10^{18}$–10^{19} cm^{-3}) and temperature.

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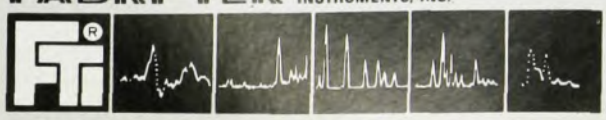

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