

aggregates the findings. I am currently preparing an overall assessment of the environmental fate of aldicarb. According to my information, aldicarb residues are undetected in the greater part of soil and ground water samples collected throughout the nation. Excluding Long Island, about 100 domestic and no public wells have residues above the guideline for aldicarb. While these findings do justify attention, they are of much less significance than, for example, the ubiquitous presence of organic solvents in water supplies throughout the country.

In his review, Marshall uses unnecessarily emotive phrases that he may find fitting for "the dark tradition of pesticides." He even overstates the disreputable ancestry of aldicarb. It is true the development of carbamates can be traced to the Calabar bean used in "trials by ordeal." However, interest in the bean has been in its medicinal as much as in its poisonous properties. Extracts from the bean are used especially in ophthalmology. It is also an antidote to poisons such as strychnine and curare. I also question Marshall's statement that the Egbo of Nigeria were the first to use the Calabar bean in trials by ordeal. The Efik Egbo migrated into the Calabar region in the late 17th or early 18th centuries. It is probable that Efiks adopted a local custom for their own judicial purposes.

KEITH S. PORTER  
*Water Resources Program,  
Center for Environmental Research,  
Cornell University,  
Ithaca, New York 14853-3501*

Porter is evidently right that he and his colleagues did not realize the ground water risks posed by Temik in the 1970's. It is also apparent that EPA considered the problem "insignificant," as Porter notes. However, one reason the problem may have been overlooked is that early signals were ignored.

Robert Haines, who was Union Carbide's entomologist responsible for registering Temik, writes that in 1971: "A test in Arizona showed ASO [aldicarb sulfoxide] and ASO<sub>2</sub> [aldicarb sulfone] to be found 12 feet deep in soils growing sugar beets. Less than 0.1 part per million was found but the ratio of ASO to ASO<sub>2</sub> was 1:1. It was at that time EPA (now operating) learned that Aldicarb moieties could go into the ground water, but there was no U.S. ground water program at that time." In view of this statement, is it "untrue" to say that EPA learned of the potential ground water problem in 1971?

The Porter-Hughes paper on Long Is-

land ground water was, as Porter writes, a draft. It did not reach a direct conclusion about the time it would take to clear the aquifer, but did mention a Suffolk County Health Department study [J. H. Baier and S. F. Robbins, in *National Conference on Environmental Engineering, Proceedings*, A. Medine, Ed. (American Society of Civil Engineers, New York, 1983), pp. 1-13] which concluded that it would take "over 100 years for the water containing aldicarb residues to be flushed completely from the aquifer in that area, assuming that no degradation occurs beforehand." Porter and Hughes found that attempts to determine the rate of degradation were "inconclusive."—ELIOT MARSHALL

### Breast Cancer: Adjuvant Chemotherapy

In Gina Kolata's article about the breast cancer consensus conference (*Research News*, 27 Sept., p. 1378), I was quoted as saying that only 10 percent of younger women respond to adjuvant chemotherapy. I would like to correct and clarify those figures. The 10 percent figure comes, not from the consensus panel's review of the data, but from the review conducted by Richard Peto. When the panel considered the effects of cytotoxic therapy on older women, it concluded that the efficacy of adjuvant chemotherapy for this group was less well established than for premenopausal women. In other words, adjuvant chemotherapy trials have failed to show an increase in overall survival for postmenopausal patients with histologically positive axillary lymph nodes. However, in a series of trials from one major cooperative group, a modest increase in disease-free and overall survival has been observed. When the sum of the evidence from all randomized trials is examined, the estimate of increase in disease-free and overall survival is "small but statistically significant."

JOSE RUSSO  
*Department of Pathology, Michigan  
Cancer Foundation, 110 East  
Warren Avenue, Detroit 48201*

### The Space Test Program

I wish to comment on the use, as an antisatellite (ASAT) target, of the P78-1 satellite that included the Naval Research Laboratory's (NRL's) Solwind experiment (*News and Comment*, 4

Oct., p. 44). It is inappropriate for me to discuss the Air Force policy that led to their choice of targets; I can, however, discuss the Space Test Program (STP), which was responsible for the satellite.

The STP is a Department of Defense (DOD)-sponsored activity managed by the Air Force and designed to provide space-flight opportunities for small projects where programmatic support for space flight is lacking. The Air Force has established a procedure whereby proposed experiments are evaluated and priorities are established. Flights are arranged through a combination of the use of excess space on other missions and the development of independent missions. P78-1 was an example of the latter and made use of a NASA spacecraft remaining from the Orbiting Solar Observatory series. The current list of experiments in the STP includes a wide mix of scientific and technical experiments from almost every DOD agency, many with heavy university involvement. The STP is frequently held up to NASA, probably unfairly, as an example of the way to do experiments in space cheaply and quickly.

In managing the STP, the Air Force has been extremely supportive of the science. P78-1 was supported in orbit for a longer period of time than other space missions, and this support was given largely on the basis of the Solwind results.

The STP fills an important niche in the U.S. space program. As an example, at NRL we are embarking on what is for us a major research program in the area of upper and middle atmospheric research with the principal objective of developing a global, remote-sensing capability for determining certain important atmospheric parameters, such as the state of the ionosphere. This program will include a number of small experiments to be conducted in flight on the space shuttle and on independent missions such as the National Oceanic and Atmospheric Administration's TIROS satellite. A crucial result that has emerged from this program, relating to the transport of singly ionized oxygen radiation, came from the analysis by NRL scientists of data from an Army-sponsored experiment developed by the University of California, Berkeley, and flown on the P78-1 satellite.

The Air Force is to be commended for their management and support of the Space Test Program.

HERBERT GURSKY  
*Space Science Division, Naval  
Research Laboratory, Department of  
the Navy, Washington, D.C. 20375*