dictions for the year 2000 have been dropping at about the same speed since the oil embargo (see table). He divides the prophecies into four groups: beyond the pale (made by low-growth advocates like himself), heresy (put out by moderate conservationists), conventional wisdom (this includes government scenarios), and superstition (the work of high-growth advocates). Lovins notes that what was beyond the pale in 1972—an expected 125 quads of demand at the end of the century—became mere heresy in 1974, conventional wisdom in 1976, and superstition in 1978. Publication of the table, he says, has speeded up the process, for at least one branch of the Department of Energy (DOE) is about to publish a low-growth plan this year that goes almost beyond the pale, estimating we may need only 57 quads in year 2000. This report is being prepared for DOE Under Secretary John Sawhill, and its summary chapter is due to be completed this month.

The Lovins table amuses Lincoln Moses, head of the DOE's Energy Information Administration, and, in Lovins's sense, the spokesman of conventional wisdom. More than anything else, says Moses, the table illustrates the hazard of extrapolating from the historical record. It suggests that all one need do is wait 8 or 10 years and "our forecasted energy needs will have gotten down to the point where we have nothing to worry about." That, he thinks, is a "ridiculous result." He agrees, however, that he has seen signs that a "sea change may be taking place in energy using habits." His own agency's forecast (part of its 1979 annual report) will not be out until August. Meanwhile, it undergoes continuous revision.

Those who believe a sea change has occurred received a vote of confidence this year from several conservative institutional forecasters. Exxon's World Energy Outlook, published last December before the latest OPEC oil price increases, predicted that energy demand would grow in the United States by less than 1 percent a year through 1990, and by 1.6 percent after 1990. Before the oil embargo, the rate of demand growth was about 4.3 percent a year. Petroleum demand in America has passed its peak forever, Exxon concluded. The report also estimated that the recent pattern of efficiency improvement will continue, so that the already achieved 10 percent decline in energy needed per dollar of GNP will fall to 22 percent by 1990 and 30 percent by the end of the century. This represents radical change.

(Continued on page 1356)

Spy Ship Got No Warning

On the afternoon of 8 June 1967, the U.S.S. *Liberty* cruised some 12 miles off the Sinai Peninsula, eavesdropping on battlefield communications in the 1967 Arab-Israeli war. During the previous 13 hours, six urgent messages had been sent to the ship by U.S. command forces, messages ordering the *Liberty* out of the area, telling it to pull 100 miles offshore.

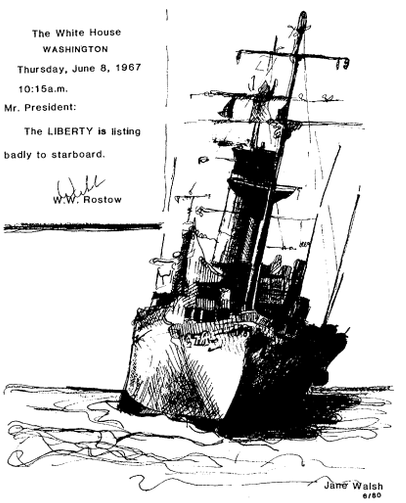
Due to a series of human and computer errors, however, none of the messages reached the ship in time. Two were misrouted to a U.S. communications station in the Philippines and one went to Greece. One was never addressed to the *Liberty*. One was lost in the electronic labyrinth at the Army Communications Station at Pirmasens, Germany. The final message, marked urgent and "Top Secret" by the Joint Chiefs of Staff, spent the morning of 8 June passing from ship to ship in the U.S. Mediterranean fleet, never reaching the *Liberty* at all. The Joint Chiefs, it turns out, had overlooked the fact that the *Liberty* could not receive Top Secret messages.

The rest is history. At 2:00 in the afternoon, Israeli planes and boats began a coordinated 1-hour-and-20-minute attack on the *Liberty* with gunfire, torpedoes, rockets, and napalm. At the end of the attack, 34 American sailors were dead and 171 wounded.

Details of the communications mixup that paved the way for the attack come from a new book, *Assault on the Liberty,* by James M. Ennis, a recently retired Navy officer who served as cryptographic specialist on the *Liberty* and was wounded in the action. His report of communication and computer errors helps explain why the Pentagon in 1970 decided to overhaul its World Wide Military Command and Control System (WWMCCS)—a computerized system the Joint Chiefs use to coordinate U.S. military activity around the world. Some experts claim that WWMCCS is still so bogged down in technical and administrative problems that its effectiveness is open to doubt (*Science*, 14 March).

Ennis accuses U.S. officials of trying to cover up facts surrounding the incident in an effort to avoid public protest over the Pentagon's failure to protect the ship and its men. He says, for instance, that the House Armed Services investigations subcommittee, which studied the affair in detail, was never told of the final, misguided, Top Secret message sent to the *Liberty* by the Joint Chiefs.

Ennis says the Administration also covered up facts in a effort to avoid embarrassing any ally. Since 1967, for instance, the Israelis have claimed



that their pilots reported that the *Liberty* was not flying the American flag and that the ship was attacked on the assumption it was Egyptian. But Ennis, who stood watch on the bridge of the *Liberty* on the morning of 8 June, had a new, oversized flag raised to replace the sooty one the *Liberty* was flying. The new flag was put up because "we were operating in a dangerous area and could afford to fly only our clearest, brightest colors," Ennis writes. The flag stood out in an 8-knot wind while Israeli reconnaissance planes flew over the ship at low level six times.

Academy Says Curb on Cholesterol Not Needed

"Good food should not be regarded as a poison, a medicine, or a talisman. It should be eaten and enjoyed." That rather lighthearted advice comes from the Food and Nutrition Board of the National Academy of Sciences (NAS). On 28 May, the board issued a report on the public's preoccupation with the links between diet and chron-

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