

medical complications or after other approaches have failed. In the United States, though, inpatient facilities for alcoholism treatment are on the increase. According to Miller of New Mexico, "the financial interests of alcoholism treatment providers . . . run precisely counter to the directions that seem wise and prudent in light of current research evidence." Offering alcoholism rehabilitation is an excellent way for general hospitals to fill surplus beds, although sometimes outpatient programs are more comprehensive as well as more appropriate. There has also been a rapid proliferation of nonhospital-based for-profit organizations, which are turning the treatment of substance abuse into big business, with some charging up to \$10,000 a week for residential programs. These organizations engage in sophisticated advertising oriented to the very people who may do just as well in outpatient programs. Services for family members of alcoholics are also becoming quite elaborate—Susan Blacksher of the California state program reports that she has even heard of beds being offered for "the disease of co-dependency." (Close relatives develop their own syndromes of maladaptive behavior in response to long-term living with an alcoholic, which has led to alcoholism being labeled a "family disease.")

Despite the turbulence and uncertainties in the field, the picture for alcoholism treatment is getting brighter. The quality of research is getting better as substance abuse has gained in legitimacy as a scientific field, and although available funding is still disproportionately very low, the money situation has been improving. The research budget for NIAAA has gone up by 145% in this decade (the proposed fiscal 1988 budget is \$68.9 million). The government is putting increased emphasis on refining treatment research—a grant announcement issued last fall calls for new pilot projects addressing treatment regimens, treatment settings, and client classification. And, the National Academy of Sciences, in response to the new drug abuse law passed last year, will conduct a 2-year study on alcoholism treatment.

The increasingly public nature of the problem is leading to a more realistic apprehension of the insidious and varied ways alcohol problems can creep up on people. Higher success rates because of earlier intervention—in the old days most alcoholics were in an advanced state of deterioration by the time they got to a hospital—have taught people that alcoholism is not the hopeless disease many have thought. The search for a "magic bullet" has given way to recognition that the disorder is as complex as the person who suffers from it. ■

CONSTANCE HOLDEN

The Navy After Lehman: Rough Sailing Ahead?

Navy Secretary John Lehman presided over a major buildup of the fleet but critics charge that there may not be enough money to equip and operate all those new ships; dissent did not flourish in Lehman's Navy

SECRETARY of the Navy John Lehman announced last month that he will step down after six contentious and eventful years in office. His tenure has been marked by controversy over the Navy's ambitious shipbuilding program, its aggressive, offensively oriented war-fighting plans, and Lehman's own hard-charging, bare-knuckled administrative style.

Lehman's chief accomplishment was overseeing an impressive naval buildup, reversing a decline in the size of the fleet that began after World War II and reached its low point in the mid-1970s. During the Carter Administration, the fleet stabilized at around 470 ships, but the 1980 Republican platform called for a 600-ship Navy. Lehman, 44, a brash and outspoken former member of Henry Kissinger's National Security Council staff, made this goal the Navy's own when he became the service's civilian chief in 1981.

"America must regain . . . command of the seas," Lehman told Congress in 1982, and his vigorous advocacy of U.S. maritime superiority helped usher in an era of unprecedented prosperity for the Navy. Its budget for purchases of ships, submarines, aircraft, and weapons increased more than 10% per year (before inflation) from 1981 to the present. The fleet has now reached 557 ships, and Navy officials say that the 600-ship Navy, including 15 aircraft carriers, will become reality by 1990.

Lehman's success in pushing through the fleet buildup, however, may come back to haunt his successor, ex-Marine James Webb. According to some analysts, the Navy ordered more ships than it can afford to support and outfit. As the Pentagon feels the bite of fiscal austerity, Webb will be hard pressed to cope with worsening shortfalls in manpower, maintenance, and ammunition that could cripple the fleet.

According to a 1985 study by the Congressional Budget Office, the Navy will require annual budget increases of at least 3% above inflation—possibly 6 to 8%—if it is to maintain its expanded fleet.

The Navy, in its own study of the issue, used revised numbers that reflected a slowdown in modernization plans, and arrived at a much lower estimate. According to the still unreleased study, Navy goals could be achieved with 1 to 2% real budget growth. Other analysts, however, say that neither study took adequate account of cost increases that result from the increasing complexity of new weapons. They warn that timely replacement of ships in the future will probably require annual real increases of at least 6 to 8%, and possibly more.



John Lehman. His goal of a 600-ship Navy could be realized by 1990.

If the defense budget does not rise above inflation during the next few years, as seems likely, the Navy will need to abandon at least some of its ambitious goals. According to outside analysts, the Navy could accept a smaller and older fleet, or permit the fleet to be hobbled by cuts in funds for manpower, fuel, ammunition, and repairs.

So far, the Navy shows few signs of willingness to scale back shipbuilding plans. Lehman has dismissed pessimistic budget forecasts in the past as defeatist and self-fulfilling, say former Navy officials. "John's

going to say, 'Don't give me any lily-livered stuff about realities; we'll create our own reality,'" said Harlan Ullman, a former Navy analyst, now director of maritime studies at the Washington-based Center for Strategic and International Studies.

"If a nation as large and wealthy as ours can't sustain a modest shipbuilding program of 20 ships a year [sufficient to keep the 600-ship Navy afloat], we're in deep trouble," said Seth Cropsey, deputy under secretary of the Navy for policy. "The basic question is, do we have the will to keep our defenses strong," said Cropsey, noting that in mid-1944, the United States had 1800 ships in the Pacific alone.

The fiscal crunch, however, has already arrived. In the fiscal year 1988 budget request now before Congress, the Navy asks for funds to build two new aircraft carriers, as part of an overall Navy budget increase of 4.2%. Other ship and submarine programs are delayed, however, and planned purchases during 1988-1991 of fighter aircraft for the carriers are cut back 40%, compared with last year's plans for the same time period. The Navy proposes to buy only 718 air-to-air missiles in 1988, compared to an estimated purchase of 2548 in 1987. (This decline results partly from the Navy's decision to stop buying Sparrow air-to-air missiles, replacing them with new self-guided missiles that are more than ten times as expensive.) Even this scaled-back budget request, however, will certainly be cut further by a deficit-conscious Congress.

Ullman, who directed a blue-ribbon study panel in 1985 that examined the future of U.S. conventional forces, maintains that tight budgets may force "a major reduction across the board of at least a quarter and perhaps a third in military capability" by the end of the decade. The best way for the Navy to avoid such heavy losses in fighting power, argues Ullman, is for the service to curtail its shipbuilding program, devoting more attention to ways of making the remaining ships more effective. Concentrating more firepower on fewer ships, for instance, could reduce the number of ships needed to protect aircraft carriers, cutting the size and cost of each carrier battle group, said Ullman.

Other analysts have taken critical aim at Lehman's strong support of aircraft carriers, arguing that they are an unaffordable trapping of sea power. By themselves, they are expensive—a new Nimitz-class carrier costs about \$3.5 billion—and they tie up additional tens of billions of dollars worth of escort ships and aircraft assigned to protect each carrier.

Canceling carriers, say some analysts, could make room in the budget for technol-



Costly centerpiece. Critics have taken aim at Lehman's strong support of expensive and potentially vulnerable aircraft carriers as central elements in the buildup.

ogies that could multiply the effectiveness of the remaining fleet, such as sea-based or space-based sensors to report on hostile ship and submarine movements. William Lind, president of the Military Reform Institute, and former Senator Gary Hart have advocated a major shift away from surface ships to less vulnerable submarines. A study from the Pentagon-funded Institute for Defense Analyses, meanwhile, indicates that land-based aircraft could undertake some crucial naval missions at much less cost than aircraft carriers.

According to several officials, Lehman not only ignored such alternatives—he suppressed consideration of them. In 1982, Lehman deposed the director of the Navy-funded, Washington-based Center for Naval Analyses (CNA) (*Science*, 29 April 1983, p. 481). Although criticism within the Navy of CNA's work predated Lehman, the coup generally was seen as a move to silence criticism of Lehman's budgetary and strategic priorities. It sparked an exodus—some called it a purge—of analysts who had worked at CNA on planning and policy issues.

Navy insiders report that CNA's initial shell shock is over, and that employee morale has returned to normal. Still, "CNA won't issue a controversial document," said a retired admiral, and one source called the think tank "the lapdog of the Navy."

At around the same time, Lehman abolished the Navy's systems analysis office, transferring some of its functions to another office with a more narrowly defined mandate. The reorganization was seen by Navy analysts as an effort to eliminate an office that "had a reputation for being a little heretical," said one Navy source.

The office had produced studies suggesting that the 600-ship Navy might be unaf-

fordable, that carriers were not a cost-effective way of carrying out some naval missions, and that the Navy should buy fewer A-6 carrier-based bombers. (Lehman, who flies the A-6 in his other role as a reserve naval officer, has advocated buying more such aircraft.) Navy funding of an outside consultant's work on possible long-term changes in the Navy's force structure was also canceled.

The most widely publicized example of Lehman's heavy-handed response to criticism involved Lawrence Korb, the Pentagon's manpower chief until he resigned in 1985 to become a vice president of the Raytheon Corporation, a major defense contractor. When Korb publicly criticized the Navy for spending too much of its money for new ships, two of Lehman's top aides contacted Raytheon and apparently pressured the firm into firing Korb. Investigators from the Defense Department's Office of the Inspector General noted in a subsequent report that their "major concern" remained the unshaken belief of top Navy officials "that it is inappropriate for executives of defense contractors to offer public opinions contrary to Defense Department policy."

All these incidents, say Navy sources, sent a clear message through the ranks; debate on fundamental issues of strategy and policy would not be tolerated. "After 4 or 5 years of this," said one retired admiral, "guys have learned that if their views aren't accepted, it can be very dangerous for them."

Ullman, who worked in the Navy's systems analysis division before it was abolished, maintains that such incidents are the natural consequences of partisan Washington politics and the fierce battle for funds. "Don't blame John Lehman," he said. "Anytime you have an in-house critic, that stuff is

Naval Strategy: America Rules the Waves?

Led by Secretary of the Navy John Lehman, the Navy has laid claim to a central role for maritime forces in any global conflict with the Soviet Union. The service's "maritime strategy," first codified in secret in 1982, calls for America's far-flung naval forces to carry the battle to the doorstep of the Soviet Union in the event of war.

Critics of the strategy argue that it neglects the Navy's essential but modest missions, such as control of the Atlantic seelanes, in an effort to accomplish another task—directly challenging Soviet strategic power—that is too large for the Navy to handle. Some experts charge that carrying out the strategy in a time of crisis could raise the risk of war, and that it would increase the chances of escalating a conventional conflict to nuclear war.

The maritime strategy was formulated partly to fill a void; Navy officials felt that the service needed a clear explanation of its mission in order to justify a greatly expanded fleet. As it emerged, however, the strategy became something more. It asserted that the Navy could play a key role in any future military conflict with the Soviet Union, and that an aggressive naval war fighting strategy would help deter the Soviets. Much as British sea supremacy proved a potent counter to German armies in the 19th century, Navy strategists saw America's maritime might outflanking and undercutting today's foremost continental power, the Soviet Union.

Secretary of Defense Weinberger, in contrast to Carter Administration officials, supported the Navy's resurgence from the start. During the late 1970s, the Navy had battled Defense Department officials such as Robert Komer, under secretary of defense for policy, who saw little use for naval forces in a war with the Soviet Union except for guarding the transport of soldiers and vital supplies to foreign battlefields.

"You mean 'Rule Britannia' for America?" asked Senator John Warner (R-VA) after Secretary of Defense Weinberger noted the new emphasis on naval forces at a congressional hearing in 1981. "It was a pretty good song," replied Weinberger.

As described in a recent article in *International Security* by Navy Captain Linton Brooks of the National Security Council staff, the maritime strategy involves a variety of direct naval challenges to the Soviet Union. At times of high alert, such as in the midst of an international crisis, submarines are to surge forward into areas close to the Soviet Union. If war breaks out, carrier battle groups are to fight their way into the sea approaches to the Soviet Union, such as the Norwegian Sea, the eastern Mediterranean, and the northern Pacific.

Eventually, according to the strategy, U.S. naval forces are to mount air, missile, and amphibious attacks on the Soviet homeland. At the same time, U.S. attack submarines and aircraft are to find and sink Soviet submarines, including the ballistic missile submarines that form part of the Soviet strategic arsenal.

This offensively oriented plan of action in wartime is supposed to tie the Soviet navy up in its home waters, preventing it from moving into the Atlantic to wreak havoc with NATO's shipping lanes. Gradual destruction of the Soviet strategic nuclear submarine fleet, meanwhile, could "change the nuclear correlation of forces" in wartime and convince Soviet leaders to end the conflict, wrote James Watkins, then Chief of Naval Operations, in the U.S. Naval Institute *Proceedings* last year.

With Lehman providing aggressive support, the maritime strategy became official dogma. And although its efficacy against the Soviet Union remains untested, the strategy proved a winner on Capitol Hill. It caught the imagination of sympathetic lawmakers and provided the perfect justification for a major buildup of the fleet, particularly of aircraft carriers.

Confusion persists, however, about how the new strategy would be implemented. Part of the confusion stems from the strategy's "hydra-headed quality," wrote John Mearsheimer of the University of Chicago in *International Security* last fall, resulting from the Navy's vague and shifting explanations of its intentions. Evaluating it, according to Mearsheimer, "is like taking aim at a moving target that is constantly changing shape and size."

According to Navy sources, Lehman and his allies within the Navy mounted a campaign to develop concrete contingency plans reflecting the strategy. Lehman encountered persistent resistance from top admirals to some of the more audacious features of the strategy, however. Chief of Naval Operations Carlisle Trost hinted at some reservations of his own in a recent issue of the Naval Institute *Proceedings*, saying that the strategy "is not a game plan. . . . [W]ars are not fought by automatic, preprogrammed responses under the direction of a video game computer."

Some admirals reportedly have voiced private skepticism about the wisdom of high-risk operations promising only a modest return; steaming into the Baltic—a "veritable hornets' nest," says Mearsheimer—in wartime to attack Soviet bases, for instance, could be a suicide mission. Sending U.S. attack submarines on a needle-in-the-haystack search for Soviet subs in hostile polar areas where they would be greatly outnumbered, strikes many observers as a poor way of protecting NATO's Atlantic shipping lanes from submarine attack.

Joshua Epstein of the Brookings Institution in Washington, D.C., argues that the Navy's forces are woefully inadequate to achieve the strategy's grandiose objectives. In order to do all the tasks that the strategy proposes, "you're not talking 15 carrier battle groups [the Navy's planned force], you're talking 25 groups," said another analyst. In defending the strategy against this criticism, Brooks said that "such judgments are best made . . . by the men who would have to carry out such operations today," and maintains that Navy commanders are confident of their ability to carry out the strategy.

The strategy's fundamental flaw, however, may be the likelihood that political authorities will stop the Navy from carrying it out. Not only would the strategy put a large portion of the U.S. fleet directly in harm's way, but critics also charge that it would raise the risk of war.

Rather than take the provocative step of sending U.S. submarines into the Soviet fleet's home waters in a crisis, according to Mearsheimer, "American policy-makers would almost surely try to dampen, not exacerbate, the crisis." Watkins admitted in 1984 that all experience with crisis simulations indicated that "we will not make the decision to move forces early," although moving early would be crucial to the strategy's success.

"The next war is going to be run out of the White House," said one Defense Department source. "If either fleet commanders or Navy officials think that they can run their own show, they are fooling themselves." ■ D.C.

likely to leak and be used against you."

Top Navy officials deny that debate on policy issues has been squashed. "We're not a university, or a 'let a 1000 flowers bloom' type of organization," said deputy under secretary Cropsey. "But I think that there's a healthy debate" within the Navy. "I don't think that there's ever been as much unanimity of purpose and consensus on goals as in the last several years regarding the strategy and what it requires," said Cropsey.

According to several sources, Lehman's treatment of internal criticism diverges sharply from past practice. Edward Hildalgo and Graham Claytor, Lehman's predecessors during the Carter Administration, frequently included dissenting footnotes from Chief of Naval Operations Admiral Thomas Hayward in their submissions to then Secretary of Defense Harold Brown, said former under secretary of the Navy James Woolsey. Woolsey said that the "strong tradition of open and free debate within the service" surprised and impressed him at the time.

Even with Lehman's departure, the Navy is unlikely to respond to budget austerity by exploring innovative ways of accomplishing its tasks with less money, said naval experts. If history is any guide, the service will attempt to protect big-ticket items—new submarines, carriers, and the escort ships required to protect carriers—from the impact of budget cuts. Hardest hit by the squeeze, said Robert Pirie, a former assistant secretary of defense and CNA division chief, will be items that can be built up again at relatively short notice should the budget picture brighten: personnel, ammunition, and maintenance. "The decks are the things they need to get," said Ullman. "They can worry about the rest later."

If these often overlooked but critical components of naval power take a back seat for too long, the Navy will become hollow, a paper tiger incapable of sustained operations. Yet a variety of naval experts said that the Navy consciously decided to run this risk when it pushed ahead with its fleet buildup.

Faced with budgetary threats to high-priority programs, the Navy may adopt a "Teddy Roosevelt strategy," said Barry Posen, a military scholar at the Smithsonian Institution's Woodrow Wilson Center. Roosevelt, upset because Congress refused to give him enough money in 1907 to send the "Great White Fleet" around the world, threatened to use all the Navy's available money to send the fleet halfway around the world. Roosevelt reputedly said that if Congress wanted its fleet back, it would have to pay for the return voyage.

After 7 years of plenty that produced the 600-ship fleet, the Navy, like Roosevelt, may try to embarrass Congress into provid-

ing the money necessary to outfit and operate the fleet in the lean years, said Lind of the Military Reform Institute in an interview. This tactic has a greater chance of success for the Navy, according to Posen, because U.S. presidents so often decide to send the fleet off to distant trouble spots, and they cannot afford to let maritime forces deteriorate too far.

According to Pirie, the Navy is not well structured bureaucratically to consider innovative changes. The service is divided vertically into branches responsible for ships, submarines, and aircraft. Each branch, as well as various subbranches, guards its mission and share of the budget jealously, and devotes most of its analysis to microlevel problems of making better cruisers or attack submarines. Broad questions of battle management and force structure, said a former high-ranking officer, are given short shrift.

"Nobody's optimizing between branches," said Pirie. "The only guy who can do that is the CNO [Chief of Naval Operations, the Navy's highest ranking post]." The current CNO, Admiral Carlisle Trost, who gained his post last summer over the opposition of Lehman, is for many experts the brightest spot in the otherwise gloomy Navy prospects. Sources depict him as "the consummate Washington flag officer," intelligent and politically surefooted. Before becoming CNO, Trost directed the Navy's Program Planning Office, and analysts familiar with his work there regard him as open to critical analysis of cherished Navy programs.

So far, however, Trost has not catalyzed any apparent debate within the Navy about the future shape and direction of U.S. maritime forces. Lehman's departure, however, combined with the budget crisis, may reignite consideration of major changes within the Navy.

Webb, 41, who will leave his current post of assistant secretary of defense for reserve affairs to replace Lehman, has earned a reputation of his own for outspokenness. A Vietnam veteran, he spearheaded a successful campaign to change the Vietnam Memorial in Washington, with its two black walls on which the names of those killed in Vietnam are inscribed, by adding more traditional statues of soldiers at the site. He has also condemned the antiwar movement of the 1960s and criticized plans to give women combat assignments. Although he is a staunch supporter of a vigorous and large Navy, few expect Webb to continue Lehman's dominance of Navy policy and strategy. ■ **DANIEL CHARLES**

Daniel Charles is a free-lance writer based in Washington, D.C.

Briefing:

Back to the Future

Willis H. Shapley has returned to the job in the top management tier of the National Aeronautics and Space Administration (NASA) from which he retired in 1975. During the 11-year interim, Shapley, 70, was a consultant to AAAS and helped to put together the association's annual analysis of the federal budget. Shapley was asked by NASA administrator James C. Fletcher to return to his old job to participate in the agency's post-Challenger reconstruction effort. Fletcher was NASA chief at the time of Shapley's retirement and has also orbited back into the agency. Shapley, then and now a deputy associate administrator, has responsibilities for policy matters. ■ **J.W.**

Soviet Bread

Grigori Zolotukhin, the U.S.S.R. Minister of Grain Products, said on Soviet television recently that, at the insistence of scientists, both the salt and moisture content of bread had been "brought into line with scientifically based standards." These changes have not gone down well with consumers, however. A recent correspondent in *Izvestia* writes that, despite government promises, "the quality of bread in terms of taste, standard of baking, and shape has deteriorated . . . we now get huge pancakes of half-raw, unpalatable bread of unpleasant appearance." ■ **D.D.**

Conserving Energy

Conservation efforts have increased the efficiency by which energy is used in the Western industrialized nations by about 20% since the early 1970s, according to the International Energy Agency (IEA) in Paris.

According to a survey* of the 21 IEA member states, their joint gross domestic product increased by almost 32% between 1973 and 1985, but their use of energy grew by only 5%. The result was a saving of the energy equivalent of 880 million tons of oil a year—more than their total oil production.

The IEA report, its first overall survey of the effects of energy-saving measures introduced in the period since the first Arab oil shock in the early 1970s, says that decline in energy prices since 1982 has slowed, but not reversed, the main trends. ■ **D.D.**

*Energy Conservation in IEA Countries, OECD Publications, 2 rue Andre Pascal, 75775 Paris. \$39.