Washington crisis team came up with a new code name for themselves and entered it into the Florida computer. The two computers were finally back in contact, but the communications breakdown had lasted for more than 1 hour.

Officials at the Pentagon brush this "horror story" aside, saying it is insignificant. For 9 days during the Guyana crisis, they note, the Wimex computers were tied together in a network involving 12 command centers, and during this time the network had a 95 percent availability.

GAO replies that availability and reliability are two very different measures of computer function. Just because a computer is working does not mean it is successfully tied into a network. In the spring of 1977, for example, the Pentagon conducted a revealing test. A festival of acronyms called PRIME TARGET, this exercise linked computers in the Atlantic Command (LANTCOM), European Command (EUCOM), Readiness Command (REDCOM), Tactical Air Command (TAC), and the National Military Command Center in the Pentagon. During the test, EUCOM attempted to obtain or send information through the computer network 124 times. It failed 54 times as the result of "abnormal" shutdowns of the computer. LANTCOM tried 295 times and failed 132 times. TAC went 19 for 63, a failure rate of 70 percent. And REDCOM found itself able to receive and send instructions in only 43 of 290 attempts—a failure rate of 85 percent.

These problems are overstated, say Pentagon officials. "If one site tried to connect to another, and received a busy signal, this was counted as a failure," said one disgruntled official. "If he waited 10 seconds, tried again, and received another busy signal, this was counted as another so-called failure." Other officials stress that PRIME TARGET was just a test of experimental systems, and that the Pentagon expected to find flaws. Since then, other tests such as NITE STRIKE, ELITE TROOPER, and POWER PLAY have shown that network reliability has improved significantly. "The stories in the press have been exaggerated," says Gerald P. Dinneen, Assistant Secretary of Defense for Communications, Command, Control, and Intelligence, and the former director of the Lincoln electronics laboratory at MIT. "I think it's a bum rap. I don't want to be overly defensive because we recognize that some of the criticism is valid, but then some criticism would be valid of any of our computer systems. But anything which sort of says, 'Wimex doesn't work,' is a bum rap."

Inspiration for a computerized command network came back in 1962 when President John F. Kennedy was unable to keep track of troops and events during the Cuban missile crisis and the Bay of Pigs invasion. He suggested that the Pentagon construct a system to help orchestrate warfare electronically in the years ahead.

By the mid-1960's, Wimex consisted of a loosely knit federation of 158 computer systems at 81 sites around the globe. Officials at each site picked their own computers and software systems, and, as a result, messages sent between computers were often mixed up or delayed. In 1966, the Office of the Secretary of Defense and the Joint Chiefs of Staff began informal discussions on how to handle the problem. These discussions quickly became more serious because of a series of increasingly severe communications failures. While cruising off the Sinai Peninsula during the 1967 Arab-Israeli war, for instance, the U.S.S. *Liberty* was fired on by Israeli gunboats. A computer error had kept the ship from receiving information that would have warned it away in time. Another communications snafu led to the shooting down of a U.S. spy plane off the coast of North Korea. And in 1968, the U.S.S. *Pueblo* was seized by the Koreans and its crew held captive for 11 months—a crisis that could have been avoided if the message warning the *Pueblo* of potential trouble had not been misrouted by a computer.

As a result of these and hundreds of smaller, unpublicized incidents, the Pentagon decided on a systemwide standardization of its command and control computers. In June 1970, Deputy Secretary of Defense David Packard (of Hewlett-Packard fame) approved the procurement of 35 standard computers and software systems. The $55 million contract was awarded to Honeywell Information Systems. In December 1971, Packard also issued DOD Directive 5100-30, aimed at reorganizing the Wimex system "to provide the means by which the President and Secretary of Defense can receive warning and intelligence upon which accurate and timely decisions can be made and assign military missions and provide direction" to the commanders in the field.

One billion dollars later, the President still does not have the system that the Pentagon promised. A key problem, according to the GAO, is that the entire

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Institute of Medicine Names Robbins President

Frederick C. Robbins, the dean of Case Western Reserve's medical school, has been chosen the new president of the Institute of Medicine (IOM). He will begin his term in late October, at the close of the annual IOM meeting. The current president, David Hamburg, will move to Harvard University, where he will direct a new, interfaculty division of health policy research and education. Hamburg will coordinate work at the Kennedy School of Government, the Medical School, and the School of Public Health.

Robbins received baccalaureate and bachelor of science degrees from the University of Missouri, and a medical degree from the Harvard Medical School. He served at the Childrens' Hospital in Boston, and in 1954, with Thomas Weller and John Enders, he won a Nobel prize for developing a virus culture technique that led to the production of the poliomyelitis vaccine. Since 1952, Robbins has been on the medical faculty of Case Western Reserve, and he has been dean since 1966.

In recent years, Robbins has taken part in shaping national health policy. He has chaired a study for the IOM on the health effects of legalizing abortion, a review of poliomyelitis vaccines, and a report on the risks involved in the use of saccharin as a food additive. Last March, he was named chairman of the advisory council for Congress' Office of Technology Assessment.

Robbins is not regarded as an innovator among his peers, but as a problem-solver and a capable leader. A typical reaction to his appointment is that of Joyce McCann, a biochemist at the University of California at Berkeley who was one of the authors of a minority dissent from the IOM's saccharin report. McCann said Robbins has "an ability to deal with groups of people who are at opposite ends of the spectrum. He can see their arguments and bring them together without compromising his own position." He dealt "very fairly" with the minority point of view, she said. Sheldon Samuels, director of health and environ-

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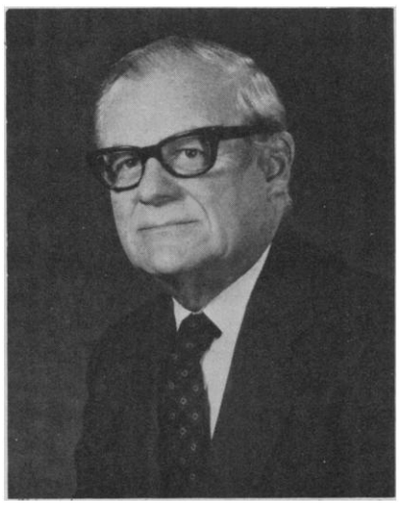
mental policy for the AFL-CIO, said Robbins has "the unusual ability to identify areas of potential agreement and he works very hard at realizing that potential. He builds a consensus



Frederick C. Robbins

in a direction that does not represent the lowest common denominator, and he knows when to stop pushing for agreement when a moral decision is required." In short, Robbins has "very acute political skills."

DOD Says "Weteyes" Will Stay in Denver

As it has done several times since 1969, the Department of Defense (DOD) announced on 26 February a new policy for managing its stockpile of nerve gas bombs stored at the Rocky Mountain Arsenal in Denver, Colorado. It will do nothing.

Colorado's politicians have repeatedly extracted promises from Defense officials to have the 888 "Weteye" bombs moved out of the state or dismantled. And, after appropriate review and consideration, Defense officials have repeatedly concluded that it is best to leave the weapons where they are. The latest round in this minuet began last June, when the Army—which has inherited these deadly antiques—proposed to ship the bombs to the Tooele Army base in Utah. There, it was said, they would seem less threatening to the public, for they would be far from any population center. (They are now stored near Denver's international airport.) The alternative to shipping them out was to neutralize them, a choice which the DOD rejected for strategic reasons. As officials explained when they reversed an earlier promise to do away with the weapons, the United States must have a chemical arsenal in reserve as a "deterrent" against the Soviets.

Having made this decision, DOD now finds that it must break its second promise to Colorado, for the bombs are too hazardous to ship. Several were found to be leaking internally, and all have now been sealed in airtight containers. A single drop of the toxin is enough to kill. The Pentagon does not wish to risk an accident. Nor has it found the people of Utah eager to relieve Colorado of this cargo. In upbeat prose, the department explained: "Retention of the Weteye bombs at Rocky Mountain Arsenal precludes even the minimal risks that might have been involved in the movement of the stockpile to Tooele Army Depot."

How effective is this leaky threat in preventing the Soviets from striking first with chemical weapons. Not terribly, if refugees from Afghanistan and Laos are to be believed. According to reports from these witnesses, Soviet and Soviet-supplied troops have used chemical agents in combat in the last year.

White House Brushes Off Report of Israeli A-Blast

Ever since an American satellite spotted a bright flash of light in the Southern Hemisphere last fall (*Science*, 1 February), rumor pointed to the Israelis, or the South Africans, or both, for having conducted a secret nuclear test. CBS News went further on 21 February and raised the allegation from the status of rumor to fact. "Informed sources," CBS said, "confirmed this was an Israeli nuclear test, conducted with the help and cooperation of the South African government." The sources, it appears, were a couple of Israeli journalists who recently finished a book on the history of Israel's nuclear weapons program (Eli Teicher and Amy Dor-On). Their book is now in the hands of Israeli military censors, awaiting clearance for publication.

Like the event itself, CBS' report is tantalizing in its elusiveness. No official of any government has been willing to lend it authority. American officials, who presumably have the best intelligence and the least personal stake in the matter, refuse to budge from the stance of ignorance taken early this January. Although they speak blandly of "the event in the South Atlantic," suggesting that they know where the nonblast occurred, they still insist that the satellite may have sighted nothing more threatening than a meteoroid reflecting a glint of sunlight.

This explanation ran into trouble last winter when scientists at the Arecibo, Puerto Rico, radio observatory described a ripple in the ionosphere which suggested that there was, in fact, a nuclear blast on the night of 22 September. A panel of experts convened by the White House could not agree on the correct interpretation of the Arecibo data. Because of these conflicts, a technical report scheduled to be released by the White House in January is being held up for further review. According to a staff assistant of the President's science adviser, the experts will reconvene this month, possibly to render a final judgment by 1 April. This official personally thought the meteoroid explanation would hold up.

Carter Administration officials discourage speculation about the flash in the South Atlantic, stressing the possibility that there may have been no bomb blast at all. One reason for this, a State Department policy aide explained, is that it becomes more difficult to negotiate and enforce nuclear nonproliferation pacts if some countries are believed to be making weapons in secret. South Africa and Israel are seen already as villains in much of the Third World. Now they are suspected of having built a hidden nuclear arsenal. If this suspicion becomes accepted as fact, the State Department fears that it may be impossible to fashion any policy of self-restraint in the nuclear arms race.

Eliot Marshall