## A frontier philosophy on oceans and atmosphere

Amid the current discussions on the effectiveness and methods of advisory committees (see p. 234), one of the newest of the Government's 1,500-plus advisory bodies released this week its first annual report to Congress and the President.

The recommendations of the National Advisory Committee on Oceans and Atmosphere were not startling, but they were firm and specific. The 25-member committee, headed by William A. Nierenberg of the Scripps Institution of Oceanography, focused on four topics: law of the sea, fisheries, weather modification and coastal zone management. The nation's problems in all these areas, NACOA found, have a common foundation: a system that takes action only in a crisis and in which decisions are based on a "frontier philosophy." "We no longer deal with unlimited resources of energy and materials," said the report, but we still make decisions as if we did.

The committee was disturbed by the "lack of definitive progress" by the Federal Government in meeting problems of coastal zone management. It strongly recommended passage of either the Magnuson Coastal Zone Management Act, passed unanimously by the Senate, or a similar House bill introduced by Rep. Alton Lennon (D-N.C.). Two other bills, which would incorporate coastal zone management into a larger national land use program, were rejected because the technical problems involved in coastal zone management are unique, and because the diffusion of efforts that would result would slow down action on coastal zone problems, where action is more urgently needed.

On law of the sea, the committee recommended that the United States maintain a policy of free passage outside a 12-mile territorial limit and promote freedom of research on the open sea. The United States should also encourage other countries, especially developing ones, to participate with it in as many joint ocean research projects as possible. Specifically, NACOA proposed that the Department of State's Office of the Coordinator of Ocean Affairs and Special Assistant for Fisheries and Wildlife be strengthened. International participation in the International Decade for Ocean Exploration and in the National Oceanic and Atmospheric Administration's buoy development program and air-sea interactions experiments should be increased. The National Marine Fisheries Service's role in exchanges with foreign governments should be enhanced, and the U.S. Navy should get together with other navies in exchanging programs and techniques.

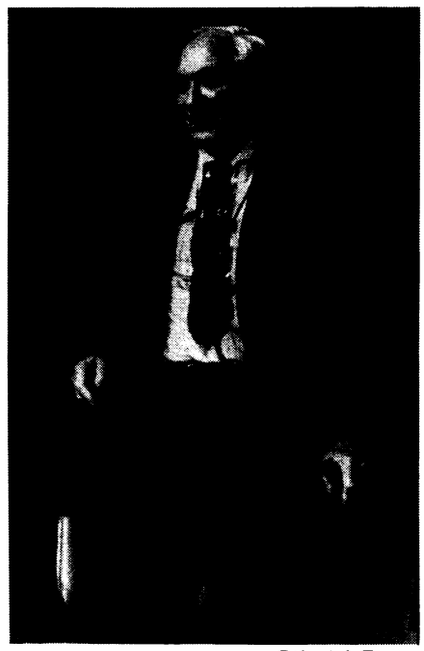
In another area, the report noted that 55 to 60 percent of the fish products consumed in the United States are imported. It said this dependence on imports should be reduced, and it suggested six steps toward increasing U.S. production: Determine the present productivity of fishing areas, their potential under ideal conservation conditions, the necessary conservation methods, the agencies that should bear the responsibility, the increased supply of fish that would be available to the domestic market, and a market penetration schedule. It suggested NOAA as lead agency for developing a plan to increase U.S. fisheries.

Recognizing that weather modification has a great potential for good and ill, NACOA said social and legal issues should be dealt with "before operational weather modification grows at a pace which forces hasty moves." Some actions that must be taken: legislation and regulation, research and international agreement "to eschew the hostile uses of weather modification, and to investigate inadvertent changes in the global climate." Hurricane modification attempts should be accelerated, possibly by moving NOAA's Project Stormfury to the Pacific. The project has been held back by the scarcity of seedable hurricanes in the Atlantic. NACOA urged the U.S. Government to introduce a resolution in the United Nations dedicating weather modification efforts to peaceful purposes and establishing an international advisory body to anticipate international weather modification problems.

These four problems, the committee said, are not the only ones, but they are the most urgent. To help solve these and other problems, the committee urged that legislation be passed establishing a focus of responsibility for policy-making and a center for assembling information on which to base decisions. Though progress has been made in defining the structure, roles and missions of NOAA and other agencies responsible for oceans and atmosphere, "the present arrangements . . . still fall short of providing the fully integrated and accountable management system that is required."

"These are not abstract, remote problems for a few experts to worry about. They are basic to this country's well-being and perhaps even to its survival." □

## Man from Olduvai Gorge, L. S. B. Leakey (1903-72)



Robert J. Trotter

Louis Seymour Bazett Leakey, the archaeologist and anthropologist whose fossil finds in Africa shed new light on the origins of man, died this week in a London hospital of a heart attack at the age of 69.

Born of British missionaries in Africa and educated at Cambridge, Leakey spent most of his life attempting to prove his (and Darwin's) hypothesis that man evolved in Central Africa. In 1931 Leakey's search led him to the Olduvai Gorge in Tanzania. There his tireless patience paid off. By 1964 Leakey had the evidence to prove that early man existed in Africa at least 2 million years ago. Leakey and his wife Mary had found and pieced together skulls belonging to *Zinjanthropus* (a near-man now known as *Australopithecus*) and *Homo habilis* (described by Leakey as a tool-making ancestor of man who lived 1.75 million years ago). The finds were revolutionary. Previously the only confirmed date for early man had been set at 500,000 years ago in Asia and the Near East.

Leakey and his family also discovered the remains of *Proconsul* (an ape-like creature of 25 million to 40 million years ago) and *Kenyapithecus* (an ancestor of man who flourished 19 million years ago). Leakey's goal was to find the link between *Kenyapithecus* and *Homo habilis* and push man's origins back as far as 7 million years.

It will probably be generations before all of the geographical, developmental and time gaps in man's history are filled in, but Leakey's insight and groundwork have done much to pave the way. Controversy still surrounds some of Leakey's theories, but, as T. Dale Stewart of the Smithsonian Institution put it, Leakey's "energy and imaginativeness in successfully dating *Zinjanthropus* have resulted in revolutionizing our concept of the rate of human evolution." □