Oceanography sí, politics no

It is a tradition that science transcends barriers caused by international political squabbles. But in the case of relations between the United States and Cuba, the science-surmounts-politics ethic has been slow to prevail. Now it finally has, at least in a small way. It was revealed this week that six U.S. scientists visited Cuba June 20 to 23 for a meeting of researchers involved in the 15-nation Cooperative Investigation of the Caribbean and Adjacent Regions (CICAR).

It was the first official U.S. visit to Cuba since the United States broke off relations with the island 11 years ago. But State Department spokesmen emphasize that the visit by no means signals a change in the official U.S. attitude toward Cuba. The meeting was sponsored by the United Nations Educational, Scientific and Cultural Organization, which oversees CICAR, and it was only as part of the U.N. project that the U.S. scientists attended.

Nevertheless, says Harris B. Stewart, head of the U.S. delegation, the visitors received VIP treatment and discussions were free and friendly. "There was no discussion whatever of politics."

Stewart, who heads the National Oceanic and Atmospheric Administration's Atlantic Oceanographic and Meteorological Laboratory in Miami, was accompanied by Robert Molinari, John Brucks, Bernard Zetler and René Cuzon du Rest of NOAA and John Antoine of Texas A&M.

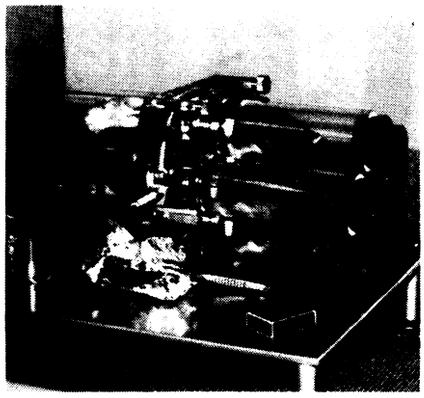
Though it was the first CICAR meeting in Cuba, Cuban scientists have been active in the project and have faithfully attended all five meetings to date, including one in Washington, D.C. While in Cuba the visiting scientists toured the Cuban Institute of Oceanology outside Havana and talked to researchers there. Stewart says the institute staff numbers about 40, including Russian scientists who work there for six-month periods on a rotating basis.

Cuban oceanographers concentrate on nearshore work on their continental shelf, estuaries and bays. One project in the Gulf of Batabano on the island's southern coast is primarily a descriptive sediment study. There are also studies of currents off the Campeche bank of Yucatan and, of particular interest to U.S. scientists, physical profiles across the Florida Straits from Havana to Key West and from the western tip of Cuba to Yucatan.

Stewart describes the Cuban oceanographers as "eager, enthusiastic, but hampered by lack of equipment." Still, Cuban research has expanded greatly over the past ten years. In addition to the Institute of Oceanology there is a Center for Fisheries Investigations, and a nascent Institute of Meteorology.

At the CICAR meeting, delegates agreed to extend CICAR field activities for another year, to Dec. 31, 1973. In three more periods of concentrated effort—from Oct. 15 to Nov. 15, in March 1973 and in July 1973—eight or nine vessels will study circulation problems and fisheries biology. The CICAR scientists also agreed to continue work on standard sections, charted lines where countries make similar measurements whenever they can to get repeat observations of physical parameters and plankton levels. Finally, Cuba, Colombia, Venezuela and Mexico agreed to work with the United States on fisheries studies in the Caribbean after the end of CICAR.

Stewart says the U.S. scientists were very glad to have seen Cuba. "We accomplished a lot for science, and that's the name of the game."



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Hamsters on smoking-oxygen machine.

cinogens can induce tumors. The chemists on the team, headed up by Michael Guerin, will determine how much smoke gets into the hamsters' lungs and which smoke residues settle in which tissues and organs of the hamsters. They will correlate the intake and location of certain chemicals with the incidence of tumor development.

The biologists and chemists will also look for factors in the animals' lungs, and in the cigarette smoke itself, that might precipitate carcinogens in the smoke to cause cancer. Little hairs lining the trachea leading to the lungs, for example, are known to keep the trachea from clearing itself of smoke. □

If it's not heat it's chlorine

Last summer two University of Minnesota ecologists were studying the effects of the discharge of waste heat into Minnesota's St. Croix River by the Allen S. King coal-fire power plant owned by the Northern States Power Co. What they found was at first inexplicable: Photosynthesis and respiration in phytoplankton, the tiny plants that form an essential part of aquatic and marine ecosystems, was being inhibited in ways not related to heat.

The inhibition of phytoplankton life processes, the two ecologists, Alan J. Brook and Alan L. Baker, write in the June 30 SCIENCE, "seemed unrelated to either the ambient river temperature, the temperature of the condenser cooling water, the temperature in the cooling water discharge canal or the temperature at the site of incubation."

So they sought another explanation for the unusual patterns, and they found it. Plant personnel told them that chlorine was added to certain water systems in the plant at regular intervals to prevent tube-fouling by organisms. When they checked the periods of chlorination against the periods of depressed activities in the organisms, they found the two coincided.

As it happened in this particular plant, chlorine was not added directly to condenser water but rather to a subsidiary system. But effluent from this system flowed into effluent from the condensers, and concentrations of chlorine were still high enough to cause the problems. To check their results, the researchers exposed organisms in the laboratory to concentrations of chlorine at various levels. At 320 micrograms of chlorine per liter of water—well below the concentrations in the subsidiary water system but comparable to concentrations in the condenser discharge canal—there was a 50 percent depression of photosynthesis and respiration in phytoplankton. As concentrations of chlorine were increased, the depression of functions reached virtually 100 percent.

Since the effect of thermal additions might be to stimulate, rather than depress, metabolic activities in the organisms, it is conceivable the chlorine additions could just offset the thermal effects. But Baker says there is not likely to be such a simple mutual cancellation of effects.

But Baker adds that the chlorine problem may be simple to deal with. Preliminary indications from other work show that one-tenth the amount of chlorine now added might accomplish the same antifouling job. This conceivably could be low enough to eliminate the ecological effects, says Baker. □