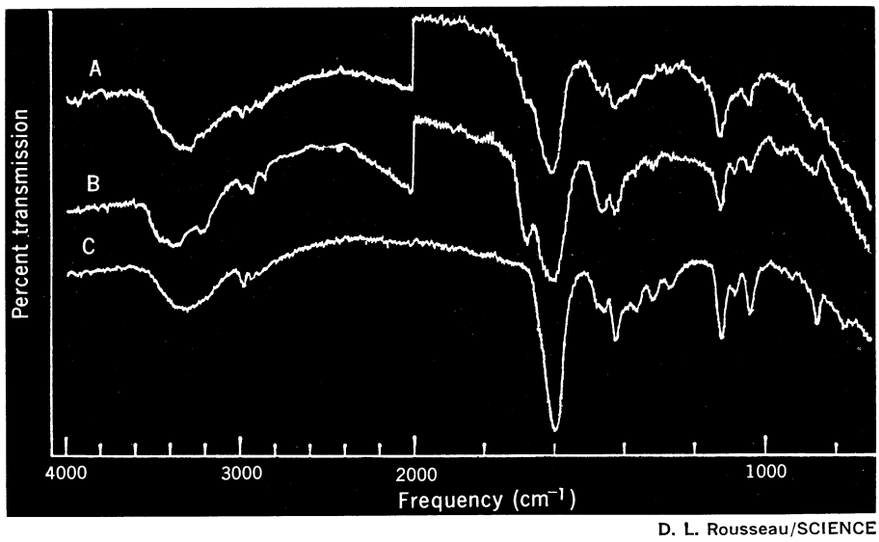

D. L. Rousseau/SCIENCE

Similar infrared spectra for (a) polywater, (b) sweat and (c) sodium lactate.

first the whole question has had more of the appearance of an ideological or religious debate than a scientific one.

A few of the first Western scientists who responded to Dr. Deryagin's announcement by beginning studies of anomalous water, B. A. Pethica, W. K. Thompson and W. T. Pike of Unilever Ltd. in Port Sunlight, England, contend in the Jan. 4 NATURE PHYSICAL SCIENCES that whatever anomalous water is, it is not polywater. In experiments with anomalous water removed from the tubes in which it appears, they could not obtain the infrared absorption spectrum on which was based the determination that anomalous water is a polymer. They conclude: "Until conclusive evidence to the contrary is obtained the possibility still exists that it is a gel or solution of silicates or other materials."

Positive evidence of such a solution is reported in the Jan. 15 SCIENCE by Drs. R. E. Davis of Purdue University, Dennis L. Rousseau of Bell Telephone Laboratories and R. D. Board of the Hewlett-Packard Co. of Palo Alto, Calif. This is a detailed and extended presentation of preliminary results that Dr. Davis reported at the colloid symposium.

The evidence rests on investigation of anomalous water by electron spectroscopy for chemical analysis (ESCA), a technique similar to the photoelectric effect except that it uses X-rays instead of the more usual visible light to dislodge electrons from the sample under study.

The numbers of electrons with different amounts of energy that the sample gives off serve to identify chemical species in the sample. It is a particularly good method, the authors say, for qualitative analysis of small samples.

Because reports on different samples of anomalous water have varied widely, the investigators used two independent samples, one prepared at Purdue, the other at Bell Labs in Murray Hill, N.J. The result is that both samples showed high concentrations of sodium, potassium, sulfate, chloride, nitrate, borates, silicates and carbon-oxygen compounds, but very little water. On this ground they suggest that it is highly unlikely that a polymer of water has been discovered.

Writing by himself in the same issue of SCIENCE, Dr. Rousseau points out that the infrared spectrum of polywater closely resembles that of sodium lactate, the primary constituent of sweat. He suggests that human sweat may contaminate the samples, agreeing with the Russian investigator V. L. Tal'rose, who had found phospholipids and other organic substances in some of Dr. Deryagin's samples. Dr. Rousseau points out that an aerosol cloud of sweat vapors surrounds human beings much like the cloud that surrounds the character Pigpen in the Peanuts comic strip.

Finally a professor of dentistry at the University of Michigan at Ann Arbor suggests that the reason such concentrated solutions occur is that when water and other liquids condense in isolated minute capillaries, their corrosive power is greatly enhanced.

Dr. William J. O'Brien, in three papers in SURFACE SCIENCE, bases his argument on the 1928 finding of Dr. J. L. Shereshefsky of Johns Hopkins University that liquids condensed in capillaries have abnormally high surface tensions. Dr. O'Brien suggests that this prevents them from leaving atom-sized holes in their structure as they do when they condense under other conditions. Instead, they fill the holes with atoms taken from the surface on which they condense. This gives them a dissolving power that can be many times what they normally have, he says. □

IN THE UNITED STATES

An end to DDT, maybe . . .

Environmental Protection Administrator William D. Ruckelshaus last week announced cancellation of all uses of DDT in the United States.

Environmentalists viewed the move as a sign, at least, that Ruckelshaus is more on their side than officials of the U.S. Department of Agriculture, which earlier had appealed the cancellation as ordered by a Federal judge at the behest of conservation groups. Pesticide regulation moved from Agriculture to the Environmental Protection Agency in December when EPA was formed.

But the action by no means assures the immediate end of the use of DDT in the United States. The cancellation cannot take effect until chemical companies and others get their licks in during months of appeal procedures.

And even if DDT use ceases in the United States, underdeveloped countries still rely heavily on the chemical in disease control and agricultural production. If, as many scientists believe, DDT contamination, particularly of the oceans, is a worldwide phenomenon, then use in the underdeveloped countries will continue to affect the whole world. It was with this in mind that last summer's Study of Critical Environmental Problems (SN: 10/31/70, p. 344) recommended that advanced nations might even subsidize underdeveloped nations so the latter can use more expensive, but less environmentally harmful, substitutes for DDT.

DDT was earlier canceled for a number of uses by USDA, and the major remaining use for the chemical in the United States is against cotton pests. USDA scientists are working on biological controls and other alternative to use against the cotton pests. □

CROSS-FLORIDA LINK

. . . and an end to a canal

"To prevent a past mistake from causing permanent damage," President Nixon this week halted construction by the Army Corps of Engineers of the Cross-Florida Barge Canal. Twenty-six miles of the canal had already been built at a cost of $50 million; an additional $180 million would have been required to complete it.

The President based his action on a recommendation of his Council on Environmental Quality, which said the canal would have destroyed the Oklawaha River, "a uniquely beautiful semitropical stream." A Federal judge had ordered a temporary injunction against canal construction last week as a result of a suit brought by the Environmental Defense Fund. □