CHEMISTRY

Handy 'Lab' Detects Pollution

➤ A VEST-POCKET chemical "laboratory" to test the contamination of water has been developed.

The research was supported in part by a contract from the U. S. Army Edgewood Arsenal, Edgewood Arsenal, Md., in response to the Army's need of a means of testing water for drinking while in the field.

Water pollution is now a major national problem. Usually its contaminants must be tracked down by a trained laboratory technician using the techniques and apparatus of analytical chemistry.

In contrast, the new testing equipment developed by the Westinghouse Electric Corporation can be carried around in the purse or pocket and used by anybody.

The complete "laboratory" consists only of a tough, pliable plastic card, or ticket, about the size and shape of a typical credit card. Each card tests for one or more chemical contaminants.

Dr. William E. Shoupp of Westinghouse reported that test cards for several important water pollutants are now under development at the Westinghouse Research Laboratories and the Westinghouse scientific equipment department.

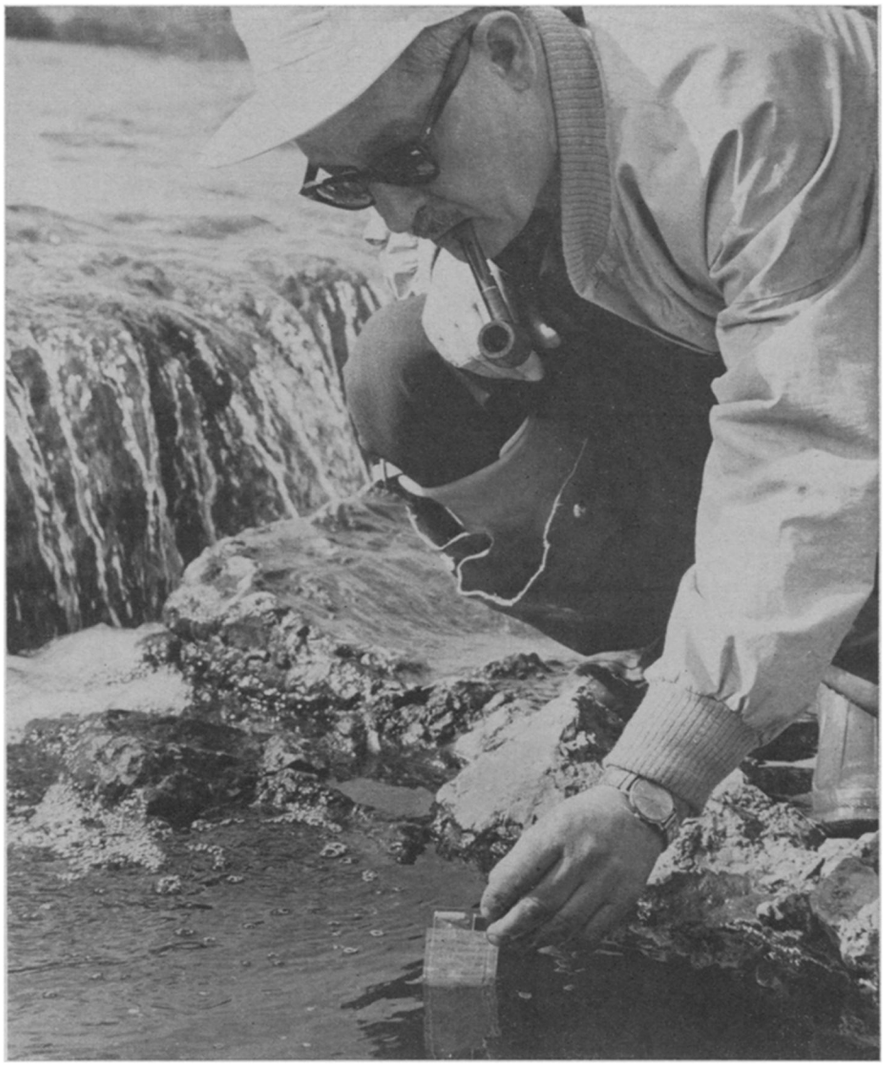
Tests for arsenic and cyanide, he said, have reached the stage at which these dangerous chemicals can be identified in water at concentrations below the amounts considered injurious to humans and aquatic life.

The chemicals required for a test are housed in depressions in the plastic test card, which is sealed by a plastic cover. To make an analysis, the cover is peeled back like the seal on a container of restaurant jelly. Then the card is simply dipped in the water to be analyzed. A color change in one of the chemicals shows the presence of the contaminant it tests for.

"There are a great many potential uses for a system of chemical analysis that is simple enough for anyone to use and inexpensive enough to be thrown away," Dr. Shoupp said.

"For example, mine acid wastes or the accidental discharge of chemicals from industrial plants could be quickly and easily identified and traced to their source by on-the-spot analysis of the water in the stream.

"One can even see the ultimate use of such a do-it-yourself system for many of the analytical procedures now carried out by chemists and technicians. . . ."



Westinghouse

CREDIT CARD—A chemical "laboratory," developed by scientists of Westinghouse Electric Corporation is a simple plastic card that pinpoints a water contaminant by means of a built-in chemical reaction.

METEOROLOGY

Lightning Stroke Measured

➤ HOW MUCH voltage in a stroke of lightning? How much light?

Scientists in Tucson, Ariz., expect to have answers for such questions as soon as they finish analyzing data from this year's summer storms.

Using high-speed tapes and films, a University of Arizona team has collected the most complete information on a single stroke of lightning ever obtained, Dr. Walter H. Evans, professor of electrical engineering and meteorology said.

They even have photographs of the strokes.

Once analyzed, the new data should give information on the stroke's duration, channel size, current, luminosity and ionization, as well as knowledge of the cloud's electrical field.

Rainmaking efforts are "hung-up" for lack of such knowledge, Dr. Evans said, particularly as it concerns the electrical field in clouds.

Dr. Evans and Dr. Roger C. Jones, also a professor of electrical engineering, are conducting the lightning research with National Science Foundation support.

Data came from a new 162-foot tower topped with a 35-foot "needle" in the Santa Catalina Mountains near Tucson, while Dr. Evans and his team camped out in trailer laboratories, copper-shielded to protect them from electrocution.