

PHYSICS

Detector Identifies Atoms

► A NEW and extremely sensitive instrument for detecting and measuring radioactivity has been developed by physicists of the University of Manitoba in Winnipeg.

It goes the Geiger counter one better by not only showing the presence of radioactive material but also telling which radioactive material is present.

Called a gamma ray spectrometer, it already has uncovered previously unknown deposits of uranium in northern Saskatchewan. In addition, it has been used in airplanes for high-speed airborne radioactive prospecting, report the men who constructed the device.

Physicists Robert W. Pringle, Kenneth I. Roulston and Harry W. Taylor describe this new use of the basic "scintillation counter" in the REVIEW OF SCIENTIFIC INSTRUMENTS (March) published by the American Institute of Physics.

Working on a principle different from that of the famed, widely-used Geiger counter, the spectrometer can actually identify tiny amounts of radioactive elements from the gamma rays they constantly send out. The Geiger counter can only show that a radioactive material is present.

Such a spectrometer is similar to those astronomers use in learning the composition of the sun and stars and to the infra-red spectrometers by which industry can check the exact chemical composition of complex organic substances.

The new type for gamma rays employs a crystal of sodium iodide activated by a tiny amount of a radioactive iodine salt.

In a second report in the British journal, NATURE (April 1), the Canadian scientists say portable detectors built on this principle were operated "with considerable success" in a search for uranium in northern Canada last summer.

"It was found possible to detect substantial deposits of uranium ore at distances of several hundred feet," they report.

The detectors, employing tiny electronic parts from ordinary hearing aids, weighed only eight pounds each.

"The ultimate significance in civil defense

of extremely sensitive detectors of the type we have been using is not difficult to appreciate," the scientists predict.

Science News Letter, May 20, 1950

GENERAL SCIENCE

Scientists Among U. S. Delegation to UNESCO

► A NOBELIST in physics, a university president-psychologist, a deputy assistant secretary of state, a school teacher and an educational leader are the five official U.S. delegates to the UNESCO annual conference at Florence, Italy, beginning May 22.

They are Dr. I. I. Rabi of Columbia University, Dr. George D. Stoddard of the University of Illinois, Howland H. Sargeant, Miss Bernice Baxter of Oakland, Calif., and Dr. George F. Zook of the American Council on Education, Washington.

Among the advisers to the delegation is Dr. E. C. Stakman of the University of Minnesota, botanist whose work has resulted in disease-resistant wheats.

Science News Letter, May 20, 1950

GEOPHYSICS

Jog-Log Helps Ships Zig When Ocean Zags

► A NEW shipboard instrument called a "jog-log" will help the seagoing navigator follow a true course through ocean currents trying to push him where he does not want to go.

Its accuracy in measuring the speed of surface currents has been proved in ocean trials, William S. von Arx of the famed Woods Hole Oceanographic Institution reported at the annual meeting of the American Geophysical Union.

The new device, technically known as a geomagnetic electrokinetograph, uses the magnetic force in the earth which swings the compass needle. Its operation is based on the century-old law of magnetic induction: a wire moved through a magnetic field generates an electric current.

The "jog-log" measures the electrical charge in a length of wire trailed behind an ocean vessel. The ship using it follows a zig-zag course for a time, hence the name "jog-log."

More accurate prediction of where an iceberg will drift as it nears shipping lanes, or where searchers should look for a lost life raft, will be valuable results of data secured by oceanographers with the new device.

The instrument was developed as part of a research program at the Woods Hole Oceanographic Institution for the U.S. Navy.

Science News Letter, May 20, 1950

Seniors of 1951

► WITH summer vacation ahead, many high school students will start work on scientific projects which will be part of their entry in the Tenth Annual Science Talent Search.

The project can consist of a study in any field of interest for which equipment is available. An excellent project was done on "the physics of the ping-pong ball," and a small section of a potato patch was sufficient for a study of the effects of different insecticides on potato beetles.

With the whole field of science to choose from, choice of a project may puzzle many seniors. The titles of project-reports written by the 40 winners in the Ninth Annual Science Talent Search may offer helpful suggestions:

Preliminary Investigations of Some Common Vegetable Substances Through Chromatographic Adsorption Analysis—Comments on the Theory of Relativity—Design and Construction of a Scintillation Counter—Construction of a Machine to Play Tick-Tack-Toe—A Study of Binding Energy and Nuclear Reactions—Making and Using My Six-Inch Telescope—Radiation Characteristics of Antennas at Ultra-High Frequencies—Gaseous Conduction—Selenium: A Study of Its Compounds and Their Physiological Effect Upon Plants—One Summer's Survey of Shallow-Water Fishes at Coney Island, N. Y.—A Contribution to Atomic Education—Solution of Alternative Pathway Mazes by Ants—Census of Breeding Birds—Report on the Effect of Comic Books on the Reading Habits of Elementary School Children—The Design and Construction of an Audio Amplifier—Research in Plane Curve Theory—The Odd Nucleon Effect—Experiences with Science—Ideal Concentration for the Zn-H₂SO₄ Reaction in Elementary Chemistry Laboratory Experiments—Plant Galls—Alkalinity Correction in Soils of the Southwest—Metallurgy and Me—A Three-Dimensional Periodic Table—A Qualitative Scheme for the Identification of the Halogens—Researches in Protozoology—The Life History and Control of the Colorado Potato Beetle—Changes in the Kidneys and Hearts of Rats with Chronic Experimental Hypertension and Their Treatment by Dietotherapy—Visual Detection of Alpha Particles—Solving Equations of the Third Degree and Higher—The Effects of Light on Ascorbic Acid—Track-Length Measurements in Nuclear Research Emulsions—Chromium Pentoxide and Perchromic Acid—The Effects of Radiation on Drosophila Melanogaster—Introductory Research in Astrophysics—Differential Staining of Bacteria—The Chemiluminescence of 3-Aminophthalhydrazide—A Preliminary Investigation Toward the Description of Three Possibly New Species of Bacteria—Building a Magnetometer—Theory of Arithmetical Operations—The Theory and Construction of an Inexpensive Neutron Source of Moderate Strength.

Information on how to start a project and write the report will be sent free of charge if you request details of the Tenth Annual Science Talent Search from Science Clubs of America, 1719 N St. N.W., Washington 6, D. C.

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