

NEW USE FOR GEIGER COUNTERS IN PROSPECTING

RADIOACTIVE ORE HUNT: As the new prospecting season gets under way, the search for radioactive materials is being resumed. Before the war, discovery of radioactive ore had been a hit-and-miss affair, based mainly on visual observation. Now, however, the Geiger-Mueller tube, which registers even trace amounts of radioactive substances, has made systematic radium and uranium prospecting possible.

The Division of Physics of the National Research Council of Canada is doing pioneer work on a radically new design, which weathered its first field trials successfully last year and should soon be ready for commercial use.

The new instrument is the logical outcome of a development which has been taking place, step by step, in the radiology section of the Division of Physics. While the Geiger-Mueller tube itself is small, its power requirements at first were disproportionately great and two men were needed to carry the heavy apparatus. The first step of the scientists handling this problem was to reduce the weight. Portable Geiger-Mueller counters were made possible by the new miniaturizing techniques used in the construction of electronic circuits. Some models of Geiger counters built now in the Physics Division weigh only six to eleven pounds, and one model is so compact that it

weighs only one pound and fits into the prospector's pocket.

The second step was to design an instrument that would not only detect surface deposits of radioactive minerals or analyze the core recovered from diamond-drill holes, but also explore the depths of the drill hole itself if, as it often happens, the core crumbles and is lost.

The third step was to find out whether such a miniature Geiger-Mueller probe would function properly when lowered into drill holes by means of a cable which sometimes has to be over a thousand feet long. The final step was to eliminate the interference from the cable itself since, by the capacity of the cable, the voltage pulse from the Geiger-Mueller tube is weakened and distorted. Success came at last only recently when it was discovered that the resistor coil in all circuits was needlessly large and it was found that the power of the resistor coil could be reduced to almost one-hundredth of its previous power.

By this innovation, the Physics Division of the National Research Council will be able to build the first foolproof drill-hole probe, to modernize and simplify all other Geiger-counter designs, and thus to continue in the vanguard of those who contribute most to the prospecting for radioactive minerals.

PUBLIC HEALTH RESEARCH: Grants totalling more than \$18,000 have been approved by the Department of National Health and Welfare for public health research work at the University of Toronto, the Minister, Mr. Martin, announced on May 17.

The funds, which are being allotted under the federal health plan, are to initiate two projects through the purchase of laboratory equipment.

The first deals with the study of the clinical uses of isotopes in the therapy of certain types of malignant disease and other types of disease that may lend themselves to this kind of treatment.

No work as yet has been done in Toronto in which radioactive isotopes have been used either in tracer studies or for therapy, Mr. Martin stated. A special laboratory and equipment will be required for the work which he described as "an important new approach to the diagnosis and treatment of disease." The study, expected to take from three to four years, will begin about July under the direction of Dr. J.A. Dauphinee, Professor of Pathological Chemistry.

The second project will concern the study of hormones and their relation to disease in humans and the application of this knowledge to clinical problems. It will be directed by Dr. A.G. Gornall, Assistant Professor of

Pathological Chemistry, who is now in the United Kingdom studying the latest developments in hormone research.

Both projects will be carried out in the Banting Institute, University of Toronto, and in the affiliated teaching hospitals of the University.

LABOUR LEGISLATION ADMINISTRATORS: In welcoming delegates to the Eighth Annual Conference of the Canadian Association of Administrators of Labour Legislation, which opened in Ottawa on May 16, Arthur MacNamara, Deputy Minister of Labour, asked the delegates to consider the possibility of a national conference on accident prevention similar to the conference called by President Truman in Washington earlier this year.

The Canadian Association of Administrators of Labour Legislation consists of all federal and provincial departments or boards charged with the administration of any labour law and has as its objective the promotion of higher standards of labour law administration and enforcement. Included is the promotion of greater uniformity in the legislative standards of the provinces through the exchange of information and annual conferences. The work of organizing the annual conference is carried out by the federal Department of Labour.

ICAO THIRD ASSEMBLY: The Third Assembly of the International Civil Aviation Organization will be held in Montreal, commencing June 7, 1949. Its duration is expected to be between two and three weeks.

The Fourth Session of the ICAO Legal Committee will be held in Montreal at the same time. On the agenda are such matters as Revision of the Warsaw and Rome Conventions, the legal aspects of search, assistance and rescue, and the avoidance of double insurance requirements.

CANSO ENGINEERING FEAT: Government approval has been given to a contract authorizing Foundation Maritime Limited of Halifax to make test borings in the Strait of Canso where the eight piers of proposed low-level railway and vehicular bridge will be constructed, according to an announcement by the Minister of Transport, Mr. Chevrier. The test borings will consist of drilling holes on the centre line of the proposed bridge, and the Minister said that the work will start next month and is expected to be completed before the close of navigation.

Making the test borings will each provide an engineering feat, inasmuch as the average depth of the water at low tide is 185 feet, added to which is the strong tidal currents and the rise and fall of water levels.

To make the tests will require approximately 190 feet of casing to be lowered, weighing about 40 tons, and the erection of a working platform on which to mount the drilling machinery. The test borings will be carried out inside the casings, through the overlying soil and to a depth of ten feet into the bed-rock to ensure a foundation suitable for the bridge piers.

At the particular site selected for the bridge, which is located between Capé Porcupine on the mainland and Balache Point on Cape Breton Island, the Strait of Canso is only 3,000 feet in width. When completed, the bridge will have a clearance of 14 feet at high tide and will have a vertical lift span close to the Cape Breton shore, providing a clearance of 156 feet for the passage of shipping.

Re-allocation of railway lines and highways in the area will be undertaken with Canadian National Railway and provincial highway engineers.

NEW ARMY RADIO: "Ham" radio operators and others interested in wireless communications this week will get what is probably their first look at the Canadian Army's new "29 set" -- a radio set that, according to one Army Signals officer, is "far ahead of anything the Army has had to date".

The set will be exhibited in Army Week displays by a number of Army units across the country. Trained operators will demonstrate its capabilities.

Designed to supersede the well-known Army

"19"-set used throughout the war as standard tank and vehicle equipment in action, the "29" set differs in many respects but mainly in that it is lighter, is fully automatic, and has five to six times the power of the older set. It is exactly the same size and occupies no more space than the "19" set. Four electric motors, permitting automatic tuning, are installed within the frame in addition to the two dynamotors which power the set -- one the receiver, the other the transmitter.

Where the "19" set had a maximum power output of 5.6 watts, the new set has an output of approximately 25 watts. Range of the earlier radio was roughly 10-15 miles but the new sets will function readily up to 50 miles and up to 100 miles under certain conditions.

MOTOR VEHICLE SALES: Sales of new motor vehicles -- below 1948 levels in the first two months of the year -- jumped sharply upward in March, increasing 18 per cent in number and 29 per cent in value over the corresponding month last year. The month's gain was due mainly to larger sales of passenger cars. During the first three months of this year, sales rose six per cent in number and 17 per cent in dollar value above the similar period last year.

According to the Bureau of Statistics sales in March totalled 24,637 units retailing for \$52,359,305 compared with 20,974 which sold for \$40,688,378 in March, 1948. In the first quarter of this year, sales of 50,625 units for \$108,524,877 compared with 47,871 vehicles for \$93,180,503 a year earlier.

The number of passenger cars sold in March was 16,970 with a retail value of \$35,791,018 -- 25 per cent higher in number and 39 per cent in value than the 13,540 sold for \$25,668,823 a year earlier. There were 7,594 trucks sold in March valued at \$15,277,448 compared with 7,375 units with a value of \$14,002,789 last year, a gain of three per cent in number and nine per cent in value. Buses sold in March this year totalled 73 vehicles with a retail value of \$1,290,839 compared with 59 units sold for \$1,016,766 the year before, up 24 per cent in number and 27 per cent in value.

RAILWAY REVENUES: Continuing the gains of earlier months, railway revenues and expenses reached all-time record totals for the month in February. Operating expenses exceeded the relative advance in revenues, resulting in a decrease in net operating revenues.

According to the Bureau of Statistics, operating revenues in February totalled \$65,970,000, up 10.5 per cent over the same month last year. Operating expenses advanced from \$58,627,000 to \$65,771,000, an increase of 12.2 per cent, and the net operating revenues were \$199,400 compared with \$1,086,000.

Freight revenues improved \$6,559,000 or 13.7 per cent over the same month of 1948 to