

Dr. G.J. Thiessen, Head of the Acoustics Section of NRC'S Division of Applied Physics, said that the NRC method eliminated the vast volume of paper work that would have resulted if conventional EEG recordings had been taken of several subjects eight hours a day for months on end. Initial work indicates it shows promise of injecting an element of objectivity into a field where decisions (or laws) have been based on subjective judgments, he said.

In scanning the tape recording, the investigator tries to determine when EEG signals change in ways that are characteristic of alterations in the sleep pattern. When the signals are fed to a loudspeaker, the major changes in sleeping conditions are readily audible.

The knowledge gathered about sleep during the last ten years makes it possible to investigate the effects of sounds on sleepers in a scientific way that would not have been possible a few years ago.

TRI-NATION TEST BLAST

Hundreds of scientific measurements will be made automatically and recorded in a split second this month at the Defence Research Board laboratory near Medicine Hat, Alberta, when Canadian, British and American scientists detonate 500 tons of TNT. So much information will be recorded in the few seconds following detonation, that many months of effort by scores of scientists and technicians will be required to relate the new data to existing theories and design practices. If previous experience is repeated in this trial, the scientists expect that some modifications of both theory and practice will result.

The explosion will be one of a series carried out jointly by the three countries in support of their armed forces and various research agencies. DRB scientists and Canada's Emergency Measures Organization will position and assist in the operation of experimental equipment provided by the countries concerned. The data obtained will be relayed to the associated agencies.

The experimental area surrounding the charge will house 19 scientific programmes - eight Canadian ten American and one British. Individual programmes will average from six to seven experiments each involving several hundred data points.

PURPOSE OF TESTS

Major objectives of the multi-nation project, called Operation Prairie Flat, and the second 500-ton detonation to be conducted at the same site, will be to investigate:

- (1) Fundamental aspects of air-blast and ground-shock, with special emphasis on sub-surface phenomenology.
- (2) The mechanism of formation of large craters.
- (3) The response of structures and items of military equipment to air-blast and ground-shock.
- (4) The behaviour of air-blast within structures.
- (5) The propagation of sound waves.

Secondary investigations will include blast

effects on man-like dummies in the open and in shelters.

The craters produced on the same range by the 500-ton charge fired in 1964 and the 100-ton charge detonated last year proved to be of exceptional interest to geophysicists and lunar experts, as well as to civilian and military defence experts.

Canadian organizations involved in the trial, in addition to DRB, the Canadian Armed Forces and EMO, will be the Universities of Calgary, Saskatchewan and McGill, the Meteorological Service and several oil companies. Canadian and U.S. teams will also conduct seismic measurements at other locales.

The results of the experiment will provide valuable data for use in the design and development of protective equipment and techniques against the shock and blast effects of large-scale detonations.

CANADA'S ARCTIC OIL RUSH

Officials of the Department of Indian Affairs and Northern Development attribute a rush for permits to exploit oil and gas lands in Canada's North to the announcement of very large oil discoveries on the north slope of Alaska at Prudhoe Bay, 200 miles west of the international boundary. Bitumen-bearing sands of similar type and geologic age to the Alaskan oil-sands are exposed in northwest Melville Island on Canada's Arctic and it is probable that a prospective belt for oil reservoirs occurs between the U.S. and Canadian deposits.

The land applied for is largely in this prospective area. At least two wells will be drilled this winter in the Mackenzie Delta region, and the drilling of several more is expected to be announced shortly.

In announcing that his Department had received more than 40 applications during the previous two weeks for exploration permits, the new Minister of Indian Affairs and Northern Development, Mr. Jean Chrétien, noted that over 230 million acres were held under oil and gas permits and leases in the sedimentary regions of the Yukon and Northwest Territories. Mr. Chrétien stated he was optimistic that oil accumulations as rich as those found in Alaska would be discovered in Canada's North.

GIANT CRYSTAL ON DISPLAY

A corundum crystal, one of the largest ever found, is on display at the National Museum of Natural Sciences in Ottawa.

The crystal, which weighs about 230 pounds, is shaped like a pyramid with a hexagonal cross section. Corundum, which is a crystalline oxide of aluminum, is not a gemstone, but does, however, show patches of sapphire blue.

The crystal was found in the Republic of Malawi in Africa and was presented to the museum by the American Abrasive Company of Westfield, Massachusetts.

The diamond is the only naturally-occurring substance harder than corundum, finely-crushed