

## BIG BANG FOR ALBERTA

Scientific teams from Canada, the United States and Britain will conduct more than 100 individual experiments in July when 1,000,000 pounds of TNT are detonated at Suffield Experimental Station (SES), the Defence Research Board's laboratory about 26 miles west of Medicine Hat, Alberta. The explosion, which is one of a series conducted by the three countries, is scheduled for July 16. Postponement for a day or so may be necessary if technical or weather conditions are not suitable.

### PURPOSE OF EXPERIMENT

The major objectives of the tripartite experiment, a high point in eight years of SES activity in shock and blast research, will be to investigate:

- (1) Fundamental aspects of air blast and ground shock;
- (2) cratering;
- (3) thermal and electromagnetic pulse effects;
- (4) response of structures and items of military equipment to air blast and ground shock;
- (5) behaviour of air blast within structures;
- (6) propagation of sound waves;
- (7) blast effects on man-like dummies in the open and in shelters.

There will be about 175 Canadians involved, among whom will be 30 scientists, engineers and armed services personnel. The British group will number approximately 50, and a large number of U.S. scientists will participate and observe the experiment.

A total of 102 all ranks from Western Command of the Canadian Army will occupy shelters almost a mile from the hemispherical charge. They will observe blast effects and experience the shock wave - both harmless at that distance. The Royal Canadian Air Force will photograph and measure detonation phenomena from a specially-instrumented "Neptune" aircraft that will overfly the explosion at 18,000 feet. A series of instrumented rockets will be launched at RCAF Station Cold Lake to make temperature and other measurements necessary in gaining an understanding of the travel of sound waves in the atmosphere.

In addition to the Canadian Army and RCAF personnel participating in specific experiments and providing specialist support, other Canadian organizations involved will be the Emergency Measures Organization, the Meteorological Services, universities, oil companies and other interested agencies. Ten Canadian and U.S. teams will conduct seismic measurements at locales far distant from SES.

The Canadian projects will be designed primarily to extend basic measurements associated with

previous, but less powerful, surface bursts of TNT detonated at SES. The charges employed since the inception of the programme in 1956 have ranged from a few pounds to 100 tons in 1961. This year's 500-ton trial will provide measurements required for many of the individual Canadian experiments. Scaling techniques will make possible estimates of likely injuries to individuals and damage to equipment in target areas from nuclear weapons of various yields. These extrapolations will be based on the effects recorded on the manlike dummies and military equipment positioned near "ground zero".

The detonation of the charge will be equivalent in its shock and blast effects to a one-kiloton nuclear explosion. DRB officials emphasize that "because the SES experiment involves a chemical explosive only, radioactive fallout cannot possibly develop".

### ALBERTA STATION

The Alberta experimental station, which covers some 1,000 square miles of relatively flat prairie terrain, is ideally located for such large-scale experiments because of its isolation from built-up communities. Its ranges, developed for the continuing programme, have been built up with power supplies, bunkers, junction boxes and a complete communications network. The natural setting and the facilities installed combine to make the site one of the most flexible test ranges in the Western world.

The charge, 17 feet high and 34 feet wide, will be carefully built up at "ground zero", the centre of a mile-and-a half circular target area. Many of the materials and structures under investigation will be buried. The remainder will rest on the ground or will be anchored to ground-level concrete platforms. Instrumented military equipment such as trucks, missile and rocket configurations, typical field fortifications (slit trenches and gun emplacements), radar antennae and similar items employed during combat will be assessed for damage after the explosion.

"Dummy" troops, some dressed in operational equipment, will man slit trenches and vehicles and carefully-placed measurement devices will record the pressures and movements experienced by the simulated soldiers for the assembled scientists. Relating the recorded data to the "injuries" sustained by the models and damage to vehicles will facilitate the forecasting of shock and blast effects on troops and equipment within specific distances from large-scale explosions.

The four appointed members of the Council are: Dr. Frank Vallee of Hamilton, Ontario; Air Marshall Hugh Campbell of Ottawa; Robert N. Harvey of Edmonton; and Stuart M. Hodgson of Vancouver, The Deputy Commissioner of the Northwest Territories, W.G. Brown, is an appointed member of the Council, and was a member of the previous Council.

### NWT COUNCIL APPOINTMENT

Mr. Arthur Laing, Minister of Northern Affairs and National Resources, has informed the Commissioner of the Northwest Territories, B.G. Sivertz, of the appointment by Order-In-Council of four members of the Northwest Territories Council.