

areas. A recording radar altimeter has been developed that will greatly expedite contouring in the preparation of topographical maps, and hence will be a valuable aid in surveying.

A new rod thermostat is being developed for use in railway refrigerator cars. Sensitivity of 1.3°F . has been secured under semi-operating conditions but further work is required before it can be adapted to commercial use.

Radiant panel heating and panel cooling investigations were carried out during the year.

Chemistry and Chemical Engineering.—A co-operative research with Noranda Mines Limited has had for its object the development of a method of roasting pyrite for the recovery of elemental sulphur. Indications are that this process can be carried to the commercial stage in the near future. A study is in progress on the direct reduction of iron sulphides of which large tonnages are being mined in Canada for both gold and base-metal recovery.

The rain repellent for aircraft wind screens, which was developed in the Council's laboratories, is becoming widely used and its commercial production is expected to begin in the near future. Action of inhibitors in water and antifreeze systems is being investigated, and work has begun on the study of corrosion at high temperatures.

The textile research laboratory is now providing members of the Canadian Institute of Launderers and Cleaners with a technical service mainly for control of the laundering and cleaning efficiency of commercial plants.

The rubber laboratory has undertaken an investigation into the correlation of laboratory abrasion tests with actual road tire tests to provide information in regard to slipping or holding of tires on icy roads. Some forty samples of rubber of different compositions have been tested over a wide range of temperatures to determine their frictional properties.

Work has continued on the chemistry of certain fatty acids present in drying oils with the object of increasing their usefulness in paints or of producing drying oils from more readily available materials.

A lubrication problem of considerable industrial and scientific interest on which work is proceeding, relates to the lubrication of railway car journals.

A new and very rugged catalyst has been developed for use in the determination of carbon monoxide by direct oxidation. An improved continuous carbon monoxide recorder using this catalyst has been designed.

Mechanical Engineering.—The National Research Council has two model-testing basins, fully equipped for work on seaplane floats, ships' hulls, etc. From towing tests, the power required to propel a full-scale hull at any given speed, or the speed obtainable from a given engine installation, can be accurately estimated.

A large portion of the work in the aeronautics section is devoted to the wind-tunnel testing of new aircraft designs for Canadian firms. At the Flight Research Station at Arnprior, Ont., in co-operation with the Royal Canadian Air Force, more than 250 hours flying were undertaken on research projects during the year. In one investigation, a wake-rake was installed behind Frise ailerons of various contours on a Harvard aircraft and the boundary layer at the trailing edge over a range of aileron angles was measured using an automatic observer.