

attributed to its basically sound qualities and unsurpassed dependability.

TCA's first six "North Stars" were unpresurized machines borrowed from the RCAF. When the airline took delivery of its own pressurized models in 1948 and 1949, the RCAF planes were returned.

Since 1948, TCA's "North Stars" have logged more than 700,000 hours in scheduled service, carrying many millions of passengers.

When the last of the present fleet of 21 is retired from service early next year, at least one, and perhaps more, will have accumulated some 40,000 hours of flying time.

"North Stars" have operated on virtually every route open to TCA in Canada, the United States, the Caribbean and the United Kingdom, the 47-mile run from Vancouver and Victoria as well as the 2,300-mile route between Montreal and London.

Basically, the "North Star" is a Douglas DC-4 with wing spars and stabilizer of the DC-6 type and a fuselage and inner wing sections also of DC-6 structure. The fuselages of the "North Star" and DC-6 are identical, though the former is 80 inches shorter.

The original complaint against the "North Star" was its relatively high cabin-noise level. Early in the 1950's, TCA developed and installed a cross-over exhaust system that reduced the noise of the Merlins to a level comparable to that of other piston reciprocating engines. But, though the Merlins were muted, the epithet "noisy North Star" stuck.

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GEOLOGY GRANTS TO UNIVERSITIES

Grants ranging from \$395 to \$4950 and totalling \$50,000 have been awarded this year by the Geological Survey of Canada to 13 Canadian universities for use in research projects concerned with studies in the geological sciences. The grants will support 12 new and 17 continuing projects and were made on the recommendation of the National Advisory Committee on Research in the Geological Sciences.

Including this year's amount, the grants, which were initiated in 1951, now total \$335,000. Their primary purpose is to aid the universities in providing assistance and much-needed equipment for the various projects, and this in turn serves to encourage brilliant students to pursue their graduate studies in Canada rather than abroad. Experience has also shown that the grants are serving indirectly to attract additional support from other sources, including industry.

A grant of \$4950, the largest single award this year, went to McGill University for use in a long-term project designed to acquire further knowledge on the formation of ores and the metamorphism of rocks. In addition, McGill received grants totalling \$2980 for use in one new and two continuing projects.

Two continuing and two new projects are benefiting from grants totalling \$8450 to Queen's University, the largest being a grant of \$2900 for a new study concerned with the crystallization of mica and aimed at obtaining information that will be helpful in the age determination of certain types of minerals. Also included in the \$8450 received by Queen's is a grant of \$1750 to support publication of the *Canadian Mineralogist*, the journal of the Mineralogical Association of Canada.

For use in two continuing and two new projects, the University of British Columbia received grants totalling \$7800. The largest of these, a grant of \$2950, is for a continuing study of the trace elements in soils, rocks, and plants. In one of the interesting phases of this study, a relation is indicated between a high content of lead in limestone and the incidence of multiple sclerosis in areas underlain by these rocks and the soils formed from them.

Grants awarded to McMaster University totalled \$5050, the largest being \$2450 to support a continuing programme of geochemical studies. Grants for two new projects total \$2600, the larger of which is to support research on the origin and mode of deposition of certain types of minerals in the rocks exposed in the Niagara escarpment.

The University of Manitoba received \$4020 in two grants, one of \$1070 for a continuing project and the other of \$2950 for a new study. The former is concerned with a textural study of sulphide ores when heated. In the latter, the Coronation copper mine in Manitoba is serving as a sort of guinea pig in a co-operative, comprehensive geological, geochemical and geophysical study of an orebody. The aim of this project is to determine the relationship of the buried bedrock topography to the orebody and enclosing rocks.

Dalhousie University and the University of Alberta each received \$1950, the former for a continuance of work on studies on sediments and sedimentary processes in a laboratory model of an inland sea, and the latter for the continued study of the history of the Cordillera and related sedimentary rocks of the Western Canadian basin.

A grant of \$1750 went to the University of Saskatchewan for the continuation of research in a new field of study in Western Canada involving the systematic analysis of fossil pollen and spores as a means of determining the relative ages of sedimentary strata.

The University of Western Ontario received \$1700 in two grants of \$850 each. One of these is for further research on a method of 'operations research' as applied to prospecting and involving the calculation of the spacing of diamond-drill holes, airborne-magnetometer flight lines and the probability of success in prospecting based on past statistical data. The other is for further research on induced and remanent magnetism in rocks, a field of