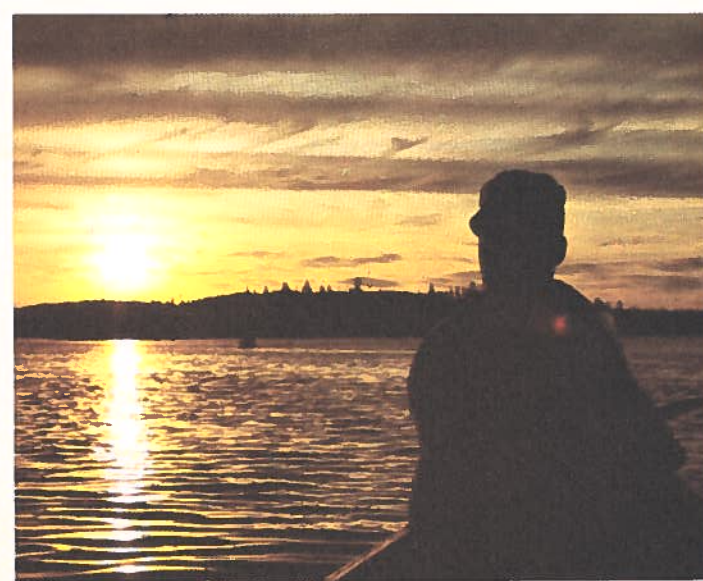
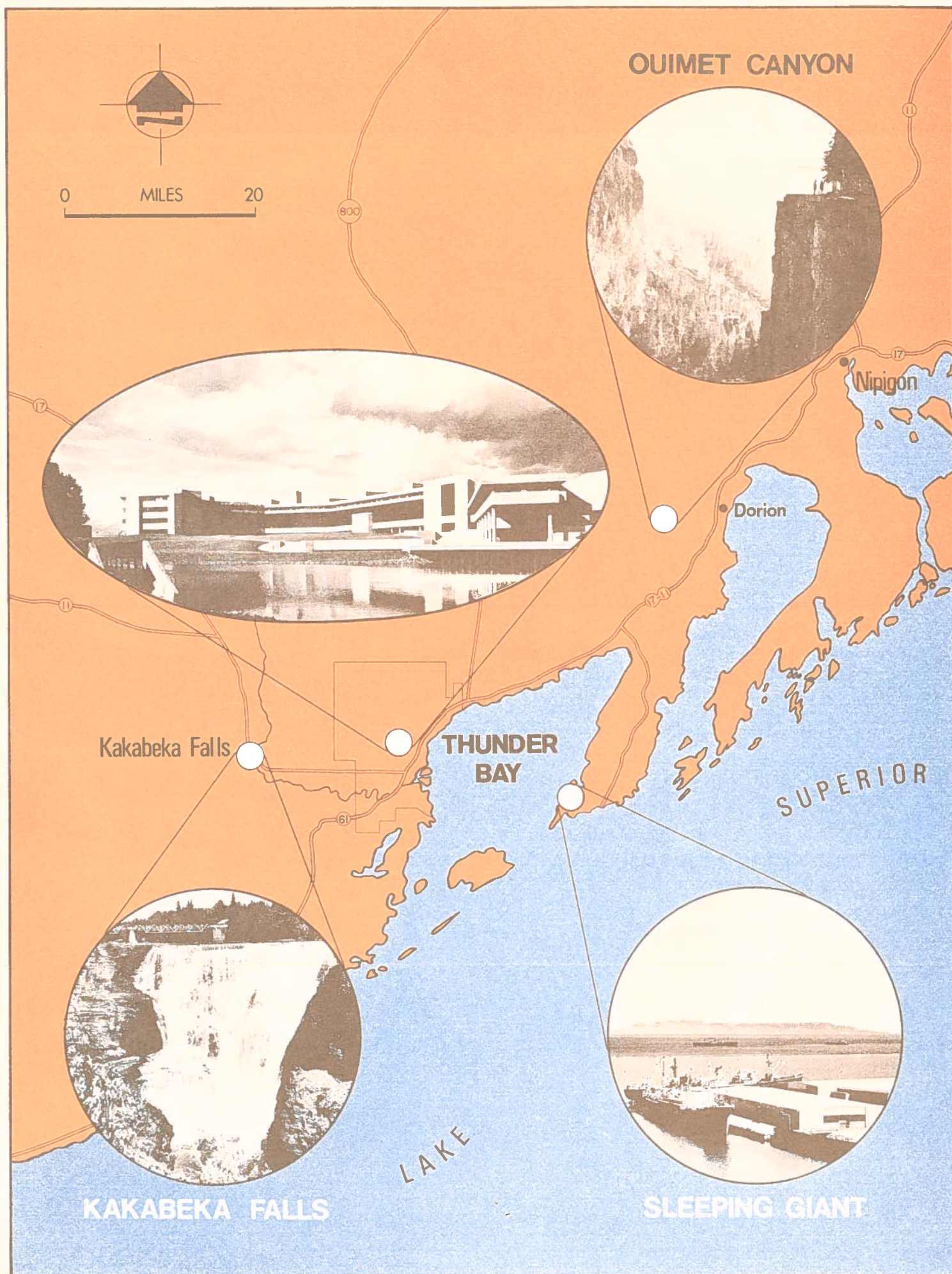


GEOLOGY





HOW do continents move?
 WHY are volcanoes geographically restricted?
 WHERE is the best place to drill for oil?
 WHAT causes ice ages?
 WHEN did the Earth's crust form?

GEOLOGY

is the science that examines the complex system on which we live — Earth. Geology is a search for those processes and mechanisms that have resulted in the hills and valleys, the oil and gas, the mountains and caves, the rivers and oceans . . . in fact, all the features and materials that make up our planet. Some processes operate for only a fraction of a second — like a meteorite impact: others span millions of years. These processes, regardless of time, have left their mark: marks which are the starting points for all geological investigations.

GEOLOGY is a vitally important science: If man is to continue living on this planet he must know it and know how to use it. The science of geology can supply many of the answers man needs.

GEOLOGY can save lives. A question currently being considered by many geologists is: How can we predict earthquakes? The answer to this complicated question will make life immeasurably better for many people.

WHY SHOULD YOU STUDY GEOLOGY?

Geology is a fascinating subject that provides the sense of perspective and proportion that is necessary when we consider the small fraction of the earth's history which has been affected by man. No student of the sciences or humanities can fully appreciate the world today without some knowledge of the geological processes that have shaped our planet and our universe. What about employment opportunities for students in geology? Undergraduate men and women are in great demand by business, industry and government agencies for employment, during summer vacation periods, as members of field parties and as assistants in research projects. Geology graduates, who have shown a sincere interest and adaptability in the profession, can look with assurance to employment in industry or governmental agencies. Post graduate employment opportunities are diverse. They range through exploration for mineral resources, to research within financial institutions that serve the mineral industry, and to work in concerned governmental agencies.

WHY SHOULD YOU STUDY GEOLOGY AT LAKEHEAD UNIVERSITY?

A career in Geology can be rewarding. But why study Geology at Lakehead University?

Well, the Department of Geology at Lakehead University prides itself on giving a great deal of personal attention and supervision to its students. Lakehead has excellent laboratories and up-to-date instruments and equipment for your use. And, the University is located in a superb, unique geological setting that allows for first-hand field study.

What better reasons could there be for studying Geology, especially at Lakehead University.



DISCIPLINES OF GEOLOGY

GEOFYSICS

Geophysics deals with the study of the Earth as a planet. It usually involves the use of geophysical instruments and methods to determine the physical and chemical characteristics of the Earth's interior. A geophysicist may also study the moon and other planets.

EXPLORATION

Firstly, it is the search for, and the discovery of deposits that contain useful minerals and fossil fuels. Secondly, it involves establishing the nature of the deposit and its development.

OCEANOGRAPHY

In this large field of study the geologist is particularly interested in the ocean floor and the ocean-continent border. He is involved with the geochemistry and and petrology of the rocks and sediments that make up the ocean floor.

GEOCHEMISTRY

Here, the geologist is primarily concerned with the abundance and distribution of elements — and their isotopes — in the materials that make up the Earth. The geologist thus obtains information and knowledge which supports and extends hypotheses about the Earth and the processes that occur on its surface, in its crust, or in its mantle.

PETROLEUM GEOLOGY

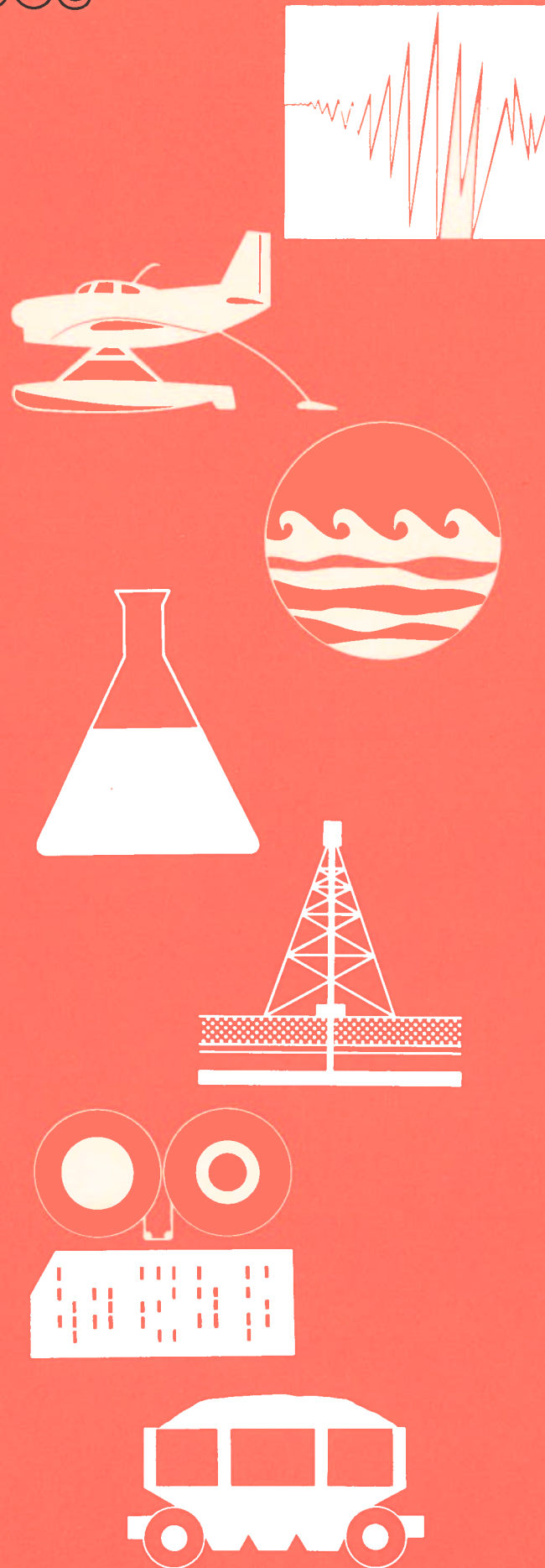
The petroleum geologist uses many of the other geology disciplines — like sedimentology, stratigraphy and geophysics — to investigate areas of the world for petroleum deposits or accumulations.

COMPUTER

The application of computer techniques to geological problems is becoming more and more important — to digest the ever increasing volume of data collected in field and laboratory investigations.

MINERAL DEPOSITS

The study of mineral deposits requires the examination of the geological setting of the deposit and of the process that led to its formation. The object: to understand the processes that culminated in the concentration of metals, energy fuels, or any of the other useful commodities found in rock formations. These studies will aid in future exploration for new mineral deposits.



MINERALOGY—CRYSTALLOGRAPHY

Generally speaking, most people think of minerals as the materials which make up the rocks of the Earth's crust. To a mineralogist, however, they are the stable end products of complex natural processes which provide important links with, or clues to the Earth's history.

SEDIMENTOLOGY AND STRATIGRAPHY

A sedimentologist investigates the processes that caused the origin of sedimentary material and how it was transported and deposited to form sedimentary rocks (such as sandstone, limestone and shale). The science of stratigraphy seeks to determine the age and correlation of sedimentary rocks.

PETROLOGY

Many different rock types can be observed at the Earth's surface. A study of the processes and physical conditions that combined to produce these various types of rocks form the basis of petrology.

EARTH STRUCTURES

Most rocks are deformed to some degree. These deformations can be observed in folds, faults, joints and many other features. A study of these features enables the geologist to speculate about what natural processes were responsible for their development.

ISOTOPE GEOLOGY

Isotope geology can be divided into two broad fields of study: The first is the study of radioactive elements — such as potassium or uranium — that occur naturally on Earth. These can be used to determine the age of rocks and minerals.

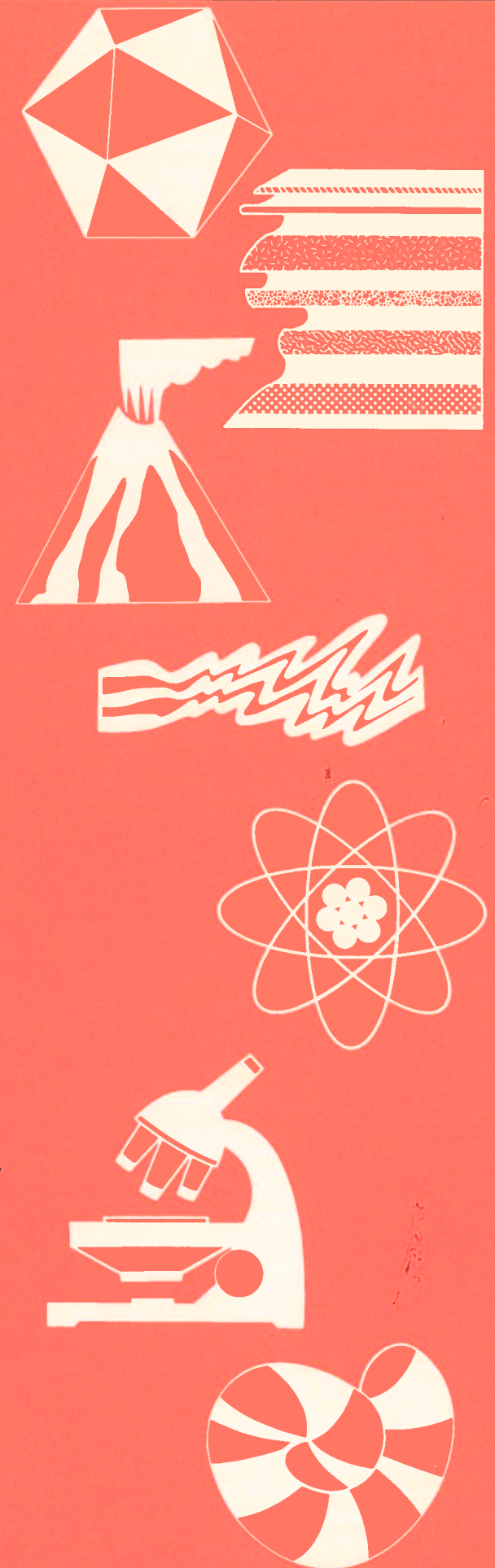
The other broad area of Isotope geology involves the study of the stable isotopes found in elements like oxygen, hydrogen and sulphur. The results of these stable isotope studies can be employed to determine the mechanisms of geological processes — for example, the origin of ore deposits.

MICROSCOPY

As a valuable and standard procedure to identify and classify rocks and minerals, they are studied in thin sections under the microscope.

PALEONTOLOGY

Paleontology is the science of ancient life. It includes the study of the evolutionary sequences of taxons (A unit of any rank, e.g. a particular species, genus, order, family etc.) . . . A geologist uses the science of paleontology to determine the age and origin of sedimentary rocks.



Programs in GEOLOGY

The Department of Geology co-operates closely with other departments within the University to provide various programs of study — each leading to a financially rewarding and intellectually satisfying career.

GEOLOGY WITH CHEMISTRY

If you intend to engage in graduate studies and research, or to make a career in mining geology or exploration geology (in Provincial or Federal Government Geological Survey Departments), this program would be most suitable for you.

GEOLOGY WITH PHYSICS

Your career interests may lie in the field of geophysics — especially in its application to the Petroleum and Mining industries — or you may wish to engage in graduate studies and research. If this is what you seek, our program would be most suitable for you.

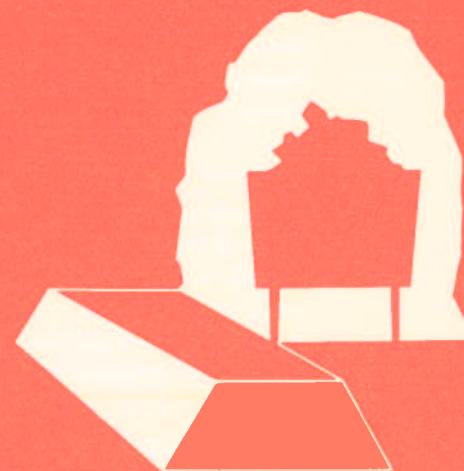
This program has been approved by various Ontario University Departments of Geophysics and the Canadian Society of Exploration Geophysics.

GEOLOGY WITH ECONOMICS

After completing this course of study, you would be well prepared for a career as a Mineral Economist. Your services would be sought by Government Services — like the Federal Department of Energy, Mines and Resources or the Dominion Bureau of Statistics. As a Mineral Economist, other opportunities await you in Finance and Brokerage Houses, Banks, or Mining and Petroleum Corporations.

For a long time, geologists have known that, in the past, changes occurred in regional geologic features — mountain chains, for instance — and in organic material — a process of evolution. Not until recently, however, has the idea of change been applied to the continents and ocean basins. They had always been thought to be stable and permanent features. But,

the vast increase in geological knowledge through the last decade has shown the continents and ocean basins to be highly mobile systems: systems in which changes — spanning a spectrum from microscopic to global — have occurred in the past and are continuing to happen today. ►



We are proud of our undergraduate programme in Geology at Lakehead University. We feel that our location at Thunder Bay, Northwestern Ontario provides us with one of the best settings for the study of geology in Ontario. In addition, our small classes relative to some of the larger universities in Ontario, allow our faculty the opportunity of giving personal attention to students in lectures, laboratories and counselling. Our programme is balanced so that students can obtain meaningful employment in industry or government after graduation with a B.Sc. (Geology) or they may continue their studies to the M.Sc. or Ph.D. level.

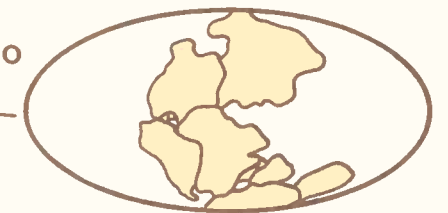
If you are interested in our programme in geology and would like additional information write:

*The Chairman,
Department of Geology,
Lakehead University,
Thunder Bay, Ontario. P7B 5E1*

You can be assured of a personal and speedy reply to any of your queries.

Continents Adrift

200 million years ago



135 million years ago



TODAY

