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## Russians in the Antarctic

During 1966 the Eleventh Antarctic Expedition carried out an extensive complex of scientific research as part of the program of the International Years of the Quiet Sun. The Expedition worked in Mirny and at the scientific stations of Vostok, Molodezhnaya

and Novolazarevskaya. Observations were also conducted at the two poles of Antarctica — the southern magnetic pole and the "cold pole". At the Vostok station, meteorologists explored the climate, the state of the ionosphere, northern lights, cosmic rays, the geomagnetic field and the source of radio waves. Deep in the mainland south of the Davis Sea coast, research was conducted to ascertain the thickness of the ice sheet by the radiolocation method. One of the main tasks of the Expedition was to inform Soviet whaling flotillas of the weather in southern latitudes. Geological and geographical research was carried out in the mountains of Enderby Land, and glaciological and hydrographic research was undertaken in Alaskeyev Bay. The program of the Expedition included medical observations of man's acclimatization to conditions in Antarctica. Oceanographic research was carried out from aboard the *Ob* in the waters of Antarctica between Pravda Coast and Queen Maud Land.

The results of the research and discoveries made by the Twelfth Soviet Antarctic Expedition were summed up at a recent session of the Learned Council of the Leningrad Research Institute of the Arctic and Antarctic, which is the Soviet Union's centre of polar exploration.

The scientists pointed out that during the expedition of a tractor-sleigh train to the Pole of Relative Inaccessibility a new method was used for the first time for the measuring by radar of the thickness of the ice cap of Antarctica. The method of seismic sounding used up till now made it necessary to drill wells in the ice and use explosives. The new method is more economical and efficient: the impulse from the signal goes through the ice and, after being reflected by the rock, is registered by instruments. It has been possible to obtain signals reflected from a depth of 2,000 to 2,200 m. Experiments have begun on using this method from a plane. If success is achieved, it will be possible to "photograph" the relief of the continental bedrock of the Antarctic simultaneously over wide areas. Soviet glaciologists have covered 260 km. in the area of Mirny observatory, and have measured the thickness of the glacier, from a plane, on a route 1,500 km. long.

It has been established as the result of investigations that the central part of the glacial cap within Eastern Antarctica is the world's biggest and almost ideal elevated plain. The central and the highest part of this plain has been named Soviet Plateau.

The polar explorers have established that the highest point of the surface of the glacial

cap in Eastern Antarctica is at an altitude of 4,000 m. and is between the research stations Sovetskaya and the Inaccessibility Pole. This area is regarded as ice-divide territory from which antarctic ice flows radially in different directions.

Soviet glaciologists have made one more discovery: they managed to establish the "biography" of the giant iceberg in the Sea of Astronauts. This iceberg is 40 m. high, has a settlement of 250 m. and an area of 7,000 sq. km. It is assumed that the iceberg separated from Emery glacier in the middle of 1964 and then drifted 1,600 km. in 3 years.

Soviet glaciologists are also continuing to study the structure and physico-mechanical properties of the antarctic sea ice.

A sensation in the world of science was produced by the report of the study of the intrusion of charnokite — a granite type rock which constitutes the most ancient granite of the earth. Investigations have shown that this type of rock has maximum spread in the foundation of the Antarctic Platform. And this, in turn, makes it possible to explain the origin of charnokite.

Geologists have made some other remarkable discoveries in the Antarctic. They investigated a large part of the coast of Eastern Antarctica (about 800 km.) and carried out a small-scale geological survey of Queen Maud Land and Enderby Land, and discovered there rich deposits of coal and iron ore. Also discovered were traces of manganese, titanium, molybdenum, lead, zinc, silver and tin.

Yuri Kruchinin, Master of Geography and participant in two antarctic expeditions, considers that the sixth continent makes it possible to study in the fullest possible way the complex of electromagnetic phenomena appearing during the interaction of solar and cosmic corpuscular fluxes with the magnetosphere of the earth. It is precisely in the Antarctic where the South Magnetic and Geomagnetic Poles are situated and where the outer radiation belts of the earth touch its surface, that one can obtain the fullest possible information about the distinguishing features of the changes in the intensity of cosmic rays, Aurora, passage of radio waves, etc.

At present the thirteenth Soviet Expedition is working in Antarctica.

At the end of November, 1967, the *Ob* sailed from Leningrad for Antarctica with the members of the Thirteenth Expedition who will remain there for the whole of 1968.

*Avtonom Nepomnyashchi,*  
Novosti Press Agency Correspondent

## Statement of Representatives of the U.S. Army before the Danish Commission, 14 May 1968

Through the great generosity of the Government of Denmark the United States Department of the Army has been enabled to engage in a fifteen-year cold regions research and development program, using Greenland as a laboratory. This effort involved the discovery of many new aspects of glaciology, atmospheric physics, transport of snow, structure of permafrost, and the application of these findings to the development of new and better ways of building ramp roads on the Ice-Cap, snow compacted runways, sub-surface encampments, and transportation lines. Modifications of vehicle design also resulted from this program. Work was conducted in all parts of Greenland, from the northernmost tip of Greenland to the southern extremities; from Thule to Nord; and thence to an extensive part of the eastern coastline.

The results of these investigations, which occupied the attention of several hundred scientists, resulted in an impressive series of publications and films which were transmitted to The Danish Commission for the Scientific Exploration of Greenland.

Military expenditures in Southeast Asia weigh heavily upon all parts of the military program, including research and development. For this reason the Department of the Army has determined temporarily to discontinue its Greenland research program. It is sincerely desired that the Government of Denmark again extend its generous permission at some future time when the Department of the Army will once again be in a position to continue its cold regions program in Greenland which, as always in the past, served as a perfect laboratory for all kinds of high latitude research.

Dr. Leonard S. Wilson, Chief, Environmental Sciences Division, Office of the Chief of Research and Development, U.S. Department of the Army, appeared before the Danish Commission in May 1968, to discuss the results of the fifteen-year Army effort.

## Arctic Biology

A second edition of Arctic Biology consisting of ten papers presented at the 1957 and one presented at the 1965 Biology Colloquium at Oregon State University was