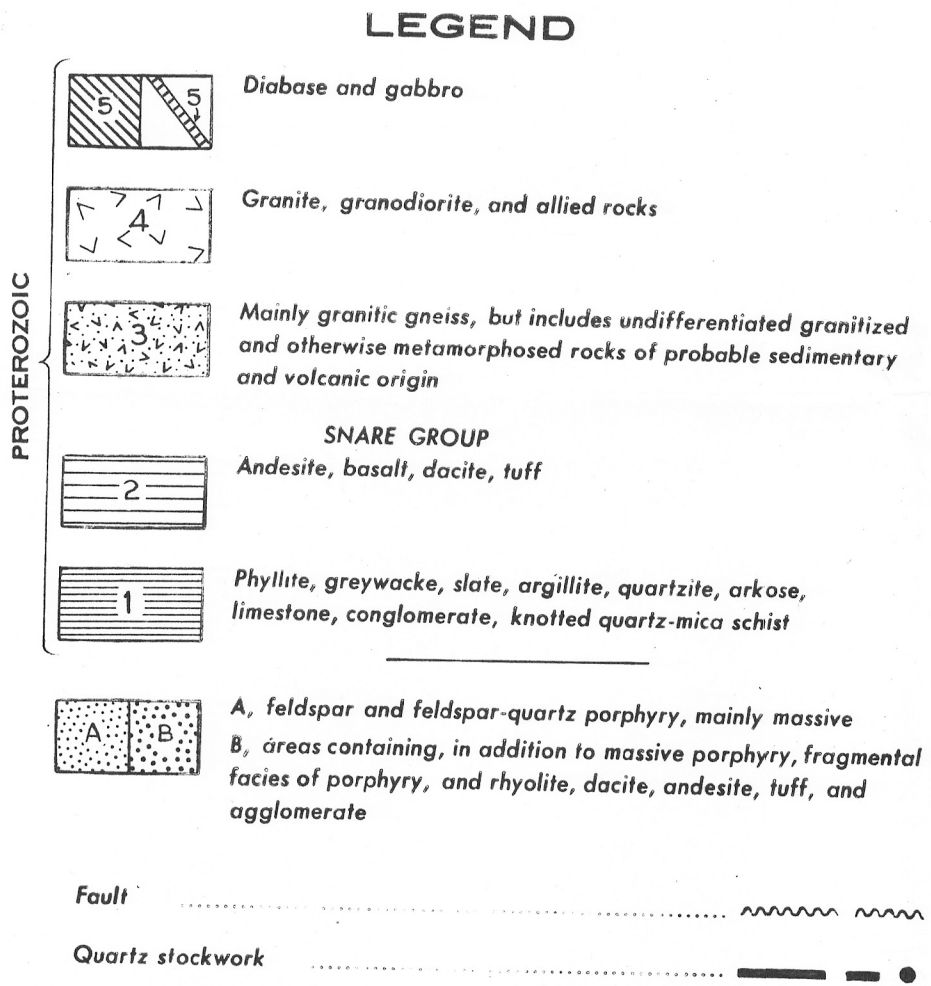


GEOLOGICAL SURVEY



Geology by C. S. Lord, 1946.

DESCRIPTIVE NOTES

Camsell River map-area, comprising 3,950 square miles, lies 225 miles north-northwest of Yellowknife on Great Slave Lake, and 50 miles southeast of Fort Radium (Eldorado mine) on Great Bear Lake. Its northern boundary is 37 miles south of the Arctic Circle. Elevations range from 560 feet in the northwest corner (Great Bear Lake) to more than 1,700 feet near the northeast corner, and local relief commonly exceeds 250 feet. The surface has been polished and gouged by ice moving from east to west or a little north of west. The entire map-area is timbered, although very sparsely so in the northeast corner and in the central, granite area. In 1946 the main lakes were free of ice by June 15, and ice began to form in the smaller lakes about September 25.

The strata (1) assigned to the Snare group are mainly grey to buff weathering, thin-bedded, fine-grained greywackes, slates, and phyllites. Near the granitic intrusions (4) these have been altered to compact, brown-weathering hornfels, whereas in the immediate vicinity of the granitic gneiss (3) they have been recrystallized to knotted quartz-mica schists containing andalusite crystals up to an inch in diameter. The beds probably average less than an inch in thickness. Occasional layers as much as a foot thick grade from crossbedded white quartzite at the base to phyllite or slate at the top. A band of chocolate-brown conglomerate, arkose, slate, and argillite, with a maximum width of about 1,500 feet, outcrops on the west side of Wopmay Lake and at intervals for a distance of 13 miles north of the north end of the lake. It is thought to be intertongued with the other strata of the group. The conglomerate pebbles are well rounded and are mainly of brown feldspar-quartz porphyry lithologically similar to that of neighbouring porphyritic bodies (A), but a few are of white, medium-grained quartzite, grey phyllite, and a pink, fine-grained, argillaceous, granitic rock. The Snare strata generally dip more steeply than 75 degrees.

Greenstone, consisting of dark green, massive to well-pillowed andesite and related lavas (2), conformably overlies bands of sedimentary rocks (1) in a few places, but generally, due to the prevalent steep dips and the difficulty in determining the tops of beds, the succession is unknown. The lavas closely resemble those of the Yellowknife group, and it is doubtful if they could be distinguished from that group by lithology alone.

The gneissic complex (3) comprises mainly intrusive material, but includes many bands, layers, and irregular bodies of sedimentary or volcanic origin now in various degrees of assimilation. The granitic gneiss is mainly a well-bedded, fine- to medium-grained, pink or grey rock. Intercalated layers of mica schists, commonly rusty due to disseminated pyrite, are probably of sedimentary origin. Quite extensive irregular areas within the complex are underlain by dark green or black, medium-grained, massive to slightly foliated, amphibole-feldspar-quartz rock. Along Wopmay River Valley and its northerly extension the gneiss grades into knotted quartz-mica schist (1) through as much as several hundred feet of mixed schist and gneiss. The banded members of the complex vary widely and commonly abruptly in strike and dip. However, in the southeast corner of the area the average trend, as reflected by the topography, changes progressively from about south near Wopmay River, through east to about north-east near the east edge of the map-area.

The intrusive rocks (4) are mainly medium- to very coarse-grained, equigranular to porphyritic, pink or grey, biotite granodiorite and granite, and are almost free of inclusions. They are massive, except for a slightly foliated border, as much as 2 miles wide, adjoining the belt of Snare strata (1, 2) extending northerly from Wopmay Lake. The contact with the Snare formations is sharp, and only rarely were granitic dykes found within the adjacent strata.

Dikes of diabase and gabbro (5) cut off either consolidated rocks, including the large quartz stockwork southwest of Hansen Lake. They range in width from a few inches to several hundred feet, and most of them are nearly vertical. One or more dykes, with a gentle northerly dip, form the large bodies of diabase and gabbro extending southwesterly from Calder River, through Hansen Lake, to Camsell River.

The porphyries (A) exhibit blocky, waxy, greenish white to pink feldspar phenocrysts in a dense to finely granular, brown, grey, or purplish groundmass. Some contain a few rounded quartz eyes, and locally these are as abundant as, or more plentiful than, the feldspar grains. Most of the porphyries of this group are massive, but those accompanying the band of sedimentary and volcanic rocks extending northerly through Wopmay Lake are commonly slightly foliated and streaked. Little evidence was found as to the origin of the rocks of this group and they may be intrusive or extrusive or both.

Elsewhere (B) the porphyries commonly contain scattered porphyritic fragments almost identical with the groundmass, or are accompanied by acid to intermediate lavas and well-bedded pyroclastic rocks. This assemblage is at least mainly of extrusive origin. Near Ellington Lake these rocks commonly display dips of less than 20 degrees.

The presence of numerous porphyry pebbles in conglomerate intertongued with the Snare strata (1) suggests that the porphyry complex (A, B) is, at least in part, older than some of these strata. Other phases of the complex may be much younger and closely related to the granitic rocks (4). These phases occur as all-like bodies within the phyllites and greywackes (1), and in the adjoining Ingray Lake map-area were found as dykelets cutting a conglomerate holding pebbles of feldspar-quartz porphyry.

No prospectors were seen in the area in 1946. A little prospecting was done during a few previous seasons, especially in the belt of volcanic and sedimentary formations extending northerly from Wopmay Lake to beyond Calder River but, so far as known, no significant occurrences of gold were found. The quartz stockworks range up to about 750 feet wide and contain minute amounts of specularite, pyrite, and chalcocite. Some are known to occupy faults and others may do so. Rusty pyritic gossans are common within schistose members of the gneissic complex.



PRELIMINARY GEOLOGICAL MAP 47-4
CAMSELL RIVER
NORTHWEST TERRITORIES

Scale: 1 inch to 2 miles

Surveying was completed by the Topographical Survey,
1947