

UPPER SUTTON CREEK AREA

(92C/16c)

By G.E.P. Eastwood

INTRODUCTION

This area lies south of Cowichan Lake and may be reached from either Honeymoon Bay or Caycuse by main logging roads. Local access is provided by Truck Road 3, which is badly eroded but was still passable by four-wheel-drive vehicle as far as Sutton Creek in 1981 (see Figure 1).

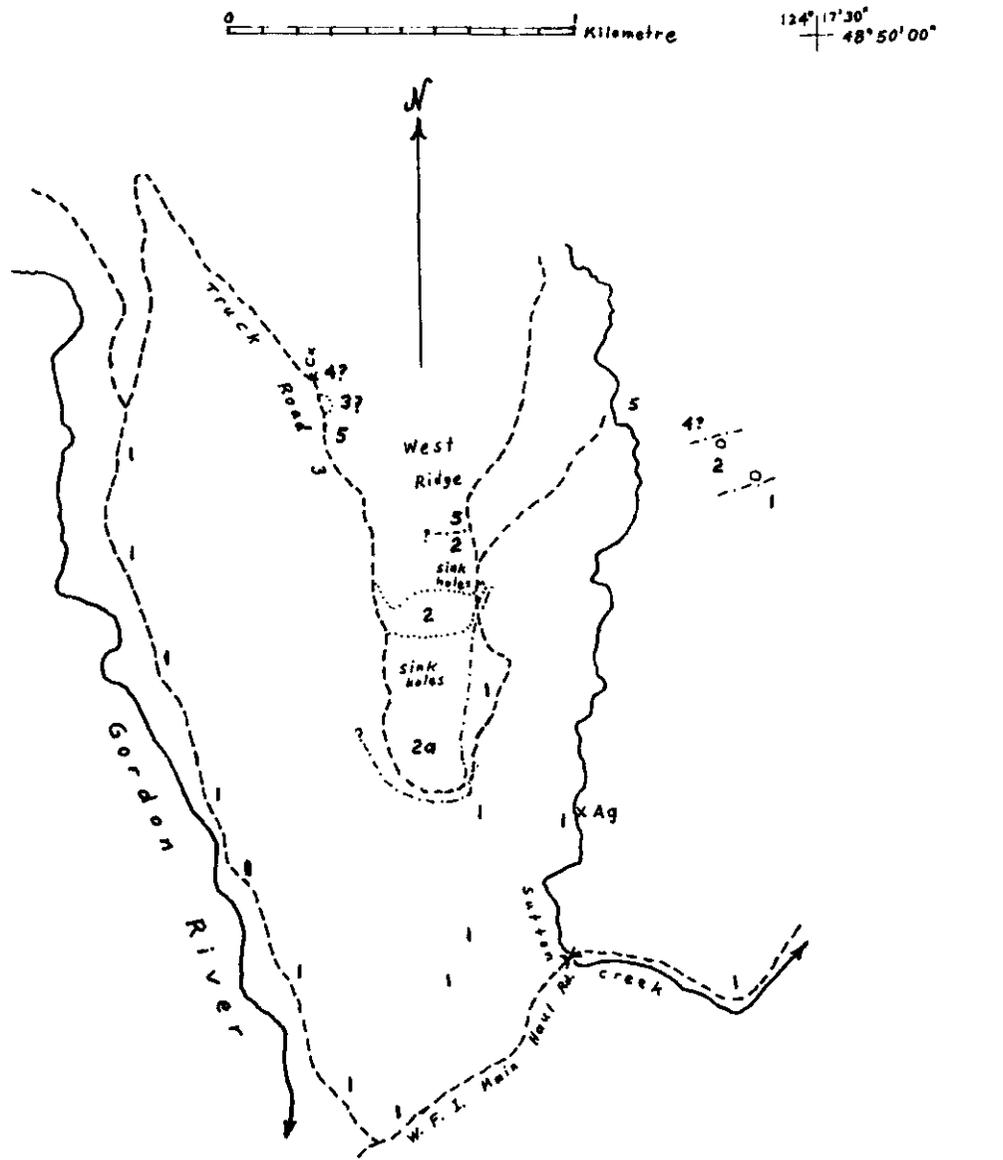
Sutton Creek flows down a steep V-shaped valley between two spur ridges onto a flat-floored valley followed by the main haul road. The west ridge is fairly flat crested. Much of the area is covered with second-growth timber, and growth is thick on the Gordon River slope.

About 1971 Western Forest Industries leased the mineral rights to a tract of land extending westward from upper Sutton Creek from the Esquimalt and Nanaimo Railway. In 1980 the company instructed its prospector, V. Allan, to assess the mineral potential. He asked for assistance with the geology, and the writer spent an aggregate of 13 days in 1981 cruising roads in and east of the area of Figure 1 and mapping on the west ridge. The company kindly provided free accommodation for the writer and his assistant.

GENERAL GEOLOGY

Most of the area between Cowichan Lake and the main haul road is underlain by Bonanza volcanic rocks, but along the section of the Gordon River road (Figure 1) the rocks are dark greenish grey or grey amygdaloidal Karmutsen Formation lavas. On the south nose of the west ridge the rock is generally much sheared and rubbly, a feature characteristic of the Bonanza, but creek exposures show that the rocks are Karmutsen.

A solid mass of blue-grey Quatsino limestone occupies part of the summit and west slope of the west ridge. It is massive, a typical feature of Quatsino limestone that has been moderately metamorphosed. A few andesite dykes occur in the limestone at the north end of the exposure. Both north and south the area is largely covered, but numerous sink holes indicate extension of the limestone. On the south part of the ridge crest small outcrops of limestone are interspersed with outcrops of massive andesite, and limestone is exposed in two road cuts. No limestone was found below the road. In the Kennedy Lake area and elsewhere on Vancouver Island the Quatsino limestone is extensively intruded by massive andesite or basalt, which is believed to represent a resurgence of Karmutsen volcanism. Intrusion into the lower part of the limestone



LEGEND

Symbols

- | | | | |
|-----|--|------------------------------|---------|
| 5 | Areas of abundant porphyry dykes | Area of continuous outcrop | |
| 4 | Bonanza Formation | Inferred formational contact | .. |
| 3 | Parson Bay Formation | Mineral occurrence | x |
| 2 | Quatsino Formation | | |
| 2a: | limestone remnants in intrusive andesite | | |
| 1 | Karmutsen Formation | | |

Figure 1. Upper Sutton Creek area.

on the west ridge has completely disaggregated the limestone so it now occurs as blocks in the andesite. Along the south part of the third leg of Truck Road 3 the rock is mostly amygdaloidal Karmutsen lava. Two outcrops of limestone occur on the east ridge and suggest that the limestone body strikes northeastward. Here the limestone is succeeded to the north by a reddish grey volcanic rock which is assumed to be Bonanza. Near the

end of the east branch of Truck Road 3 the reddish rock passes northward to a chert-like rock such as is seen in lower Bonanza in other areas. Westward, the limestone does not reach the Gordon River road within the map-area. It must either be faulted or dip at a low angle to the north and pass under the covered area around the first switchback.

After a covered interval, the second leg of Truck Road 3 cuts through andesite containing bands of limestone and calcareous argillite. Some thin limestone bands are black and resemble Parson Bay Formation, but one comprises 10 metres of thinly banded light grey limestone. This section has no counterpart on the east ridge. The andesite is intruded by a 4.5-metre monzonite dyke and by many small dykes of fine-grained light grey feldspar porphyry. Shear zones cut all the rocks in several directions.

On the east ridge the Bonanza-like rocks are cut by diorite dykes up to 25 metres wide. These in turn are cut by small dykes of feldspar porphyry. At the road junction on the west ridge a similar porphyry dyke intrudes limestone and intrusive andesite, and farther north another intrudes a nondescript grey rock.

STRUCTURAL GEOLOGY

The distribution of the Quatsino limestone suggests that it dips moderately northwestward on the east ridge and gently toward the west-northwest on the west ridge. A flow contact in Karmutsen on the Gordon River road, 365 metres south of the foot of Truck Road 3, strikes east-west and dips 25 degrees north. The banded limestone strikes 050 degrees and dips 55 degrees northwest. However, the belt south of Cowichan Lake is intricately faulted and isolated attitudes may not be significant. Individual shear zones are legion, but no major faults have been demonstrated.

ECONOMIC GEOLOGY

Two mineral occurrences have been found in the map-area. At the point indicated on Truck Road 3 (Figure 1) a little chalcopyrite and arsenopyrite occur with pyrite in a rusty, altered, dense rock. At the point indicated in Sutton Creek a little wire silver occurs with pyrite in a shear zone in Karmutsen lava. However, there is much barren shearing in the area and the prospects are poor. There is also a lack of skarn development in andesite intrusions into Quatsino limestone; such alteration usually occurs where mineralizing solutions migrate through the rocks.

REFERENCE

- Eastwood, G.E.P. (1968): Geology of the Kennedy Lake Area, Vancouver Island, British Columbia, B.C. Ministry of Energy, Mines & Pet. Res., Bull. 55, 63 pp.