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REPORT No. 1946/28 .

REPORT ON BATCHELOR GOLD PROSPECT,
NORTHERN TERRITORY.

By

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CANBERRA.

8th August, 1946.

DEPARTMENT OF SUPPLY & SHIPPING,

Bureau of Mineral Resources

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SITUATION.

The Batchelor gold prospect is situated approximately 3 miles easterly from Batchelor railway siding on the Darwin-Birdum Railway, and is approximately 50 miles by road south of Darwin. The prospect is about 30 chains north of the bitumen road which connects Batchelor airfield to the Darwin-Alice Springs highway. The deposit is thus in an accessible position by rail, road or air.

MAPPING.

Three days from May 26 to 28th, were spent at the deposit. Mr. S.M. Sneddon, Inspector of Mines Alice Springs, accompanied the writer and collaborated in the mapping and sampling.

The result of the mapping is shown on the plan accompanying this report. Scale 1" = 100', with inset showing sampling results, scale 1" = 10'.

HISTORY.

The prospect was discovered in January, 1943, by Mr. E. Schwenke, then a major in charge of a unit stationed in this vicinity. In the same month 12 cwt. of ore were crushed at the Maranboy tin battery and returned 12 fine oz. of gold, most of it in coarse pieces. No leases were granted during the war, but in June 1946 Mr. Schwenke and associates pegged nine leases while another 11 leases had either been granted or applied for at the time of the inspection. Mr. Schwenke's leases are at present under option to Clutha Development Limited.

TESTING.

The only workings on the leases at the time of the writer's visit consisted of approximately 150 feet of costeaning to a depth of 1 to 3 feet and four shallow pits on Goode's prospect as shown at the eastern end of the plan.

GENERAL GEOLOGY.

The rocks of the district are predominantly sedimentary consisting of interbedded slate, quartzite, conglomerate and limestone dipping at high angles and evidently forming part of the Pine Creek-Brooks Creek-Adelaide River series, which is considered to be of early Proterozoic age and has been correlated with the Mosquito Creek series of North-Western Australia. The beds are strongly folded and faulted, are regionally metamorphosed and have been intruded by batholiths and laccoliths of granite.

The gold prospect (see plan) occurs in a sill of aplite, a fine to medium grained rock consisting predominantly of quartz and feldspar. The sill is 250 to 400 feet in outcrop width and was traced for a distance of 3600 feet but extends much further. The aplite is underlain by a very competent bed of conglomerate varying from 20 to 100 feet in outcrop width and is

overlain by a second bed of conglomerate averaging only about 15 feet in thickness. This in turn is overlain by a quartzite formation which probably exceeds 500 feet in thickness. The beds below the footwall conglomerate could not be mapped owing to the presence of detritus and soil. The above rocks strike at 75 to 80° and dip southward at angles of 65 to 70°.

ECONOMIC GEOLOGY.

Structure - The rocks have been subjected to considerable shearing stresses; thus in the footwall conglomerate boulders up to 12 inches in diameter have been rolled out into egg-shaped forms and have been cleanly cut through along lines of parting. The aplite, particularly for 150 to 200 feet above the footwall conglomerate, has been converted to mylonite, the planes of foliation trending parallel to the bedding. Other prominent planes parallel the beds in strike, but dip flatly southward at about 30°. In addition to the above structural planes a minor set strikes approximately north-south and has a very steep to vertical dip.

Mineralisation - The very rich crushing referred to above was obtained within 3 feet of the surface from a quartz-tourmaline vein some 16 feet in length and varying in width from 3 to 15 inches, occupying one of the north-south fractures referred to above. It is situated in the sheared aplite. Four samples cut from the vein averaged 12.4 dwt. over a width of 15.75 inches. (Including some material from either side of the vein). A sample over a width of 24 inches taken 2 feet south of the southern end of the vein assayed 6.7 dwt. gold per ton. These samples were taken after the rich ore originally showing had been removed. However, the vein is too small to warrant anything but the most limited mining operation.

The large bodies of crushed aplite lying on top of the footwall conglomerate appeared at the time of the inspection to be worthy of some testing. It was found that these contained much sericite, quartz, and a moderate sprinkling of limonite boxworks apparently after pyrite; occasional crystals of pyrite were also found. The aplite also contains quartz-tourmaline veinlets similar to that in which the gold was found. However, prospectors had tested the creeks below these outcrops and had found very little gold and the writer also dollyed and panned some 20 samples from the most promising looking localities. No gold was obtained from any of the samples. Goode Bros. obtained only occasional colours of gold from the pits shown at the eastern end of the accompanying plan.

As shown in the inset, however, a channel sample over a distance of 22 feet along a trench running westward from Schwenke's gold-bearing quartz vein assayed 2.1 dwt. gold per ton and a sample 21 feet to the eastward assayed 3.2 dwt. gold per ton. The material sampled was crushed aplite of similar appearance to the rest of the mylonitised zone but was probably enriched in gold owing to its proximity to the crack along which fluids rich in gold arose.

The association of gold with quartz-tourmaline rock is most unusual and indicates a high temperature of deposition. It is not a good augury for large-scale gold mineralisation. Nevertheless in view of the gold obtained by assay from the crushed aplite on either side of Schwenke's quartz vein, some further sampling of the aplite away from this locality is desirable. The quartz-tourmaline veinlets are extremely hard and it is just possible that they contain some gold which was missed by dollying and panning. The possibility that the quartz-tourmaline and quartz-pyrite veinlets cutting the sill contain enough gold to warrant a large low-grade operation is considered

very slender, but in order that no chances should be overlooked it is being arranged that Mr. L.C. Noakes should cut a further ten to fifteen samples and have them fire-assayed.

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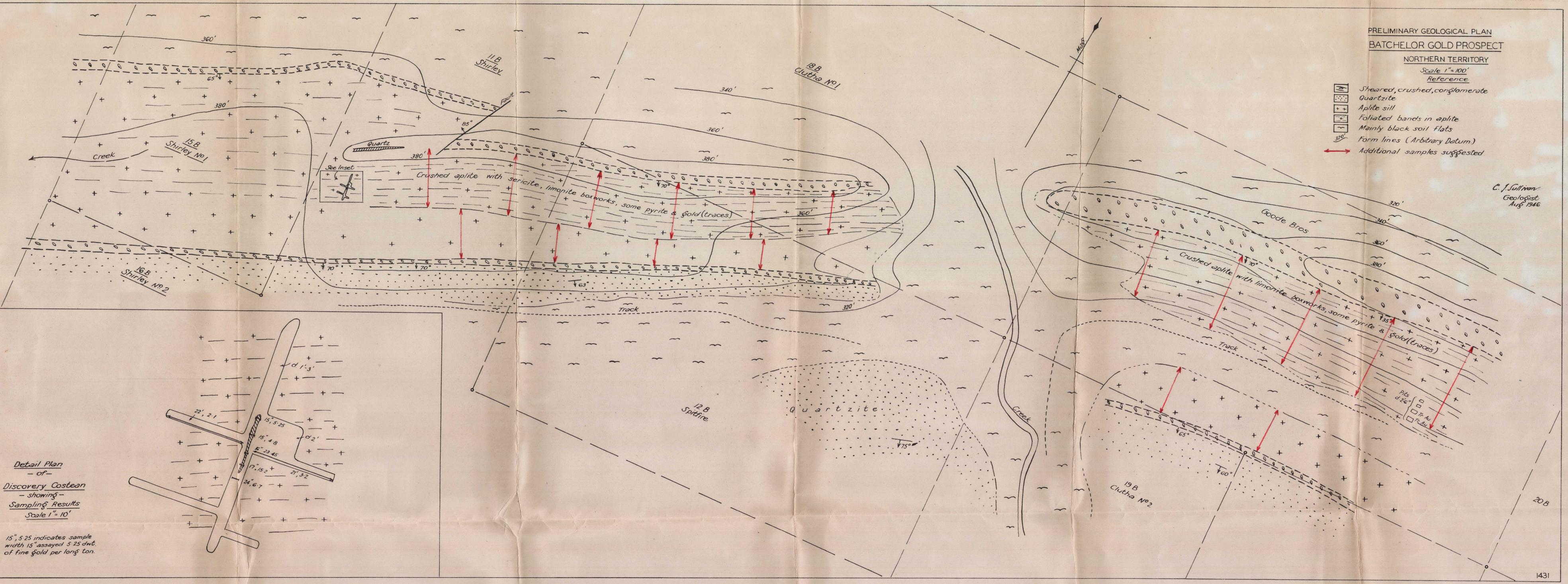
PRELIMINARY GEOLOGICAL PLAN
BACHELOR GOLD PROSPECT

NORTHERN TERRITORY

Scale 1" = 100'
Reference

- Sheared, crushed, conglomerate
- Quartzite
- Aplite sill
- Foliated bands in aplite
- Mainly black soil flats
- Form lines (Arbitrary Datum)
- Additional samples suggested

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Geologist
Aug 1946



Detail Plan
- of -
Discovery Costean
- showing -
Sampling Results
Scale 1" = 10'

15", 5.25 indicates sample width 15" assayed 5.25 dwt. of fine gold per long ton.

