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8. Prospecting on Cape River Goldfield.

MEMO. RE APPLICATION FROM RESIDENTS FOR ASSISTANCE IN PROSPECTING THE FIELD.

By E. O. Marks, B.A., B.E., Assistant Government Geologist.

In the application mention was made of four separate localities which, in the opinion of the petitioners, should be prospected, viz.:

1. Gray's Flat, between Norwood and Rush Creek.
2. Cornelia.
3. Tableland, west of Mount Remarkable.
4. Sarah Houston, or Mystery Reef.

The first three are in alluvial ground, Nos. 1 and 2 being thought possibly to be continuations of the "Deep Lead," with leads worked at Specimen Gully and Sandy Creek respectively.

Before considering the alluvial propositions, it is well to recall that the Deep Lead and its probable continuation north of the Cape River at Milkman's Point was the source of most of the alluvial gold got on the Cape, and at one time supported a population of 3,000. The Deep Lead was described by Mr. Rands in his report.
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Rands in his report on the Cape River Goldfield in 1891 and subsequently in 1894. From Mr. Rands's reports and information gathered on the spot, it appears to have been narrow at the north end and to have widened out or become poorer to the south. The conditions under which the gold was concentrated are difficult to understand, as the usual theory of an old river channel must be modified in view of the fact that the rich "wash" occurred in a north and south belt regardless of the surface contours of the bed rock. Whereas exceptionally rich ground was obtained on Red Hill at a depth of not more than 2 ft., west of this in low ground where the bottom was 30 ft. deep the gold found was not payable.

The lead was worked again in 1894 at the southern end of the old workings. South of this, again, trials have been made on Rush Creek, but no payable gold discovered.

1. BETWEEN RUSH CREEK AND NORWOOD.

The country here is a similar formation to that which covers the leads at Specimen Gully and Sandy Creek, and forms the tableland west of Mount Remarkable. At the latter place it has been mapped by Mr. Rands as Desert Sandstone, though of the age of the leads he was unable to form any opinion. The formation is similar as well to a tableland, also considered to be Desert Sandstone, east of the Deep Lead, on which Convingham's (or the Chemist's) shaft was sunk. This latter was unsuccessful, only a few colours of gold being obtained. There is a slight escarpment on the south of the position now suggested, and colours of gold are said to have been obtained in the gullies at the foot of the escarpment. It is also considered that as this position is more or less on a line with the Deep Lead, and between it and the lead at Specimen Gully, a trial should be made. As already pointed out, the ground on Rush Creek between this and the Deep Lead has already been tested, with unfavourable results. The workings on the lead at Specimen Gully, which must not be confused with the rich alluvial workings in the bed of the present stream, do not appear to have been very successful, and there is little reason to suppose that the gold found was the same as the Deep Lead. It would be wellnigh useless to sink a single shaft and drive in the locality suggested, merely on the off-chance of striking a payable run of gold; and the making of a series of shafts and drives (probably of considerable depth), such as would be necessary to properly prospect the ground across the supposed continuation of the lead, would involve an outlay not justified by the prospects.

It appears that this locality is erroneously named "Gray's Flat" in the petition.

2. CORNELIA.

Near Cornelius Station two or three shafts have been sunk close to the outcrop of a large white quartz reef. One shaft, 17 ft. deep, is reported to have produced a few pennyweight slugs of gold; another
shaft, 30 yards further west, did not bottom at 40 ft., the water being too heavy for further work. The supposition is that the ground here is the continuation of the lead worked further up Sandy Creek and of the Deep Lead. The formation is probably the same as that covering both the Sandy Creek and Deep Lead, but there appears no reason to suppose that the gold wash continues in this direction. If the shafts already sunk had been anyway promising, it is certain that more work would have been done at the time. The Government prospecting party in 1891 did some work round the Sandy Creek lead, but without success, and there is little to encourage further blind prospecting in the neighbourhood.

3. Tableland, West of Mount Remarkable.

This Tableland is situated at the heads of Specimen and Store Creeks on the south and Bush Creek on the north. The very rich alluvial gold obtained in Specimen Gully probably had its origin in the numerous reefs which have been worked in the locality. That gold, however, occurs under the formation of the tableland there is no doubt, for at the head of Store Creek gold has comparatively recently been obtained in a tunnel on the surface of the underlining granitoid schist. As the operations have been suspended they presumably became unremunerative. From the levels at which the bed rock outcrops it has been suggested that an old valley now covered by the tablelands exists in this neighbourhood, and that it would probably form an auriferous lead.

While the first contention has a certain degree of probability, to decide which a closer examination would be necessary, there is little reason to assume that the ground would contain payable gold. As already pointed out, the Deep Lead does not appear in any way to be governed by the present levels of the bed rock, and it is probable that if a lead exists west of Mount Remarkable it would have been deposited under conditions similar to the Deep Lead.

One shaft has already been sunk on the tableland, but whether it reached “bottom” is unknown. Had a rich lead been followed from the side under the tableland, it might have been reasonable to prospect, but since no such payable lead has so far been discovered the chances of striking one by shaft-sinking and driving therefrom is extremely remote. A further objection to these three propositions lies in the fact that they are all alluvial, and in the event of a successful outcome the discovery besides benefiting the finders would only be of temporary benefit to the field.

4. Sarah Houston and Mystery Reefs.

These and other reefs in their immediate neighbourhood have been suggested as requiring further prospecting. Unlike the reefs near Mount Remarkable and at Mount Davenport, in which the gold occurred only when a cross-reef intersected the main reef, these appear
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report, in which the gold
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to have been more continuously gold-bearing. The only information
about them is in the report of Mr. Randd, who makes the following
remarks concerning this group of reefs:—'These reefs have been
worked at a great disadvantage on account of there being no machine
at hand. The expense of cartage to Charters Towers has prevented
their being more thoroughly tested. I have very little doubt, from
trials I made of stone which had been discarded, that there are many
tons now at grass which would yield about 1 oz. of gold to the ton.
The reefs are of good size, and are composed of a good character of
stone. They are well worth another trial.'

Only one effort has been made since Mr. Randd's visit to work
these reefs—on the Sarah Houston, and it is doubtful whether the
shaft then sunk was really on the reef. It is unlikely that the reefs
were worked deeper than 100 ft., and only on the richer shoots. It
seems very probable that the ore not payable under the conditions
then prevailing—previous to the introduction of the cyanide process—
would, with modern treatment and appliances, be profitable to work.
It is said that mullock brought up from sinking a shaft on the Sarah
Houston crushed 8 dwt. to the ton in a small battery, with probably
imperfect recovery of the gold. This much as most work appears to
have been done on the Sarah Houston reef, which is also a wider reef
than the Mystery preferred by some of the petitioners, it is natural
to conclude that this reef would be the most suitable for investigation
should it be decided on. An examination of the reef to determine the
nature of the ore left, and not a search for any fresh shoot of rich ore,
might be made with little further outlay than that necessary to
unwater the mines. In the event of the reef proving satisfactory a
large outlay on modern plant, both for mine equipment and for treat-
ment, would be necessary—an outlay which could probably not be
raised in the locality. On purely geological grounds the reefs cer-
tainly offer good prospects. Should the proposition be favourably
considered, it would be essential for the Department to see that
the work was carried out in a manner suitable for the purpose of investigat-
ging the reefs, as there are few men on the field capable of the
undertaking, and there would be a tendency to prospect for rich shoots
which, while more satisfactory to the man without capital, would be
unlikely to lead to any permanent benefit to the mining industry.

Brisbane, 2nd March, 1910.