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GOVERNMENT GEOLOGIST

(No. 104.)



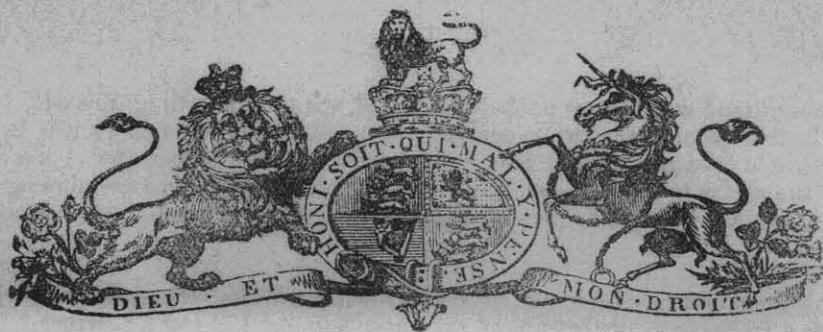
1884.

PARLIAMENT OF TASMANIA.

**MOUNT CLEVELAND AND CORINNA
GOLD FIELDS:**

REPORTS BY MR. G. THUREAU, F.G.S.

Presented to both Houses of Parliament by His Excellency's Command.



REPORT on the Specimen Reef, near Mount Cleveland.

April, 1884.

This is situate west north-west of Waratah, at a distance of about thirty-two miles along the newly formed track. The geological features of the country observed on that line of communication consist of, near the Arthur River, metamorphic schists, here and there overlaid by basaltic sheets; at the Magnet range, those upper volcanic rocks rest upon a thick stratum of "lignite," probably, as in other similar places, covering a deep diluvial wash or "lead." On the open plains further on, the continuation of that sharp-angled quartz detritus, so peculiar to the Western mining districts, is found to be covered with a swampy and peaty soil, frequently several feet in thickness, and which prevails so greatly on Long and Brown's Plains and on the south side of the Pieman River to within a few miles of North Mount Heemskirk.

Several tributaries of the Savage River, near its head, were crossed in travelling, in which those characteristic Pliocene drifts and gravel beds, so frequently found in the Victorian and other gold fields, occurred *in situ*, capped in places by outliers of basalt. These creeks have yielded some gold, but as the scrub is so excessively dense and almost impossible to penetrate, the results of the prospectors' labours have up to the present time remained an unsolved problem to a very considerable extent, though it is well known that some of those workings have enabled these miners to become possessed of considerable amounts of coarse and very heavy gold every season since first attention was drawn to the Pieman or Corinna Gold Field. There cannot be any doubt but what my opinions as expressed in my Report No. 82, 1881, pages 5 and 6, under the head of "Permanency," regarding the extent of such auriferous deposits on the Long Plains and from there to the west north-west of Mount Cleveland, have been borne out by these later discoveries. It remains, however, to be observed that those discoveries are, as yet, partaking of the nature of indications for the existence of a much larger gold field as yet undisturbed, and scarcely impinged upon by the picks of the miners.

The vicinity of the Specimen Reef is very mountainous, and the "gulches" and "ravines" feeding the main creeks are most precipitous, and have a very rapid fall towards the Savage River. The formation is Silurian in part, but the metamorphic schists prevail largely, and they are very similar to those observed at Mount Victoria. Within three miles of the reef itself these metamorphic schists occur as contorted slates and sandstones, micaceous in parts, and they are traversed by irregular bands and interlacing veins of white, and infrequently blue veined, barren quartz.

As illustrated by the diagrams enclosed—the longitudinal section of Specimen Reef Creek (which empties into Hall's Creek)—that watercourse has a very steep descent, which did not permit any extensive or deep accumulation of recent (pleistocene) gravels. Gold-bearing quartz, and from time to time rich specimens, having been found in those circumscribed gravel beds by the prospectors, Messrs. Thunder and Greenaway, they were eventually rewarded by the discovery of the present Specimen Reef, which yielded, I am informed, about 40 ozs. of free gold from the specimens found at or close to its outcrop.

The Workings.—These disclose in the upper tunnel soft yellow sandstones and light bluish slates, stained by the peroxide of iron, as the country rock. Besides that, all water exuding from the reef, as it was followed in this adit, deposits considerable quantities of ochreous sediment, indicating a continuous decomposition of sulphurets by chemical and atmospherical reactions. That this decomposition had been in progress for very long periods in the past is proved by the occurrence of a coarse quartz detritus, forming a breccia of irregular and angular composition, held together by or cemented with brown iron ores ("limonites") overlying the outcrops or their vicinity on the reef. The upper tunnel passed, I am informed* about 30 feet beneath the spot in the creek in which the prospectors first met with the outcrop of the reef, and at that part of the workings it was said those

* It may be stated that during the whole of my examinations under the guidance of the Mining Manager, I did not see, or was shown, any gold; the only evidence of gold-bearing stone having been obtained was from specimens exhibited at Launceston, the office at Waratah, and the quartz presented to the Mining Museum here, and those submitted for assay.

rich specimens were found which were publicly exhibited, the total length of this adit being a little over 300 feet. In that distance the two shoots of gold measure 160 feet and 12 feet in length each, and they are separated by a narrow and very poor portion 40 feet along the course of the lode. The underlay of the reef is to the east, and the shoots of gold-bearing stone are dipping southerly at an angle of inclination less than 45 degrees, so that on this upper tunnel there remain 30 feet of backs to stope out.

The lower or main adit has been commenced further down the same creek, at such depth as to give about 109 feet of backs to the bottom of the upper adit, or 139 feet altogether. The lode formation was met with at 290 feet, and from there the reef has been followed along its course, the adjacent strata observing a bearing of N. 54 E. So far gold had not yet been seen in this tunnel, as, owing to the dip of the shoots of gold intersected above, a good distance would have yet to be driven for same, unless other shoots not yet discovered were found at that increased depth. The general appearance of the reef is very good, it being composed of a whitish coloured quartz, having at the same time a laminated appearance from the pyrites with which it is so heavily charged; it appears that the latter are highly auriferous, resulting after their decomposition in the production of a blackish friable powder, in which the gold occurs in filigree forms and also in very solid heavy lumps of, by all appearances, a very high quality. The strike of the lode averages north 38° east in the enclosing strata, which bears at the mouth of the adit nearly due north by south. The vein-stone is pretty compact, from a few inches to nearly three feet in width; the more attenuated parts being generally very poor, and the wider carrying the gold in shoots. Frequently the lode is very loose, and when undrained requires much care in working, as the vein-matter is then inclined to "run," filling up the adit to a considerable extent. The "caps," so to speak, or the vein-matter, on approaching the shoots of gold are generally indicated by the larger admixture of carbonates of iron ("siderites") with the vein-stone, which latter assumes thereupon quite a different appearance.

In the upper level or adit it may be mentioned the sulphurets have either disappeared altogether after decomposition, leaving a cellular and porous blackish quartz, in which the heavy gold sometimes predominates, or, in that vein-stone, strongly impregnates the whole of the reef at such places. At the lower adit, it may be observed,* the gold was seen as embedded or associated with solid sulphurets remaining, as having not suffered from any such decomposition.

The lode has been faulted to an inconsiderable extent once or twice; the "slides" at these interruptions of the more regular course of the lode are distinguishable by the occurrence of black and unctuous clay-veins with some gritty quartz cutting across the country rocks. Generally at this greater depth the lode formation was found to be very similar to other gold-bearing reefs; the hanging-wall was composed of a hard sandstone, whilst the foot-wall consisted of a somewhat softer metamorphic slate. Up to the time of my visit gold had not been observed in driving this lower level; there was, however, every indication for such to be met with shortly, and the reef was charged with an unusually large percentage of iron, and also some copper pyrites.

This reef, or auriferous quartz lode, which is so far the only one as yet discovered to date, forms a well defined and strongly developed metalliferous deposit of very considerable promise for its future permanency, and there appears, in my opinion, nothing wanting but suitable crushing and gold-saving machinery to render the working of it a profitable concern, if managed intelligently and worked persistently.

Water as a motive power is readily obtainable in the neighbourhood, and as the fall of the creeks is so great, the supply promises to be intermittent; the adoption of turbines (Leffel's), instead of the ordinary ponderous water-wheel appears as more preferable, because the former are so much more easily transported, and erected at less cost, and they produce with a given head and quantity of water a very considerable percentage of more motive power than any other water motor.

From the general features of the surrounding country, there appears every likelihood, if once the dense scrub is made more accessible for prospecting, of the existence of other reefs in that locality; and there is no doubt whatever, in my opinion, that the undeveloped belt of auriferous quartz having materially contributed to the enrichment of the alluvial (*pleistocene*) and diluvial (*pliocene*) gold deposits occurring on Long Plains, Bauera, Riley, and Smith's Creeks, Rocky River, Brown's Plains, and Middleton's Creek.

G. THUREAU, F.G.S.

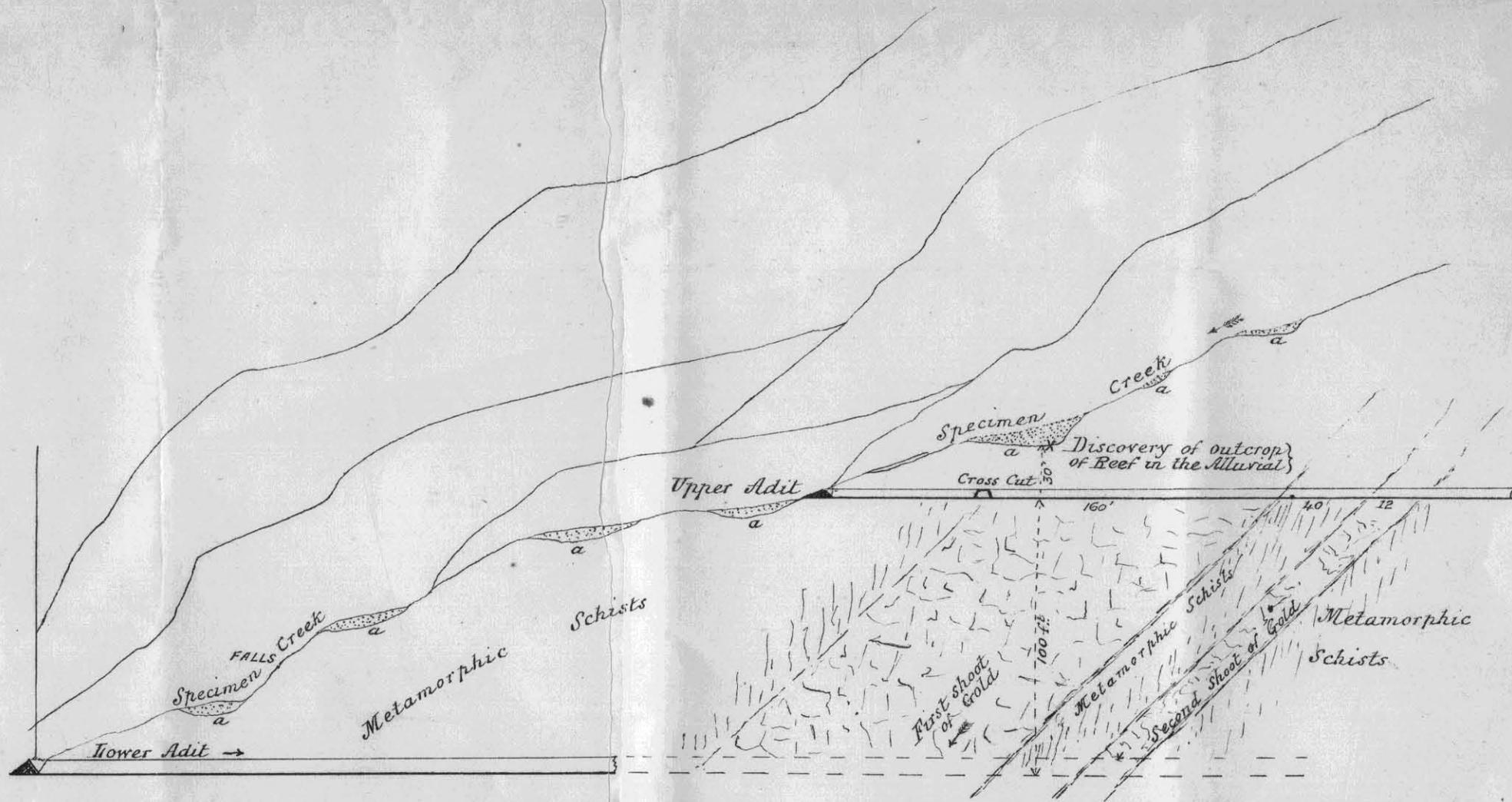
MEMO.—New Minerals discovered on this goldfield:—

"White Arragonite," in radiating acicular groups, in Serpentine, near Alford's Store, Pieman Track.

"Titaniferous Iron Ore" in granitoid (micaceous) rock near Pieman River.

Asbestiform "Actinolite" of a light greenish colour, in quartz, from the head of the Whyte River, Long Plains.

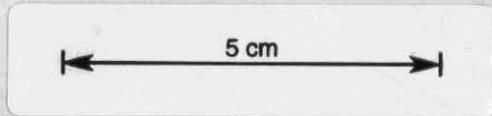
* Since this Report was taken in hand, or after the survey of Specimen Reef, I was instructed to also visit the West Coast; in the mean time rich gold quartz had been found at the lower adit.



LONGITUDINAL SECTION OF SPECIMEN REEF.

a. a. a Alluvial deposits in the Creek.

Office of Mines

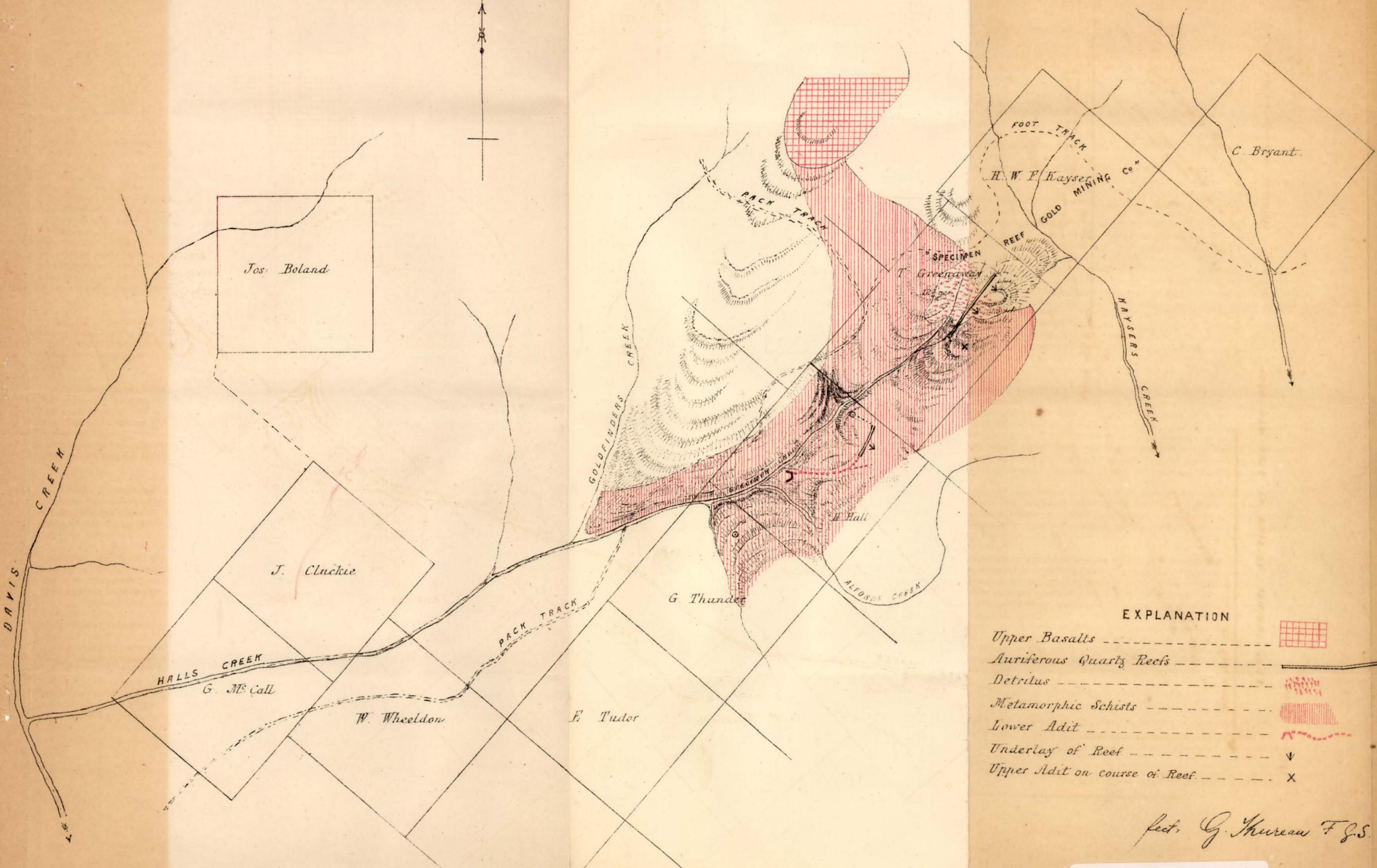


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VICINITY OF SPECIMEN REEF
 WEST COAST.
 GEOLOGICAL SKETCH PLAN
 Scale *Five Chains to one inch.*

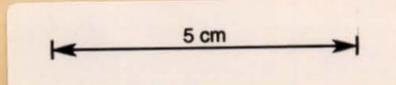
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EXPLANATION

- Upper Basalts ----- [Grid pattern]
- Auriferous Quartz Reefs ----- [Wavy line]
- Detritus ----- [Red cross-hatch]
- Metamorphic Schists ----- [Red diagonal line]
- Lower Adit ----- [Red wavy line]
- Underlay of Reef ----- [Downward arrow]
- Upper Adit on course of Reef. ----- [X]

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REPORT on the Corinna Gold Field.

June, 1884.

STARTING from the Pieman River, it was noticed that alluvial gold-mining had been carried on in several new localities since my first inspection of the field in 1881; also that certain other places, then favourably reported on as likely for the occurrence of gold deposits, had scarcely been touched at all. These remarks refer to what could be seen in the vicinity of the main track; and the Rocky River, or those diggings at or near Smith's, Riley's, and Bauera Creeks could not, on account of the prevailing rough weather, be more closely or at all inspected. From the observations that were made it became, however, very apparent that wherever the older Pliocene gravels were exposed to view as resting upon the slate formations—Silurian and Metamorphic—gold had been found in more or less remunerative quantities. Considering the density of the scrub, and the fact that more recent gravels and hard conglomerates of great thickness overlie the auriferous drifts and strata in most places, great difficulties intervene with the development of the region. These difficulties those hardy and persevering prospectors are slowly overcoming, and gradually it becomes a fact that this region, including the Savage, Pieman, and the Whyte River watersheds, constitute an undeveloped gold field, on which many heavy finds of gold have been made, the actual value of which is not, so far, known, as for various reasons the miners have thought fit, as of more direct advantage to themselves, to withhold that most important information from the authorities and the public at large.

As the yields of gold from those several "placers" cannot possibly be gauged under these circumstances by the restricted returns made by the banks or other shippers of Tasmanian gold, and as the whole question of our yield of gold has a very important bearing upon the success and the permanency of our mining industry in several respects, I took occasion to embody my views upon the subject in a letter to the Honorable the Minister of Lands and Works, from Mount Heemskirk, on the 14th of June last; several reliable returns of gold were given in same, and proposals submitted for consideration in order to obtain that so very desirable and reliable information, without any additional expenditure to the State; that information thus obtained, if authoritatively published, would induce a larger number of miners and consumers to come here and give the goldfields that thorough trial which can alone be done by increased numbers of miners, prospectors, &c., as has been the experience in other gold mining countries where, by an augmenting digging population, the originally limited gold deposits were traced to large, permanent, and rich goldfields. From my own observation, and from what information I gathered from various sources, it is to be regretted that this Colony does not by some means or other obtain or derive those benefits which undoubtedly proceed from an increased mining population, for the convenience of whom the authorities have expended such large sums of money in cutting tracks, of building bridges, and otherwise very considerably improving the means of communication for supplying the miners with necessaries.

G. THUREAU, F.G.S.