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PROCEEDINGS
OF
THE GEOLOGICAL SOCIETY.

NOVEMBER 6, 1872.

Lieut. Douglas A. Scott, R.E., 8 Chandos Street, Cavendish Square, W.; and Dr. J. Dormer Steele, Principal of Elmira Free Academy, Elmira, New York, were elected Fellows of the Society.

The following communications were read:—

1. *A REPORT on the TIN DISCOVERIES in QUEENSLAND.*

By T. F. GREGORY, Esq.

(Communicated by the Right Hon. the Earl of Kimberley, H.M. Secretary of State for the Colonies).

Mineral Lands' Office, Stanthorpe,
2nd July, 1872.

SIR,—In pursuance of the instructions conveyed in your memorandum dated 18th ult., I have the honour to furnish, for the information of His Excellency the Governor, a Report on the Tin-fields at the head of the Severn river, in the district of Darling Downs, South.

The general geographical area of the stanniferous country within the Colony of Queensland, so far as is at present known, appears to be comprised within the following limits. Commencing on the main dividing range between the eastern and western waters at Lucky Valley Goldfields, near the head of the Condamine river, the northern boundary extends in a west-south-westerly direction for about twenty-five miles, passing fifteen miles south of the town of Warwick to the head of Pike's Creek, on the Pikedale Run;

tin-ore are distributed is that comprised by the watershed of the Severn river down to Ballandean Station, with the exception of about six miles of the extreme southern head of Quart-pot Creek and Accommodation Creek, both of which have hitherto not been found to yield payable ore.

The richest deposits have been found in the stream-beds and fluvial flats on their banks, the payable ground varying from a few yards to 5 chains in width, occasionally broken by rocky bars; but even in these instances large deposits are frequently lodged in the pockets and crevices between the granite boulders. The aggregate length of these alluvial bands may be taken as about one hundred and forty miles on the Severn waters, with about thirty more on the tributaries to Pike's Creek.

A very careful inquiry and personal examination of a number of the various workings that have been commenced within the last few weeks establish very fair data upon which to estimate the probable yield of ore. This may now, with a tolerable degree of certainty, be stated at an average of ten tons per linear chain of the Creek beds. In some instances it has been found to extend to thirty tons per chain; but allowing for frequent interruptions by rocky bars, it will be safer to adopt the first-mentioned yield as a fair standard upon which to base an estimate of the amount of mineral that it is probable will be raised within the next few years from alluvial working alone.

Of the stanniferous lodes or veins it is impossible at present to speak with any degree of certainty; the two principal ones as yet discovered are near Ballandean Head Station, and at an outlying reef of red granite rising up in the midst of metamorphic slates and sandstone at a spot known as the "Red Rock," and situated about six miles apart in a north and south direction; the other crosses the Severn several times at the point where the tin was first discovered and the land selected by Messrs. Greenup and others.

These lodes or veins have as yet been but very partially tested; it would therefore be premature to give any decided opinion on them; they may, however, prove the source of an amount of wealth the production of which would extend over many years.

There are also a number of smaller lodes or veins, some of which I have not been able personally to inspect; the most promising appear to be on Law's Gully, on the claims of the Blue-Mountain Mining Company, as well as on Quart-pot and Sugar-loaf Creeks: they run in parallel lines bearing about north 50° east, commencing from near the boundary of New South Wales opposite the Ruby-Creek digging in that colony, and again near the Broadwater at a spot about a mile south-east from the junction of Hardy's Gully. This lode can be traced with interruptions all the way to the head of Spring Creek, a distance of nine or ten miles.

In describing the mineralogical character of the rocks generally, I cannot do better justice to the subject than by quoting from some valuable notes kindly furnished me by our well-known and talented geologist, Mr. D'Oyley Aplin, whose views on this subject coincide

with my own observations. He says, "I have met with no other description of tin-ore than the peroxide (cassiterite), even in specimens from veins. The ore, so far as I have seen it, is associated with granite only, which is invariably red; *i. e.* the felspar is a pink or red orthoclase, and the mica is generally black; but when crystals of tin-ore are found *in situ* the mica is white.

"The granite generally is coarse-grained and seems to disintegrate readily under atmospheric influence. There are numerous bands of loosely aggregated rock, granitoid in character, highly micaceous and traversed by bands and veins of quartz in all directions; in these bands crystals of tin-ore are abundant, and they (the bands) seem to have constituted local feeders along the courses of drainage.

"The crystals of tin-ore are generally found imbedded in and along the margin of the quartz threads or veins in those bands. In some instances they are imbedded in the micaceous portions only; and the mica is invariably white in those instances in the bands referred to. The strike of the bands and the distinct quartz veins in the granite is generally north-east and south-west.

"Along the western margin of the granite a broad belt of metamorphic rocks (slates and sandstones) extends on both banks of the Severn, constituting a series of rugged broken hills and ranges, in parts difficult to traverse except on foot; this tract of country stretches from five to six miles west of Ballandean to Maidenhead on the Severn, where the granite again appears and also the tin-ore.

"No tin floors, as at the Elsmore mine, in New South Wales, have been discovered."

The extent of mineral country applied for up to the present time is as follows:—

Number of selections 850.

Aggregate area about 74,000 acres.

Of these, judging from those already dealt with, it is probable about one third will be rejected as being land previously applied for or overlapping, leaving about 46,000 acres, for which permissive licenses will be issued, nearly the whole of which have been selected with frontages to the watercourses.

Although selections still continue at the rate of fifty portions per week, this cannot be maintained for more than six or eight weeks longer without the discovery of deposits in new localities hitherto unexplored, or lodes that may be found to exist on the tableland, as nearly the entire length of the watercourses is already selected.

The population at present located on the tin-fields may be set down as, at the least, 1200, while it is more likely to amount to 1500, the principal centre of occupation being the now rapidly rising private township of Stannum, the protracted delay in the sale of the government allotments in the township of Stanthorpe being the only reason why this town has not already doubled the number of inhabitants that are at present located on the private

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lands adjoining, as the majority of persons prefer purchasing government building-lots to obtaining only leaseholds on the private townships.

In addition to the town reserve of Stanthorpe, it will very shortly be necessary to lay out another reserve on the Severn river, about fifteen miles lower down, somewhere in the vicinity of Accommodation Creek. This will be more especially required in the event of the lodes in that locality proving equal to the anticipations of the proprietors, as the working requisite to develop them properly will give employment to a large population.

It is not easy at present to form any very accurate estimate as to the number of persons that will be required within the next twelve months to enable selectors to fulfil the conditions required by the clause of the Act under which the Mineral lands have been acquired; but it is scarcely possible that they can be complied with unless, at the lowest computation, 5000 persons are employed, which number, allowing a fair proportion for persons engaged in other callings, including females and children &c., would not give more than three persons to each forty acres.

In reference to the probable time that will be required to work out the known beds of alluvial tin-ore, it must necessarily depend upon the number of persons engaged in it and the nature of the seasons; but under any probable conditions it is not likely that they will be so far worked out within the next three years as to occasion any diminution of the population below from 5000 to 8000; and the development of workable lodes would, from necessity, permanently establish a much larger population.

I have &c.,

(Signed) T. F. GREGORY,
Mineral Land Commissioner.

The Hon. The Secretary for Public Lands.

2. OBSERVATIONS on some of the RECENT TIN-ORE DISCOVERIES in NEW ENGLAND, NEW SOUTH WALES. By G. H. F. ULRICH, Esq., F.G.S.

The discovery of tin-ore (cassiterite) in the province of New England, New South Wales, was brought under the Society's notice by a letter from Mr. G. Milner Stephen, F.G.S., of Sydney, read at the December meeting, 1871*; and finding from the discussion thereon, that the subject is not without interest to the Society, I beg to offer the following further observations made during a recent visit to that stanniferous country.

The district to which these remarks refer forms, as it were, a hilly high plateau of the Australian Alps, of which Mount Ben Lomond represents here the highest point, with an elevation of nearly 4000 ft. above the sea-level. According to my observation, the pre-

* See Quart. Journ. Geol. Soc. vol. xxviii. p. 43.