

gold being the exception, since it is as a rule fairly disseminated through the stone which, in the oxidised zone, generally carries a considerable quantity of oxide of iron and sometimes copper stains, whilst below this, which is never at a great distance from the surface, sulphides are principally met with, which point must not be lost sight of in the selection of plant for ore treatment.

Another feature of the field is that large reefs are the exception, and therefore it is necessary that they should be rather above the average in rich ores to make profitable mines.

Very little work has been done considering the length of time that these leases have been held, but this is only what is to be expected considering that the work of development has been left entirely to working miners or small syndicates without capital, whilst the cost of shipping and treating ore from the field, is too great to yield a return from even two-ounce stone, therefore the owners have had to exercise a waiting policy until a battery was erected upon the field. This may now be said to be almost an accomplished fact since two are in the course of erection, whilst foundations for the third is being prepared, and therefore in a short time it is expected that the true value of the various leases will be determined, when it is to be hoped that many of the promising ones will attract the attention of persons or companies that are in a position to work them properly for the benefit of themselves and the State.

This naturally brings us to the water question, which is going to be a difficult problem, since the rainfall is small and light, spread over many months, so that the creeks rarely run except after thunderstorms (in fact there is no appearance of this having taken place for many years); the ground is bad for holding, and the water level and underground supply very variable and very uncertain, whilst the water is generally salt. Up to the present neither of the companies that are erecting batteries have a drop of water, whilst the third—where the foundations are being prepared—has a water supply, but no battery. Timber will also be a serious item since the local marlock, etc., although good enough for prospecting, will be of little use in opening up mines, since both it and the salmon gum do not stand well in the ground, although making excellent firewood.

Carting too is a serious item, added to which the cost of shipping to the miserable little port where there are no facilities for landing timber or machinery, will render the preliminary working of this field extremely expensive. Taken as a whole the field is a very promising one, since there are a number of well defined fair and large-sized gold lodes which are of apparently paying value, whilst the copper lodes have been proved to be decidedly so, for in several cases, in spite of the large costs in connection with the treatment of the ore, they have not only paid all expense, but repaid the purchase money and something over.

What these mines need is a smelter on the ground, so that the ores could be matted up to a high percentage; such a smelter would be able to utilise some of the rich ironstone lode caps, and all the concentrates from the batteries, and should be an exceedingly profitable undertaking, since there is abundance of ore in sight to keep a 30-ton furnace going.

**NORSEMAN GOLD MINES, LIMITED.**—As alluded to in my report of last year,\* financial assistance was rendered to this company, to enable them to explore the deep levels by sinking the Viking shaft from 450 feet to 700 feet. The following table gives the particulars of assays made in the Departmental Laboratory as the work proceeded:—

Lab. No.	Depth in feet.	Assays.
3020	460	Gold, 20 grs. per ton; silver, 2 dwts. 11 grs. per ton.
3021	470	Gold, trace; silver, 2dwts. 11grs. per ton.
3022	480	Gold, trace; silver, <i>nil</i> .
3023	490	Gold, trace; silver, 2dwts. 11grs. per ton.
3024	500	Gold, 1oz. 16dwts. 18grs. per ton; silver, 3ozs. 19dwts. 5grs. per ton.
3025	510	Gold, 2dwts. 11grs. per ton; silver, 15dwts. 12grs. per ton.
3026	520	Gold, 20grs. per ton; silver, 1oz. 3dwts. 16grs. per ton.
3268	530	Gold, 20grs. per ton; silver, 20grs. per ton.
3269	540	Gold, 20grs. per ton; silver, trace.
3270	550	Gold, 3dwts. 6grs. per ton; silver, 4dwts. 22grs. per ton.
3271	560	Gold, trace; silver, <i>nil</i> .
3272	574	Gold, 20grs. per ton; silver, 20grs. per ton.

**ALLUVIAL DEPOSITS, SIBERIA.**—In February, 1901, the Assistant Geologist, Mr. W. D. Campbell, in accordance with instructions, submitted the following report upon the occurrence of deep alluvial ground at Waverley (Siberia):—

For several years sinking for deep leads has been tried to a limited extent with poor results, the deepest shaft has been from 92 to 93 feet by Hornby's and Gregory's party. In September last, application was made by the Siberia Progress Committee, to the Hon. the Minister for Mines, for testing the ground by means of bores. Alluvial gold was found in November near the Majestic Gold Mine by means of prospecting shafts at a depth of 26 feet. This lead is about three-quarters of a mile due East of the hilly ground on which the Invincible and Camperdown Gold Mines are situated, where some rich lodes are being worked, from which this gold may have been derived. There have been also several patches of surface alluvial gold found adjacent to these lodes. Boring would materially facilitate operations, as there are no surface indications of the deep lead, it being across the toe of the hill slope. The yield of the workings so far has been about 8dwt. of gold per man per week; just sufficient to pay for food and encourage further prospecting. The area of the lead can only be of small extent. The material sunk through is a compact, dry, ferruginous sand, resting on a diorite bottom.

\* Annual Progress Report of the Geological Survey for the year 1900. Perth: By Authority: 1901, pp. 25-26.

Another locality that is being tested for a deep lead is an extensive flat one mile on the Western side of the same lode, and North-East from another auriferous line of hills that embrace the main Siberia mine. Here a prospecting area is held by Jergo and party, who have found a fine wash at a depth of 80 feet below kaolinised material, but with only a trace of gold so far. There must be a great extent of deep ground here, judging by the very large size of the timber along the flat for a distance of several miles. My attention was also drawn to another flat, about one mile to the South of the same Invincible Gold Mine, that might probably yield some good results if it could be tested by boring. These flats receive the washings of a number of gullies which have been worked, yielding coarse gold and supporting a population of from 50 to 200 diggers. It is not possible to ascertain the yield, but it has evidently been very profitable to the persons engaged. . . . Mr. Campbell selected three areas for boring, all of which seem to offer reasonable prospect of success, and located 33 bore sites. In consequence of the estimated heavy expenditure involved in carrying out the operations originally outlined, the number of bores was reduced to 20. These were distributed between the three areas with the view of affording the same information, though in a slightly different form. Boring operations, upon the modified scheme, were carried out during the latter part of the year. Twenty-eight bores were sunk to depths varying from 26 to 117 feet.

A plan of the bore sites, and sections showing the information at present obtained, has been prepared and is attached (Plate I.)

No defined gutter has been located by the operations, and it is very doubtful, from the evidence so far adduced, whether any extensive area of deep alluvial ground exists in the vicinity of Siberia. Traces of gold have been found in the detritus passed through in several of the bore holes, but in no case in such quantities as would warrant the sinking of shafts.

#### GENERAL.

The Department is indebted to Mr. R. Etheridge, jun., Curator of the Australian Museum, Sydney, for important assistance rendered gratuitously in the determination of fossils which have been submitted to him from time to time.

The various members of the staff have, without exception, continued to discharge their respective duties with assiduity and efficiency, and have never hesitated to extend their labours far beyond official hours whenever the exigencies of the work demanded.

I have, etc.,

A. GIBB MAITLAND,

Government Geologist.



THE HON. H. GREGORY M.L.A.  
Minister of Mines.

# GENERAL PLAN AND SECTIONS Shewing results of Boring for Alluvial Leads at

## WAVERLEY

(SIBERIA)

COOLGARDIE G. F.

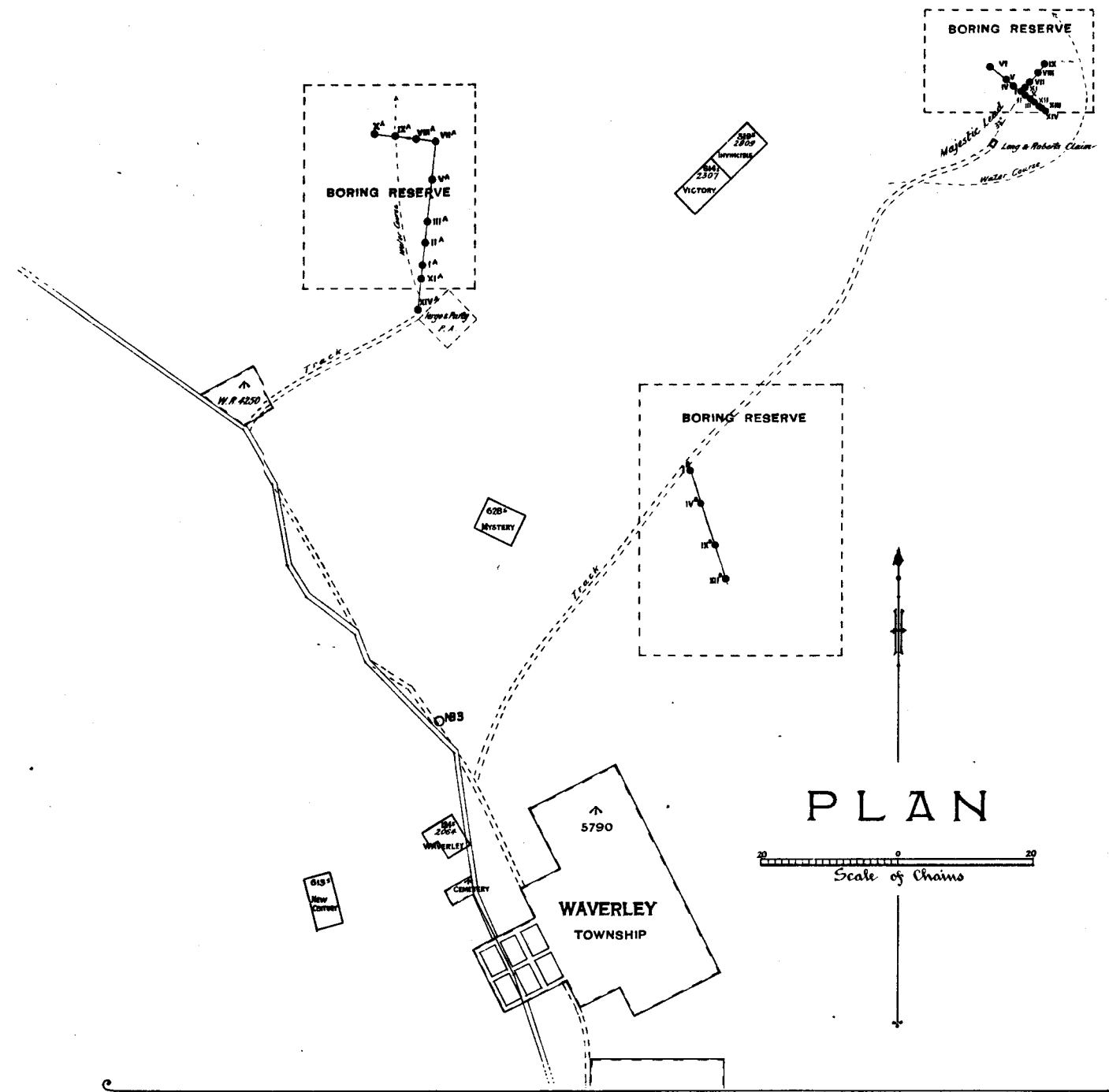
BY

W. D. Campbell A.M.I.C.E., F.G.S.,

ASSISTANT GEOLOGIST

To Accompany Annual Progress Report of the Geological Survey for

1901

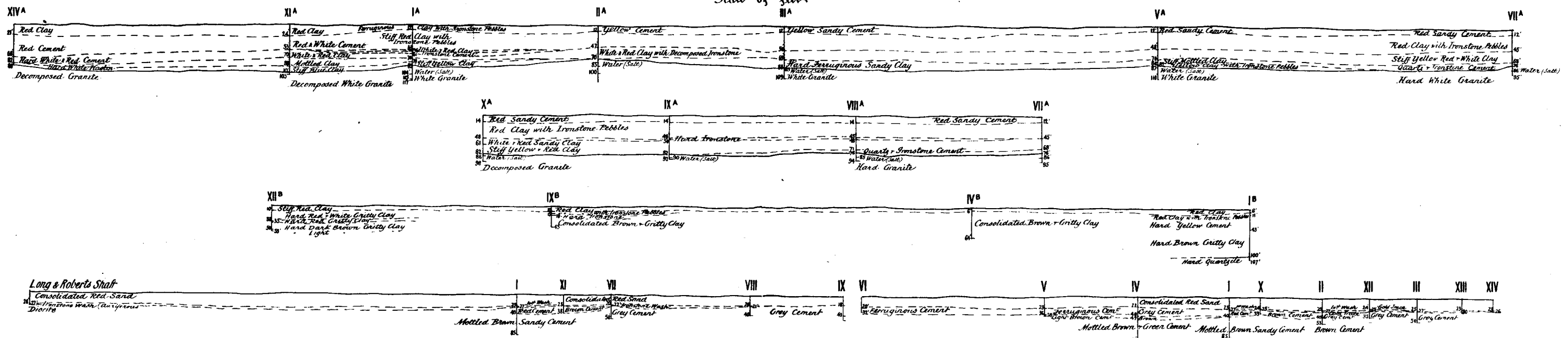


PLAN

Scale of Chains

## SECTIONS

Scale of Feet



NOTE—No WATER MET WITH EXCEPTING WHERE STATED IN SECTION.

R. H. Green del. 27/5/02.