

the majority of that so far met with in the schists is salt.

"*Darlot*.—This centre is situated about 50 miles slightly north of east of Lawlers. The country between the two places consists of a granite tableland for the most part covered with extensive deposits of loose sand, this being the result of the gradual weathering and decomposition *in situ* of the granite.

"The workings at Darlot are situated within an area of greenstones of the usual type, the belt extending in width for three to four miles both east and west of Darlot townsite; its northern limit is not known, but it runs southerly for about 8 or 10 miles; east from Darlot, granite tableland country apparently extends uninterruptedly to the Erlistoun district.

"The country at Darlot is mostly flat and covered with a considerable thickness of recent deposits so that very few rock outcrops are visible. About three miles north of the townsite is a low ridge of 'break-away' hills trending in a general north-westerly direction and apparently marking a big fault or shearing line; it is along this line that most of the principal reefs have been worked and that all the alluvial which made Darlot famous some years ago was obtained.

"At the time of my visit mining at Darlot was fairly quiet; all the alluvial appears to have been worked out, and not much was being done in the reefing line.

"Several pretty good lines of reef have been worked in the past, and one of these (the Zanglar line) is now being opened up with apparently every chance of success. Taking the district as a whole, reefs are fairly numerous but vary greatly in size and values; they can for general purposes be divided into two classes:—

"(a) reefs in which the gold occurs in irregular bunches or pockets, and

"(b) reefs in which the gold is uniformly distributed throughout the stone.

"The first class is formed principally at the north end of the field along, or close to, the line of break-aways, and the pockets are usually found at the point where a second reef or leader comes into the main line. These pockets vary greatly in size, but when they are met with the stone is invariably dollying stone, the rest of the reef being practically barren. It is from the breaking down of the reefs of this class that the majority of the alluvial gold has been derived.

"The second class of reefs is by far the most important, as it is on these that the district has to depend for its future; they are usually of fair size, and can often be followed for considerable distances; they are well defined, and show all signs of permanency; whether the gold will live down with them is a matter that can only be proved by trial. So far the majority of these reefs have proved of pretty low grade. The Zangbar-Monte Christo reef is a good example of this type.

"Water is plentiful throughout the district, being salt on the west side towards the southerly continuation of Lake Darlot, but fresh at the townsite and to the north and east. Timber is not too plentiful, and will shortly have to be brought in from considerable distances.

"*Wilson's Patch*.—Mining operations at this centre are very quiet at the present time, there being only one mine working. The country is essentially granite, the area being part of the main belt which extends practically unbroken between Lawlers and Erlistoun. A few small isolated patches of greenstone occur scattered throughout this area, and it is usually along the junction of these with the granite that the principal gold-bearing reefs are found. There are however a good number of well-defined and fair-sized quartz reefs in the granite; these usually have an east and west trend, and so far have proved unpayable.

"The Great Western, which is the only mine working in the district, is working a quartz reef of an average width of about two feet which runs in an east and west direction alongside a lenticular mass of greenstone which has been caught up in the granite. The reef is pretty irregular, and taking it right through decidedly low grade.

"A good deal of alluvial gold has been got in this district in past years, mostly resulting from the breaking down of small quartz leaders in the granite; these patches however have been abandoned for some time, and nothing is being done in this line now, though I see no reason why this should be so.

"Water and timber are both fairly abundant in the district.

"From Wilson's Patch to Laverton, the road passes over granite country all the way until within a few miles of Mt. Morgans. This granite belt extends northerly indefinitely, but its southern limit is practically marked by the road as a mile or two south of this, and practically following it all the way, is that extensive area of greenstones in which the centres of Leonora, Mertondale, Malcolm, and Morgans are situated.

"About 25 miles from Wilson's Patch along this road are situated what are known as the Linger and Die workings. Here a small alluvial patch was worked about 10 years ago and a fair amount of gold won from it. At the present time a couple of small parties are working some small leaders in granite country. These leaders are only an inch or two in width but are sometimes exceptionally rich; no work however of any importance has been done.

"A full description, with geological map, of these centres and the mines working will be given in a bulletin now in course of preparation."

#### THE SAXON LEAD MINE, NORTHAMPTON.

Mr. Woodward reported, in November, on the Saxon Lead Mine, as follows:—

"This old mine is situated upon Location 470 in the Northampton district, being about 30 chains east of the railway line from a point about one mile north of the White Peak Railway Station, which is nine miles from Geraldton. The country rock is gneissic granite, the foliation of which runs in a northerly direction with an underlay to the westward. Following this is a well-defined quartzose lode of considerable size, upon which at a point a little north of the surveyed road near the centre of the block, a rich shoot of lead ore appears to have been worked. The workings consist of a winze (mostly collapsed) down to the water level (40 or 50 feet), from which the ore won from the stopes

was raised, but of what extent the latter are it is impossible to state, since without means of descent no inspection can be made, besides which the old workings are at present quite unsafe. It is evident that a considerable quantity of ore must have been removed from this mine, since the road from the workings, which has not been used for the last 30 years, shows signs of heavy traffic, whilst further, the ore must have been of high grade because little refuse is met with in the spoil heaps. The galena appears to have been practically all removed, but the carbonates were discarded, since a considerable quantity of the latter still remains at the surface. There is an abundant supply of water for dressing purposes, whilst timber for mining purposes and fuel is abundant. The position of the property reduces cartage to the lowest limits, whilst the 9-mile railage to a port is greatly in its favour. It is quite impossible, under the circumstances, to make any definite statement with regard to this property, but to judge from surface indications there is a reasonable probability of it containing minerals in payable quantities at the present market value of lead."

#### WAGIN.

"In consequence of the discoveries in the vicinity of Wagin, Mr. Woodward was deputed to visit and report thereon. In the month of April, this officer submitted the following report:—

"The discovery is upon Mr. H. W. Spragge's property 1010/56, which is situated about two miles south of Badgarning Hill and four miles west of Wagin (*see* Crown Lands litho. 409/80).

"From Badgarning Hill, which is a bold granite outcrop, the country falls rapidly in a southerly direction, the surface being covered by a feldspathic and micaceous grit indicative of its derivation from the disintegration of granitic rocks.

"In the vicinity of the find no rocks outcrop, but the surface is strewn along a well-defined line which runs in a north-east and south-west direction with fragments of a granular ironstained quartz from which the first prospects are said to have been obtained.

"Upon the eastern side of this blow a shaft has been sunk to a depth of 20 feet (water level) in white quartz and kaolin. From the bottom of this shaft a crosscut has been driven 35 feet north-west through a kaolinized rock with bands of quartz, many of which are ferruginous. At this point what is apparently the main formation was cut and driven upon 30 feet south-west and 15 feet north-east, whilst the crosscut was continued in quartz and formation for a further distance of 12 feet, thus, including the level which is 7 feet wide at this point, 19 feet of quartz veins and formation have been proved to exist.

"Some of the quartz veins are large, barren, and white, yielding no prospect of gold, but associated with them are ferruginous veins which yield prospects of fine gold.

"At the point where this formation was first cut in the crosscut there appear to be indications of a footwall dipping to the north-west, but so far no hanging wall has been met with.

"A short distance south of the shaft the formation has been crosscut by a trench, samples from which yielded prospects of fine gold.

"So far as can be judged from the character of the stone in the oxidised zone, the gold will most probably be carried in veins of pyritic quartz below the water level.

"The ferruginous quartz and formation yields fine colours of gold with a dish, as do also the sands of the creek to the southward.

"The following is the result of the sampling:—

"No. 1, from the north side of the trench, 6 feet in width, gold: 4 dwts. 2 grs. per ton.

"No. 2, from the south side of the trench, 6 feet wide, gold: 4 dwts. 22 grs. per ton.

"No. 3, from the north drive, 3 feet wide, 10 grs. per ton.

"No. 4, from the south drive, gold: *nil*.

"No. 5, from the face of south drive, 4 feet wide, gold: minute trace.

"No. 6, from dump, gold: minute trace.

"From the above it will be seen that the results of the sampling of the shaft workings is not at all encouraging, but that from the trench is much more so; since however it proves conclusively that a formation of six feet in width carries between 4 and 5 dwts. of gold to the ton, it is decidedly worth further prospecting.

"With this object in view, and in order to avoid expending labour upon barren ground, it would be advisable to prospect the cap of the lode at distances of 50 feet by shallow trenches, average samples from which should be tested; after which a shaft should be sunk at the point where the lode proved to be of the highest value; this shaft should be at least 50 feet deep, from which the lode should be crosscut and driven upon.

"At the present time an examination can only be made with the object of ascertaining whether gold really does exist, and this end has been attained, the results not only proving that gold does exist, but in sufficient quantity to encourage further prospecting. When this work has been carried out, another inspection could be made, since it then might be possible to express a much more definite opinion than it is at present."

The following are the results of the Mineralogist and Assayer's assays of the samples from Wagin:—

L 1899, W. 1.—Gold, 4 dwts. 2 grs. per ton.

L 1900, W. 2.—Gold, 4 dwts. 22 grs. per ton.

L 1901, W. 3.—Gold, 10 grs. per ton.

L 1902, W. 4.—Gold, *nil*.

L 1903, W. 5.—Gold, minute trace.

L 1904, W. 6.—Gold, minute trace.

Acting under my instructions, the Assistant Geologist, Mr. W. D. Campbell, visited Wagin, and in August submitted the following report upon the recent mining developments at that centre:—

"I visited Messrs. Spragge and Murray's reward lease on the 2nd inst. Since Mr. Woodward's report of the 9th April a second vertical shaft has been sunk to a depth of 55 feet at a distance of 77 feet south-west from the first shaft, at the place in the