

by a rocky ridge fully 75ft. in height; and midway between the two gullies another rapid rise of 20ft. is encountered. Such a configuration is best explained by considering it as a pot-hole or hollow scooped out by ice-action. Though there are no striæ or markings produced by glacial movements now to be seen, yet this is in no way remarkable; for the bed-rock is of too soft a character to have preserved any such evidence. The presence of the large jasperoid boulders is confirmatory. They do not belong to the locality, since no similar rock is found nearer than the Blue Mountains or Tapanui, twenty-five miles north-westward. They were carried down by the ice. The character of a large portion of the material forming the deposit similarly indicates that it was not brought down in or by a stream of water, but as the rocky freight of a glacier. A large part of the wash consists of angular fragments of quartz, as well as of pieces of the quartzose schist-rock, which are not rounded. The agency which eroded the depression in which the auriferous material lies was assisted by the structure of the rock at this particular point. I have no doubt that the north-east bounding-wall of the deposit forms the line of a fault, and that the reason of the formation of the rocky basin at this particular spot is to be found in the fact that the schist had been crushed by the movements accompanying faulting. Of this, the north-east wall, its smooth face, and its continuation under the opposite rim-rock, together with the crushed condition of the south-west country, are ample evidence. The line of fault is not parallel to the course of the lead; the two meet between Munro's and Gabriel's Gully, and so explain the enlargement at that point of the receptacle of the ore-deposit.

"This explains the natural selection of this particular place as the *locus* of the deposit. To proceed further, the glacier in its slow downward progress to the sea is temporarily arrested by the softer rock, which it here encounters much in the same way as a runner is retarded in crossing a ploughed field. This arrest allowed the accumulation of a terminal moraine, which, protecting the rock on which it lay, assisted the tendency of the ice to erode the softer schist; where the terminal moraine at one time lay, we now find the rocky bar shown in Fig. 2. A hollow was scooped out. This was in early Eocene days. A little later, that subsidence took place which preceded the deposition of the Oamaru series. This caused the retirement of the glacier; or, more accurately, the melting away of its lower portion. The rocky basin which had been scooped out by the ice now became a fresh-water lake, with its upper end still guarded by the glacier. The ice which broke away from the foot of the glacier bore with it the large boulders of jasperoid which had been brought down from Tapanui. This and other material was borne across the lake, to fall eventually upon its bottom as the ice-floes melted. In the meantime, up above, the glacier continued to plough through the soft quartzose schists, and sent down a golden tribute, derived from the lode-formations which it cut through. The fine flakes of gold were accompanied with micaceous mud and angular bits of quartz, all to be deposited in the capacious hollow of the lake. Thus the rocky basin became gradually filled up with confused layers of big jasperoid boulders, quartz-gravel, and bluish mud, the gold sifting its way to the lower portions. The subsidence continuing, and with it the slow retirement of the glacier, and the lake being nearly full of *detritus*, it became a morass. Vegetation took root, and flourished for a brief period. A time of flood, due to excessive thaw, brought down a volume of water, bearing the sand and gravel which covered the vegetation. Being thus protected from the air, the reeds of the morass became the lignite of to-day.

"A river linking a series of small lakes, of which the Blue Spur was one, now flowed along the course of the present alluvial lead. Additional material was deposited in some places, while material was removed in others. In the middle of the Eocene period, the elevation of the land culminated and changed the drainage system of the district. In Miocene times, the Clutha and its tributaries began to flow across the line of the Blue Spur Lead. That erosion then commenced which, in the cutting out of Munro's, Gabriel's, and Weatherstone's Gullies, left the gravel-deposit as a part of a dividing ridge.

"Reference has been made by Hutton to the fact that certain of the Eocene beds contained gold, in order to explain its occurrence in the Blue Spur deposit. This is not needed. The examination of the material composing the conglomerate shows that the larger part is derived from the degradation of the primary schists. The grinding by the ice of these rocks formed the mud, which is now "cement." It was from the quartzose *folia* that was derived the coarse gravel, and, finally, it was the gold which elsewhere to-day is found in the lodes, and even in the rocks of the Wanaka series, which made the Blue Spur not only a geological study, but also a valuable gold mine."

*Local Industry Company.*—This is a company which has a claim in the bed of Gabriel's Gully, about half-way between the Blue Spur and Lawrence. The shares are all held by people residing in the immediate locality. They have leased the Pioneer Company's water-race for the sum of £150 per annum, which gives about 300ft. of head of water in the bottom of the gully. The ground, which is chiefly tailings in the bed of the creek, along with what headings had been thrown away in the early days, is about from 25ft. to 30ft. in depth, and is worked on the hydraulic-elevating system. Their main supply-pipe is 15in. in diameter, and they are lifting the material about 35ft. The capital of the company is £1,500, in 1,500 shares of £1 each, of which 14s. per share, or £1,050, is paid up. They commenced sluicing operations in April last year, and up to the beginning of December last the value of the gold obtained was £1,179, and dividends up to that date of 2s. per share had been paid. Since then, it is said that this company are paying regular dividends monthly. There are six men employed. A small company like this has every chance of being a profitable investment. There are no idle men to pay. Every one has to work in the claim, and the interest of the small outlay being very small, the shareholders ought very soon to have the capital returned to them in dividends. The total yield of gold for the year ending 31st March last is said to be 422oz., and this was obtained from the treatment of 70,000 cubic yards of tailings, which would be about 2.9gr. of gold per cubic yard.