

of gold obtained at this place, but the best portion of the ground is no doubt worked out. At the same time it is believed by a number of miners that there is a considerable area of good ground that would pay well for hydraulic sluicing if properly carried on. . . . The same quartz-drift wash occurs here as at Tinker's, Matakanui, and St. Bathans's."

*Vinegar Hill.*—The importance of this place, apart from the presence of gold, is due to the enterprise and energy of Mr. John Ewing. Gold appears to have been discovered here during 1879 or the early part of 1880. Mr. Warden Robinson, reporting on the 31st March, 1880, in dealing with the fresh discoveries made in his district during the previous twelve months, says, "The principal item of interest in mining affairs has been the continued development of the rich ground at Vinegar Hill and Shepherd's Hut Flat, near Cambrian's, where a new goldfield equal to the famed Welshman's Gully may be said to be proved to exist. . . . This discovery comes in very opportunely, at a time when the Welshman's Gully, which has been continuously worked for the last sixteen years, may be reasonably expected to have yielded up the best of its treasures." Reporting for the year 1892, Mr. Gordon says, "The only claim being worked here [Vinegar Hill] is that of Mr. John Ewing. . . . The ground he is working is about 70ft. in depth, consisting of a greenish clay mud, full of small spiral shells and vertebræ of fishes. It is an exceedingly tough substance when first broken down, but after lying exposed to the atmosphere for some time it crumbles and melts away with the water. The whole of this 70ft. of overlying deposit on the auriferous wash-drift has to be removed before any gold is obtained, the wash-drift consisting of from 6in. to 1ft. of quartz gravel."\* Reporting for the year 1893, Mr. Gordon remarks that "the character of the ground worked last season is similar to that mentioned in my last report, the depth of the face being from 50ft. to 70ft. The uniform layer of wash is only from 1ft. to 2ft. thick, consisting of quartz gravel lying on top of the schist rock. The sedimentary deposit lying on the top of this wash has the appearance of a highly-consolidated glacier-mud. It is formed in bands, having only a slight inclination to the horizontal. Last season he had taken a cut in towards the range, and found a fault in the sedimentary deposits, which shows that the side next the range has been lifted up about 12ft. since the material was consolidated, every band being distinctly seen, corresponding with those at the 12ft. deeper level. The most interesting discovery made in this claim is on the end of the cut next the mountain-range. The old quartz drift is found to join on to the schist rock, dipping away into the range at a high inclination. This shows that the deep run of quartz drift is between these workings and the range, and this deposit has never been tested in this locality. There is a little gold through the drift, as far as it has been tested, below the level of the schist rock, and in all probability a rich run of this ground will be found between the present cut and the range. . . . Hughes and Morgan's claim . . . is closely adjoining Mr. Ewing's, and on the side of the hill facing Vinegar Flat. The quartz drift here is formed in bands, highly contorted, and lying at a steep inclination. . . . The depth of face where Morgan and Hughes are working is about 90ft."

Between the principal workings on Vinegar Hill and Welshman's Gully (Cambrian's) there is a line of quartz drift which, resting on the schist rock to the east, dips at a moderately high angle to the north-west in the south-west part, but at Vinegar Hill the younger beds dip off the hill itself at a low angle, and here show a considerable thickness of greenish fresh-water clay, resting on a thin stratum of quartz gravel. This clay, as described by Mr. Gordon, is seen to thicken as the works are carried to the northward, and does so up to the point where the eastern side is let down by a fault, which, with a grade of about 45°, pushes the younger rocks under the wall of schist, and at places so crushes wash and overlying clay together, and through each other, that what can be seen here is a splendid example of what may be supposed to have happened along the main line of fault here at Drybread and at Tinker's. Beyond the fault the clay-beds continue dipping at a low angle towards the north-west for a distance of some 3 chains, showing but little improvement in the thickness of the wash underlying, but at the furthest point reached in the workings the floor of schist rock dips suddenly, and the wash thickens, this line of dip in the floor trending away to the eastward. The cover of non-auriferous material not lessening, work has in the meantime been suspended in this direction, and a fresh working opened out at the north-eastern end of Vinegar Hill, near Mr. Ewing's house. This is in a continuation of the deep ground mentioned as occurring at the north-west end of the workings just described, and a heavy body of white quartz drift has been exposed, showing a very rich prospect of gold. The wash in the face was not bottomed at the time of my visit, but several highly satisfactory prospects washed by Mr. Ewing from an horizon about 8ft. from the upper surface of the drift, and a prospect taken by myself from what appeared the least likely part, some distance above and away from where Mr. Ewing had been trying, though not equal to the others, was yet a highly-paying prospect. There is little doubt but that, as indicated in Mr. Gordon's report of last year, this is the eastern margin of a deep run of quartz drift lying between the old workings and the foot of the mountain-range, and the thickness and richness of the wash in this promise to surpass what was anticipated of it. From the old workings to the foot of the pipe-line spur the width of this depression, filled with auriferous quartz gravel, is from 200 to 300 yards. It is probable that it narrows to the south-west, and, confined to a narrow channel, the wash will dip at high angles towards the range. To the north-east, on the right bank of the creek passing Mr. Ewing's house, the width of the run of quartz drift is about a quarter of a mile or more, and necessarily here the beds are lying at a lower angle. Over this north-eastern part Mr. Ewing has had some prospecting done, but as yet with no very remarkable results.

*St. Bathans's Basin.*—The rush at the Dunstan was reached by a great number of miners who followed the Shag Valley, and thence, crossing the Maniototo Plain, arrived at the Dunstan by way of the Manuherikia Valley. The result was many discoveries along the line of travel, of which Dunstan Creek and St. Bathans's are instances. The Basin of St. Bathans's and Kildare Hill has a peculiar

\* Reports on the Mining Industry in New Zealand, 1892, p. 88.