under consideration, but exposed to the northward. The oldest of the volcanics consist of andesitic and dacitic lavas, with tuffs and agglomerates of similar petrological composition. Coal partings are traceable in these rocks, and it is probable that more than one period of volcanic activity is represented. More recent than the andesites and dacites are the rhyolitic lavas, tuffs, and agglomerates, which are specially conspicuous towards the east of the area. The agglomerates of this latter period of vulcanism, as may naturally be expected, contain in places a large amount of semi-basic ejectamenta derived from the earlier volcanics. Most of the volcanics are highly altered by both meteoric and hydrothermal metamorphism, the latter being markedly apparent in the neighbourhood of the various auriferous veins to be later described. The loosely consolidated sands and gravels along the various streams consist of material derived from both semi-basic and acidic volcanics.

The Principal Mines.—In the Tairua Valley are situated the following mines, named in order of present importance: Tairua Broken Hills, Tairua Golden Hills, Tairua Triumph, Tairua Extended, Tairua Consols, and Coronation; while on the divide between the Tairua and Puriri Streams are the Golden Belt, Champion, Ready Bullion, and Brilliant. Only the four more important of these need be considered in this report—namely, Tairua Broken Hills, Tairua Golden Hills, Golden Belt, and Champion.

Tairua Broken Hills.—The Tairua Broken Hills Company is operating on a series of parallel or almost parallel veins in rhyolites, showing a very marked flow-structure, and situated on the south-east side of the Tairua Stream. The veins occur along somewhat intricate fault-planes, and are of various widths, in places being represented by narrow pug-seams with little or no quartz, elsewhere by definite quartz fillings up to 4 ft. in width. In the main adit level from the sloping surface facing the Tairua Stream no less than seven important veins have been intersected. It is remarkable that few, if any, of these veins were discovered actually outcropping. That they have considerable vertical extension downward is evidenced in the deepest workings on the principal vein (No. 1), which here appeared as strong and well defined as in any other part. The veins strike in a general north-and-south direction, and dip almost uniformly to the westward at high angles, crossing the trend of the flowage-planes of the enclosing rhyolites. The vein-stone is characterized by a large amount of clay-like material, which apparently often carries fair values. With this is associated the quartz, which varies considerably in character, being in places finely crystalline or chalcedonic, saccharoidal, drusy with numerous quartz crystals, or platy, the latter structure being evidently pseudomorphic after calcite. Pyrite is the only conspicuous sulphide present in the ore, and even this is not very common. The pay-ore occurs in shoots, with, however, somewhat indefinite boundaries.

Tairua Golden Hills.—The Tairua Golden Hills Mine is situated on the opposite side of the Tairua Stream from the Broken Hills. The mine, which is a new and undeveloped property, exhibits geological conditions almost identical with those of the older claim. In a tunnel put in from the steep hill-slope a definite vein at least 4 ft. in width has been cut, which is reputed to show payable values for the full distance drifted upon—about 70 ft. Two other veins outcropping on the crest of the hill are expected to be intersected by the continuation of this tunnel.

The Golden Belt Mine.—The Golden Belt Mine is located on the eastern slopes of Pakirarahi Mountain, at an elevation of about 2,000 ft. The proprietary company's operations are at present confined to mining ore from a vein occurring in altered andesitic or dacitic tuffs and lavas. This vein occurs in a fault-plane along which considerable brecciation of the country rock has taken place, and is on that account decidedly irregular both in its vertical and horizontal extension. The vein-material consists in the main of quartz, silicified wall-rock, and pug, all more or less pyritous. The quartz is generally finely crystalline, shows drusy cavities, and frequently exhibits ribbon structure. It occurs as lensoid sheets or irregular-shaped bunches and streaks, associated with the softer vein-material. Recementation of fractured and displaced ribboned quartz within the vein suggests at least two periods of mineralisation, the second of these periods being probably contemporaneous with the formation of an ore-deposit of rather different nature, to be later described. The ore-body under review varies in width from a mere pug-seam to about 10 ft., and the shoot of pay-ore therein is stated to have a horizontal extension of about 600 ft. The vein, which strikes nearly north and south and dips to the eastward, is mined from an adit level. Owing to the ground being heavy and minor faults numerous, particularly in the vicinity of the vein, a considerable amount of timber is required to secure the workings.

Overlying the semi-basic volcanics enclosing the vein just described are tuffs and fine-grained agglomerates. The finer material in these rocks is mainly acidic, though probably in part semi-basic. The coarser material exhibits fragments of all subjacent rocks, those of andesite, dacite, and a highly silicified tuff being most apparent. Small pieces of silicified carbonised wood occur in places. Economic interest is attached to these pyroclastics in that they are considered to afford a payably auriferous deposit at a particular locality known as the "Bluffs." Here the rocks along a zone, the limits of which are rather indefinite, are highly silicified, contain a good deal of pyrite and its oxidation-products, and exhibit numerous ramifying stringers and also small druses of quartz. The gold-silver content in this deposit is in great part associated with the pyrite, which is especially abundant in connection with carbonaceous inclusions. In the past some of this material has been mined from open cuts, and stamped in a small battery.

Only one period of mineralisation is apparent in the auriferous agglomerates; this mineralisation evidently took place at the same time as the cementation of the much-brecciated ore in the vein occurring in the underlying semi-basic volcanics. The latter vein apparently was originally formed before the deposition of the upper agglomerates and tuffs took place, and was probably brecciated at the time of their ejection. It is significant in this connection to note that the vein in the lower volcanics is stated to cease abruptly in upward extension against the hard silicified tuffs which form the lowermost measures of the upper volcanics.