marking the unconformity. Within the area examined they form the rocks of a great part of the Kauaeranga Valley, and extend southward over the western portion of the hilly country skirting the Hauraki Plains.

(4.) *Tertiary Volcanic Rocks of the "Third Period."*—Rhyolitic tuffs, breccias, and lavas constitute this rock group. Within the area examined they extend from the head of the Kauaeranga River and follow the high country of the main divide to the heads of the Kirikiri and Puriri streams. From here they gradually stretch further to the westward, in many places simply capping the andesitic hills, but near Hikutaia forming the foothills bordering the Hauraki Plains.

(5.) *Intrusive Rocks, of Various Periods.*—The identification of intrusive rocks, as such, in the extensive andesitic complex of this area is by no means easy, owing to the general lithological similarity of the intruded and the intrusive rocks, and to the very general alteration and decomposition which most of the rocks exhibit. That the basement sedimentaries underlying the andesitic formation at Thames are in places largely intruded by andesite and porphyrite dykes has been proved by the results of boring operations.

By far the largest and most conspicuous intrusive belt in the whole area is that which forms the Table Mountain plateau lying between the headwaters of the Waiwawa and Kauaeranga rivers. The rock is a black, lustrous, glassy hypersthene andesite, and, being intrusive into rhyolites, is certainly one of the youngest igneous rocks on the peninsula.

(6.) *Unconsolidated and Loosely Consolidated Debris.*—The fluviatile muds, sands, and gravels which form the extensive Hauraki Plains of the lower Thames-Piako Valley are the most widely developed of the deposits coming under this heading. Next in order of abundance is the fluviatile débris of the lower flood-plains and high-level terraces of the Kauaeranga River and smaller streams. Elevated sea-beaches occurring here and there between Thames and Tapu are of scientific interest rather than of areal importance.

Economic Geology.

The economic branch of the work within that portion of the Thames Subdivision examined during the past season may be briefly discussed under the following headings:—

(1.) Gold-silver quartz veins.
(2.) Metalliferous deposits other than gold-silver.
(3.) Stone for building and roadmaking.
(4.) Water-power.

(1.) Gold-silver Quartz Veins.—The only metalliferous deposits that are now being worked within the area under review are gold-silver quartz veins.

The payable veins occur in the andesites and the dacites, which have been grouped under the heading of "Tertiary volcanic rocks of the 'First Period.'."

Neither in the andesitic rocks of the "Second Period," nor in the still younger rhyolitic rocks of the "Third Period" have payably auriferous quartz veins been located in the Thames area, and, in the writer's opinion, such veins do not exist. The "Second Period" volcanics (Beeson's Island Series) have, unfortunately, when viewed from the economic standpoint, a considerable development in the Thames area, and the "auriferous series" exposed at the surface is therefore rather circumscribed. That certain areas within the rhyolite country ("Third Period" volcanics), which have been subjected to hydrothermal action, certainly carry gold is evidenced by the prospecting work carried out in the stream-beds. This gold, however, when traced to its parent source, is found to come not from quartz veins, or from any very definite silicified bands, but from rock masses which have been very sparsely impregnated with the precious metal by thermal waters. While at certain localities beyond the boundaries of the Thames area (Pakirarahi Mountain, &c.) there exists silicified rhyolitic ash or breccia of this character which may yet be worked for its gold-silver content at a small margin of profit, no such extensive deposits appear to exist in the particular area under review.

The andesites and dacites in the vicinity of the veins have invariably been altered by hydrothermal agencies to the light-coloured softer rock frequently termed propylite. The rhyolites also have undergone a similar alteration; while the sedimentaries exhibit alteration, although in less degree, due to the same agencies which have effected the propylitisation of the volcanics.

Remnants of hard dark unaltered rock are not uncommon within the propylitic areas, and are locally termed "hard bars." Any vein fissures which intersect them are usually represented by mere puggy seams.

Special attention has been directed towards the mapping of the auriferous belts or areas occurring within that portion of the subdivision under review. A careful examination of the country, supplemented by the results of surface prospecting operations, suggests that the discovery of auriferous areas altogether independent of those already known is unlikely. It can here be stated generally that, although the country is deeply incised by streams, prospecting work is both difficult and expensive. This is due mainly to the proneness of the vein-bearing rocks to weathering. A heavy mantle of surface débris covers practically the whole country. The area is, moreover, thickly wooded, and the dense intertwined undergrowth presents a very formidable barrier to the prospector once he attempts to leave the stream-beds.

Waiomo Valley and Adjacent Country.—Propylitised andesitic rocks of somewhat coarse texture form the vein-bearing country of Waiomo and adjacent localities. In fact, much the same class of rocks—alternating irregular beds of andesitic and dacitic lavas and breccias, in general much altered—have extension from Tapu Valley to near Kuranui Creek. The principal vein-occurrences are confined to the altered lava flows rather than to the brecciated rocks.