

open quarry. Thence it trends along the summit about 20 chains, and then gradually descends the eastern slope towards the Waiotahi, which it crosses in the Fame and Fortune lease. In this ground it joins or intersects the big Waiotahi Reef, and together they are supposed to follow the course of the stream to Punga Flat. But the exact relation which the Waiotahi Reef bears to the Golden Age Reef has not yet been definitely decided.

The Golden Age is probably the northern continuation of the Caledonia No. 1 Reef. It possesses the same underlie, and its quartz and mineral contents are similar; it also abuts against the Great Fault at the point where the continuation of the Caledonia No. 1 would be looked for. It was cut in the cross-cut from the end of the Moanataiari tunnel, but did not prove payable; but in all the shallower workings it has yielded splendid returns. The numerous hanging-wall leaders which it receives have also yielded large quantities of rich stone. Many thousands of feet of this large reef are still standing intact, and, although the most of it is low-grade, it should still yield occasional rich bonanzas.

*Nana Reef.*—This reef traverses the bottom of Collarbone Gully, and has been well exposed in the workings of the St. Hippo Mine. Throughout its known course it maintains a great width, averaging some 10ft. or 12ft. It contains rich patches at the intersections of the small cross-veins, which usually possess a steeper underlie than the main reef itself. It follows for a considerable distance the course of the Collarbone Fault, and this has rendered the timbering of the low-level drive a heavy and costly work, the more so as the reef and fault dip in the same direction.

*Adelaide Reef.*—This well-known reef traverses the Adelaide and Lone-Hand mining leases. It is situated on the lower steep slopes of Una Hill, and runs almost parallel with the Karaka at the lower end of the gorge. It varies from 1ft. to 2ft. in thickness, and has yielded many large returns of gold. Near the Lone-Hand ground it joins the Onehunga or Moa Reef, which runs across its course. The Onehunga Reef is a large and well-defined lode, varying from 2ft. to 4ft. in thickness. It has been worked with very payable results. Its course is about the same as that of the Hague-Smith Reef, of which it is possibly a northern branch.

*Duke's Reefs.*—There are three main reefs in this mining lease: known as Duke's Reef, a strong, well-defined lode, averaging about 4ft. thick; Dayspring Reef, from 6in. to 18in. thick; and Loyalty Reef, from 1ft. to 3ft. thick. All these reefs have yielded highly payable ore down to No. 3 level, situated about 400ft. above sea-level. They all underlie slightly to the south-east.

*Occidental Reef.*—This reef is small, but well-defined. It is generally vertical, or underlies slightly to the south-east. It has proved very rich at the intersections of "flinties."

*Magnolia Reef.*—This is the largest lode on the west side of Una Hill. It maintains an average thickness of not less than 3ft.; but in places it opens out to 18ft. or 20ft. The great mass of the quartz is low-grade.

*Hague-Smith Reef.*—This large reef pursues a northerly course from the mouth of Te Papa Gully to the saddle, and thence into Karaka Creek fall, on the course of the Onehunga Reef. It is a very large body of stone, averaging some 12ft. thick, and dips to the west at a high angle. Its quartz is generally hard, crystallized, and cavernous, and near the surface stained black or brown with iron and manganese oxides. Below water-level it is highly charged with iron pyrites. It is low-grade, but, so far as I can ascertain, it never falls below 4dwt. of gold per load. So far, very little work has been attempted on this valuable reef, and I am sure there is a prosperous future in store for it when it is systematically developed. It is joined in its course by a number of strong reefs, already described, which traverse the southern portion of the Una Hill in a north-east direction. Most of these have been stoped to the surface with highly payable results.

*Jupiter Reef.*—This is the champion lode of this end of the field. It joins or crosses the Hague-Smith at the mouth of Te Papa Gully, and thence strikes north-eastward along the north side of Hape Creek, at a distance of about 15 chains from the stream. It traverses the present Consols, Jupiter, Souvenir, and El Dorado mining-leases, and thence continues its course towards the northern sources of the creek. It has a distinct underlie to the south-east. Its average thickness is about 15ft., but in places it opens out to 30ft. or 40ft. It receives many small leaders and "droppers," many of which have proved very rich, but the main body of the reef is low-grade. This large reef possesses many advantages for successful working, and will doubtless yield payable returns in many places.

#### *Summary of Facts relating to Reefs.*

Summarising the foregoing facts, we find that the Thames Goldfield is traversed by a large number of distinct reef-systems, which run parallel with each other, and pursue a general north-east course, the only marked exception to this rule being the Hague-Smith Reef, which follows a northerly course, thus passing obliquely across the ends of the Una Hill Reefs. These reef-systems contain one, and sometimes two, main or principal lodes, and often a number of smaller subsidiary branching-reefs or leaders.

In the northern portion of the field, including that part lying between the Kuranui and the Moanataiari, the underlie of the reefs is towards the north-west, at angles ranging from 65° to the vertical position. The only exception to this are Barry's Reef, on the north side of the Kuranui, and its probable continuation, Dixon's Reef, both of which dip to the south-east at very high angles.

In the central portion of the field, lying between the Moanataiari and the Waiotahi, the main lodes underlie to the north-west at low angles, varying from 40° to 45°. Passing south of the Waiotahi, the dip of the reefs begins to steepen, and at the Queen of Beauty they dip north-west and south-east, at angles only a few degrees from the vertical. In the southern portion of the field the underlie of the principal reefs is towards the south-east, at very high angles, the only notable exception to this being the Hague-Smith Reef, which dips to the westward at an angle of about 65°.

The main lodes on the north side of the Moanataiari Creek do not live down to great depths, or, if they live, they do not preserve their gold-bearing character. In the more southern part of the field many of the main lodes have already been proved to persist through a vertical distance of