

The lodes, so far as may be judged by their outcrop, vary from a few inches to from two to three feet in thickness. Similar ore deposits are known to exist in many places in the district, and there appear to be good grounds for believing there are others as yet unopened.

GASCOYNE.—Reference has been made in a previous report* to the Carboniferous Rocks of the Gascoyne and the Minilya Rivers. The Minilya River, from Booracoorilya to a few miles above the junction with the North and South branches of the river, drains country underlain by beds of carboniferous age. The beds consist of sandstones, shales, limestones, and conglomerates. Near the base of the series, the boulder bed, with glaciated pebbles, alluded to in the previous report, occurs in great force in the vicinity of L 64, on the South branch of the Minilya, and can readily be followed across country for many miles. The boulder bed contains a heterogeneous collection of all varieties of crystalline rocks and very large boulders of granite. One exceptionally large flat-sided granite boulder exhibited glacial striæ in an excellent state of preservation; the boulder was too large for transport, and our attempts to reduce it to a more portable size proved unavailing. The carboniferous rocks of the Minilya, although arranged in a series of gentle folds, have a prevailing dip to the West. The Eastern boundary of the formation on the Minilya is marked by a powerful fault trending generally North and South, which throws the sedimentary beds against the crystalline rocks. The limestones and other rocks are standing on their edges in close proximity to the fault. The fossils collected during my examination of the country have been submitted to Mr. Robt. Etheridge, Curator of the Australian Museum, Sydney, who has supplied the following interim list:—

WANDAGEE STATION, MINILYA RIVER:

Fucoid.

Chonetes Pratti, Davidson?

Ptychomphalina, sp. nov. (*P. Maitlandi*, Eth. fil., M.S.)

Aviculopecten, sp. md. (portions only).

COOLKILYA POOL, WANDAGEE STATION, MINILYA RIVER:

Track caused probably by a burrowing organism.

Strophalosia Clarkei, Foord (nov. Etheridge).

HILLS ON WESTERN BOUNDARY OF WILLIAMSBURY STATION, MINILYA RIVER:

Athyris Macleayana, Eth. fil.

WILLIAMSBURY STATION, MINILYA RIVER:

Crinoid, Stems (in the "swollen" condition.)

Ampletus pustulosus, Hudleston.

Pleurophyllum Australe, Hinde.

Athyris Macleayana, Eth. fil.

Productus semireticulatus, Martin.

TRIG. STATION K37, GASCOYNE RIVER:

(Specimens with an ironstone glaze.)

Spirifera (partial internal cast of a large ventral valve).

Productus or *Strophalosia* (internal cast).

Athyris? (internal cast).

GASCOYNE RIVER:

Crinoid stems (fragments).

Athyris Macleayana Eth. fil.

Spirifera Musakheylensis, Davidson.

* Annual Progress Report of the Geological Survey for the year 1900. Perth: By Authority, 1901, pp. 27-28.

BARRACOODA POOL, ARTHUR RIVER :

- Evactinopora crucialis*, Hudleston.
Rhombopora tenuis, Hinde.
Athyris Macleayana, Eth. fil., var.
Productus semireticulatus, Martin ?
Aulosteges, sp. nov.
Dielasma, sp. md.

WYNDHAM RIVER, LYONS DISTRICT, BOULDER BED :

- Fragments of a *Spirifera* and a *Pecten*.
Polyzoa, small fragments.

FOSSIL HILL, WYNDHAM RIVER :

- Hexagonella dendroidea*, Hudleston, sp.
Pleurophyllum Australe, Hinde.
Crinoid stems (portions).
Polyzoa, fragments.
Spirifera Musakheylensis, Davidson.
Spirifera Hardmani, Foord ?
Spirifera lata, McCoy.
Reticularia lineata, Martin, sp.
Athyris Macleayana, Eth. fil.
Chonetes Pratti, Davidson.
Productus (cf. *P. tenuistratus*), Foord.

THE ISLAND, LAKE AUSTIN.—Mr. H. P. Woodward, who visited this district in connection with an application for assistance towards testing the ore deposits at a depth, has furnished the following notes on the general aspects of the district:—

The Island is a ridge of about three miles long, which rises abruptly from the salt flat called Lake Austin. The rocks, which strike a little East of North, are schistose with diorite dykes, lenticular banded ferruginous quartz reefs and white irregular quartz reefs—all of which underlie to the Westward, whilst the ore chutes dip to the North at a slight angle. These rocks have been considerably broken by the diorite intrusions, for, although few of these outcrop, they are met with in the crosscuts below ground.

The banded quartz reefs are the main features of this district, being met with at both Mt. Magnet and Nannine, as well as the Island. They generally rise above the surface as rough rock ridges, which rarely extend half a mile in length; they do not follow one main fissure line, but overlap one another and lie a little to the East or West, as the case may be. At the surface, they appear to consist mostly of banded ironstone with jasper veins, but when cut below the water line they prove to be banded blue and white quartz, containing considerable quantities of pyrites in places. These lodes, although poor, always contain a small quantity of gold, and invariably exercise considerable influence upon the richness of the quartz reefs of this district, which rarely contain gold except when in proximity to them.

The white quartz reefs are very irregular in their course, and are included in fissures of a more recent date than the last-mentioned, which they intersect. These reefs have in parts at the surface proved to be phenomenally rich, but these patches were never of great extent, nor did any go down. The chutes of rich stone in these reefs dip to the North, but are, as before stated, influenced by the presence of the so-called ironstone lodes; they are very flat and are never of great thickness, but the stone contained is good. The reefs at a depth contain a considerable quantity of hornblende and chloritic schist, with pyrites, and assume a banded appearance something similar to the main lodes.

MOUNT IDA.—The mining centre of Mount Ida, situated in the Ularring District of the North Coolgardie Goldfield, 66 miles North-West of Menzies, was examined by Mr. H. P. Woodward, who reported that in its physical configuration, the district consisted of—

A series of low ranges running a little West of North, between which are wide stony flats. Some of these ranges are flat-topped, being apparently the isolated remains of the sandstone tableland which once covered the entire district. The geological features, from a mining point of view, are decidedly of interest, but, owing to the broken nature of the country, form a complicated puzzle to unravel until a detailed geological map of the district has been compiled. Roughly speaking, however, they may be described as a main anticlinal fold, the axis of which lies a little West of North and East of South. Of this anticlinal the arched beds have been denuded, exposing the granite core (which was evidently the cause of this contortion), upon each side of which there is a belt of crystalline rocks about three-quarters of a mile in width, which dip at a high angle upon the E. to the E. and upon the W. to the W., and it is in these zones that the auriferous veins are met with. These belts are greatly broken by a series of cross courses and faults which prove a considerable trouble to miners, since they either throw or cut out the lodes or cause the formation of secondary veins, which are sometimes rich, but which are never continuous.