minent summit on the King Leopold Range. No fossils were met with in any of the sedimentary rocks, so their position in the geological scale can only be approximately determined. The quartzites of the King Leopold and Mueller Ranges were shown on the map accompanying Mr. Hardman's Reports as being of Lower Silurian or Cambrian Age; no geological work having been carried out since the date of that gentleman's examination, no apparent reason can be found to alter them from the position to which he assigned them.

Associated with the quartzites, etc., are a series of bedded and intrusive igneous rocks, the prevailing types being andesite, dolerite, and diabase. The individual characters of the different beds naturally present a large amount of variation. The rocks are sometimes amygdaloidal, and contain nodules of zeolites and agates. Beds of volcanic ash and breccia are common in certain localities. In certain isolated portions of the district excellent sections are exposed, showing the intrusive nature of some of the igneous rocks. The sandstones are sometimes altered into hard compact quartzite, portions of which have been caught up in the body of the igneous rock.

Other sections indicate quite clearly that the igneous rocks have, in some cases, found an easy passage along the bedding planes of the sedimentary beds, and evidently occur in the form of sills. The lavas are traversed by almost vertical dykes of epidosite, which are traceable across country for long distances.

These igneous rocks are of considerable economic importance, in that they form excellent pastoral country wherever they are exposed at the surface. Careful attention was paid to the structural relations of the volcanic plateau and other cognate points. The igneous rocks rest upon quartzites, etc., of a type identical with those by which they are covered.

Both the sedimentary and the igneous rocks are intersected by numerous segregation veins of quartz, some of considerable size and horizontal extent; they are, however, from an economic point of view, of no commercial importance whatever.

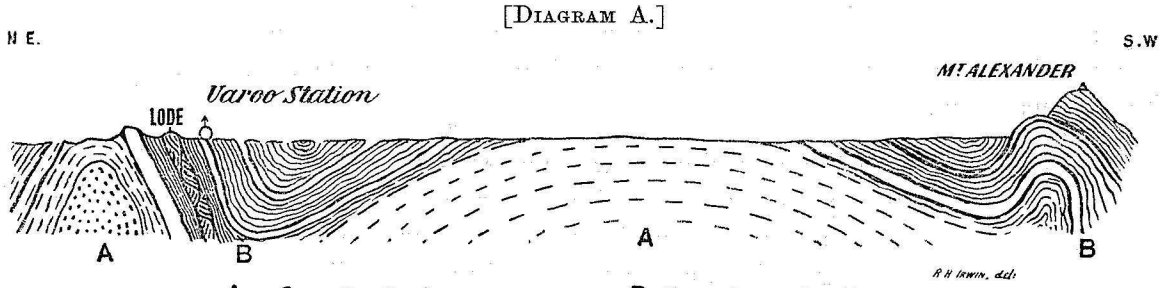
Having in view the fact that the researches of the late Mr. E. T. Hardman showed an extensive area of crystalline schists—the matrices of the metalliferous minerals—trending in such a direction as should carry them into the South-Western corner of the country examined, attention was directed towards ascertaining whether any mineral country existed thereabouts. As a result of our investigations it was evident that the quartzite formation—which unconformably overlies the crystalline schists—has not been cut down to its base by any of the rivers to the North of the King Leopold Range, hence any mineral country is entirely concealed from view, and any extension thereof will have to be searched for on the South side of the Range, among the crystalline schists and allied rocks.

A full report on the district is in course of preparation, and will be duly submitted; but as the bulk of this can only be prepared outside the usual official hours, some little time must necessarily elapse before the work is completed and ready for the printer.

Uaroo Find, Ashburton River.—Mr. S. Göczel was commissioned to report upon the copper deposits of Uaroo, on the Ashburton River; from this gentleman's researches it appears that the staple formation consists of crystalline schists associated with granitic gneiss. The beds form a belt of about 50 miles in width, which has been traced for a distance of about 150 miles in a North and South direction. The granitic gneiss apparently rises to the surface along the crests of anticlinal folds, along the flanks of which lie very much contorted crystalline schists. The schists often occupy

basin-like depressions, in the gneiss, and are apparently unconformable to the latter. The mutual relations of these beds are well illustrated in the cross section, which illustrates the structure of the country between Uaroo and Mount Alexander.

[Diagram A.]



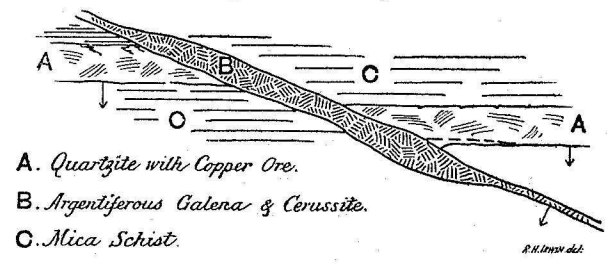
SECTION FROM UAROO STATION TO MtALEXANDER.
AFTER S. GOECZEL.
NOT TO SCALE.

The junction of the crystalline schists with the gneiss appears to coincide with a line of ore deposits. The crystalline schists appear to consist of two series: a lower, principally made up of mica schists, together with minor bands of siliceous schists and thin quartzite beds, and an upper made up mainly of mica schist, quartzites, ironbearing schists, hornblende, and calcareous schists.

The ore deposits of Uaroo occur in the crystalline schists, which have a North-Westerly strike and a steep dip to the East. The ore consists of carbonate and red oxides of copper, associated with argentiferous lead ores.

At the date of Mr. Göczel's visit, mining operations had only been commenced on the Rainbow Reward Lease.

[Diagram B.]

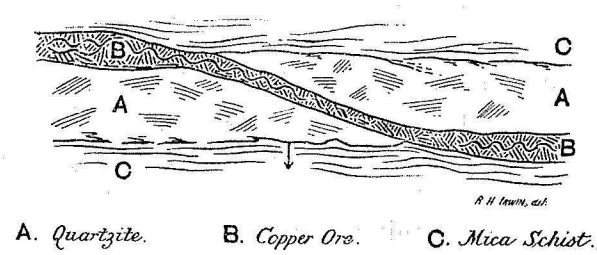


PLAN OF THE ORE DEPOSIT IN THE RAINBOW MINE Nr UAROO.
AFTER S. GOECZEL.
NOT TO SCALE

The deposit consists of a copper bearing quartzite (?) which has been faulted, and along the line of which argentiferous lead ores have been introduced. About 70 tons of high grade ore were at grass at the date of Mr. Göczel's inspection.

In the "Long Tom" Lease the copper lode is evidently a contact deposit at the junction of a quartzite mica schist bed, as can be seen by the section:—

[Diagram C.]



PLAN OF THE ORE DEPOSIT IN THE LONG TOM MINE Nr UAROO.
AFTER S. GOECZEL.
NOT TO SCALE

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. nd. (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 Williambury Station, Minilya River:

Athyris Macleayana, Eth. fil.

Williambury 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.