

(b) Triassic.

The basal beds of the Triassic system consist of conglomerates containing abundant jasper pebbles similar to those described for the Gunnedah section. These are overlain by sandstones with conglomerate bands. The general strike is about N. 20°W. and the dip where it is measurable lies between 15° and 25°.

The Triassic rocks occupy the higher ground to the north-west of Willow Tree. Towards Quirindi there is a local swing in the strike to the east of north, resulting in Triassic conglomerates outcropping in the bed of Borambil Creek in portion 19, Parish of Warrah.

Several isolated outcrops of conglomerates and sandstones in the Parishes of Borambil, Gunnadilly and Wallala have been mapped as being of Triassic age, but in the absence of any fossil evidence, it is impossible to be definite about their age. It is adjacent to the outcrop in the Parish of Wallala that a 15 feet thick seam of coal was alleged to occur at a depth of 100 feet.

(c) Tertiary Basalts.

Outcrops of Tertiary olivine basalts were mapped along the crest of Toll Bar Ridge to the west of Willow Tree, Four Mile Mountain, Johnson's Knob and a small hillock to the east of Mettam Trig. Station. South of the area mapped the basalts form widespread outcrops along the Liverpool Ranges.

To the west, both Tertiary and Garrawilla basalts have been mapped. It is considered that some of the latter may be found to be either Tertiary sills or remnants of Tertiary flows on the side slopes of hills.

(d) Tertiary to Recent Alluvium and Eluvium.

Large areas of the district between Willow Tree, Caroonia and Breeza are occupied by so-called "black soil" plains. Along Borambil Creek the rocks underlying the alluvium consist mainly of Werrie basalt and coal measures which form part of the fault block referred to above, erosion having been relatively easy in this zone. North-west and west from Quirindi, however, little is known of the rocks underlying the plains and the relationship of the alluvial cover to the rock basement is not clear.

BIBLIOGRAPHY.

- Carey, S. W., 1934—Proc. Lin. Soc. N.S.W. Vol. LIX, p. 351.
 Carey, S. W., 1935—Proc. Lin. Soc. N.S.W. Vol. LX, p. 447.
 Carne, J. E., 1908—Mem. Geol. No. 6, p. 52.
 David, T. W. E., 1907—Mem. Geol. No. 4, p. 118.
 Harper, L. F., 1925 (a) An. Rep. Dept. Mines, p. 105.
 Harper, L. F., 1925 (b) An. Rep. Dept. Mines, p. 109.
 Raggatt, H. G., 1929—An. Rep. Dept. Mines, p. 100.
 Raggatt, H. G., 1938—An. Rep. Dept. Mines, p. 107.

Coal on Bickham Station near Blandford.

(F. N. HANLON.)

The positions of rock outcrops in the area inspected have been mapped by Dr. H. G. Raggatt and are shown on a map of Parish Murulla, County Brisbane, in the Geological Survey Branch. However, there is no written description of the rocks or coal occurrences to accompany this map.

The following details of various bores and shafts sunk in the vicinity were supplied by Mr. Wright, the owner of Bickham Station.

Shaft in Portion 65—approximately 5 chains north (†) and 3 chains west of south-west corner of portion 199.

Depth 100 feet—passed through 34 feet of coal with a 1 foot seam of rock at 25 feet.

Bore in Portion 65—approximately 4 chains north-north-east of shaft.

Depth 75 feet—passed through 25 feet coal at 50 feet.

Bore in Portion 63—4 chains north-north-west of intersection of south point of portions 63 and 64.

Passed through 1 foot of coal at approximately 70 feet.

Shaft in Portion 61—on river.

Depth 120 feet—passed through 1 foot coal at 70 feet.

Bore in Portion 59—1 chain west of main road east of south-east corner of portion 67 (Village of Blandford).

Depth 220 feet—passed through 1 foot coal at 100 feet.

Bore in Portion 59—10 chains south of portion 184 (Village of Blandford).

Depth 169 feet—passed through 1 foot coal at approximately 110 feet.

Bore in Portion 33—at eastern boundary of intersection of Murulla Creek.

Depth 288 feet—passed through 2 feet coal at 130 feet (†).

Bore in Portion 131.

Depth 227 feet—no coal.

From Dr. Raggatt's mapping, the bore and shaft in Portion 65 are apparently in the Lower or Greta Coal Measures, and the remainder are in the Upper Coal Measures.

The outcrops of the Lower Coal Measures and prospecting openings inspected were in Portion 65. The inclined shaft was partly filled with water and was only accessible to the level of the top of the Coal Seam. The upper portion of the shaft was in river gravels almost down to where the coal was struck. The dip of the seam was about 17° in a direction N. 55°W. The roof of the seam consisted of shale.

Approximately north-east from the shaft the seam outcrops in the northern bank of the Pages River. The dip is steeper at this point, being 27°, but the direction of dip is still N. 55°W.

The coal was not sampled as only weathered material was available. However, judging from the appearance of the weathered coal the quality of the fresh material should be good.

It has been suggested that it would be possible to mine the coal by open-cut methods. However, the river flat under which the seam occurs is of limited extent, being only about 15 chains long, so that the amount of coal which could be won in this manner would also be limited. South of this flat the seam would be under heavy cover and to the north very little is known of the behaviour of the seam. The fact that the Pages River flows over the outcrop would probably mean that close to the river considerable quantities of water would be encountered in any workings.

A weathered coal seam outcrops in the left-hand bank of the Pages River near the boundary between Portions 62 and 64. It was at least 18 inches thick and would form part of the Upper Coal Measures.

Very little is known of the distribution of either the Upper or Lower Coal Measures between the vicinity of Blandford and Willow Tree. The geology of the area is complex and it is very desirable that some work should be done in this area. It is suggested that the survey of the north-western coalfield should be extended to include this area, as set out in the Government Geologist's minute in Ms. 46/1278, but that field work here should await completion of field work in the more important northerly areas of the north-western coalfield.

Notes on the Underground Water Possibilities of the Culcairn District.

(J. W. WHITING.)

In the course of a general reconnaissance survey between Wagga Wagga and Albury, some time was spent in the Culcairn district.

Up to the present no attempt has been made to fully utilise the underground water resources of the district, the majority of the bores and wells being sunk on

