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1961/61



THE GEOLOGY OF THE MACHATTIE 4-MILE SHEET AREA,  
QUEENSLAND.

by

F. Olgers.

The information contained in this report has been obtained by the Department of National Development, as part of the policy of the Commonwealth Government, to assist in the exploration and development of mineral resources. It may not be published in any form or used in a company prospectus without the permission in writing of the Director, Bureau of Mineral Resources, Geology and Geophysics.

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<u>CONTENTS</u>	<u>Page</u>
SUMMARY	1
INTRODUCTION	1
PHYSIOGRAPHY	2
STRATIGRAPHY	4
Pre-Mesozoic Sediments	4
Sandy unit equivalent to the Longsight Sandstone	4
Wilgunya Formation	5
Winton Formation	6
Marion Formation	7
Unit equivalent to the Austral Downs Limestone	8
Quaternary Deposits	8
GEOLOGICAL HISTORY	9
STRUCTURE	10
ECONOMIC GEOLOGY	11
Petroleum	11
Surface Water	11
Underground Water	12
Sand and rock aggregate	12
Opal	12
BIBLIOGRAPHY	13
APPENDIX. Hydrology Tables and Correlation Chart.	

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SUMMARY

The Machattie 4-mile Sheet area in western Queensland was mapped in 1960. Surface mapping and examination of water bore logs established a sequence of at least 2750 feet of Cretaceous rocks, which are, in places, unconformably overlain by up to 55 feet of Tertiary sediments. Possible basement rocks were struck in Cluny No. 1 and Coorabulka No. 10 bores. The Cretaceous rocks form the main aquifer and impermeable cap of the western portion of the Great Artesian Basin.

The Lower Cretaceous shales of the Wilgunya Formation are possible source rocks for petroleum. Source rocks also occur in the Lower Palaeozoic succession to the north, in the Boulia 4-mile Sheet area.

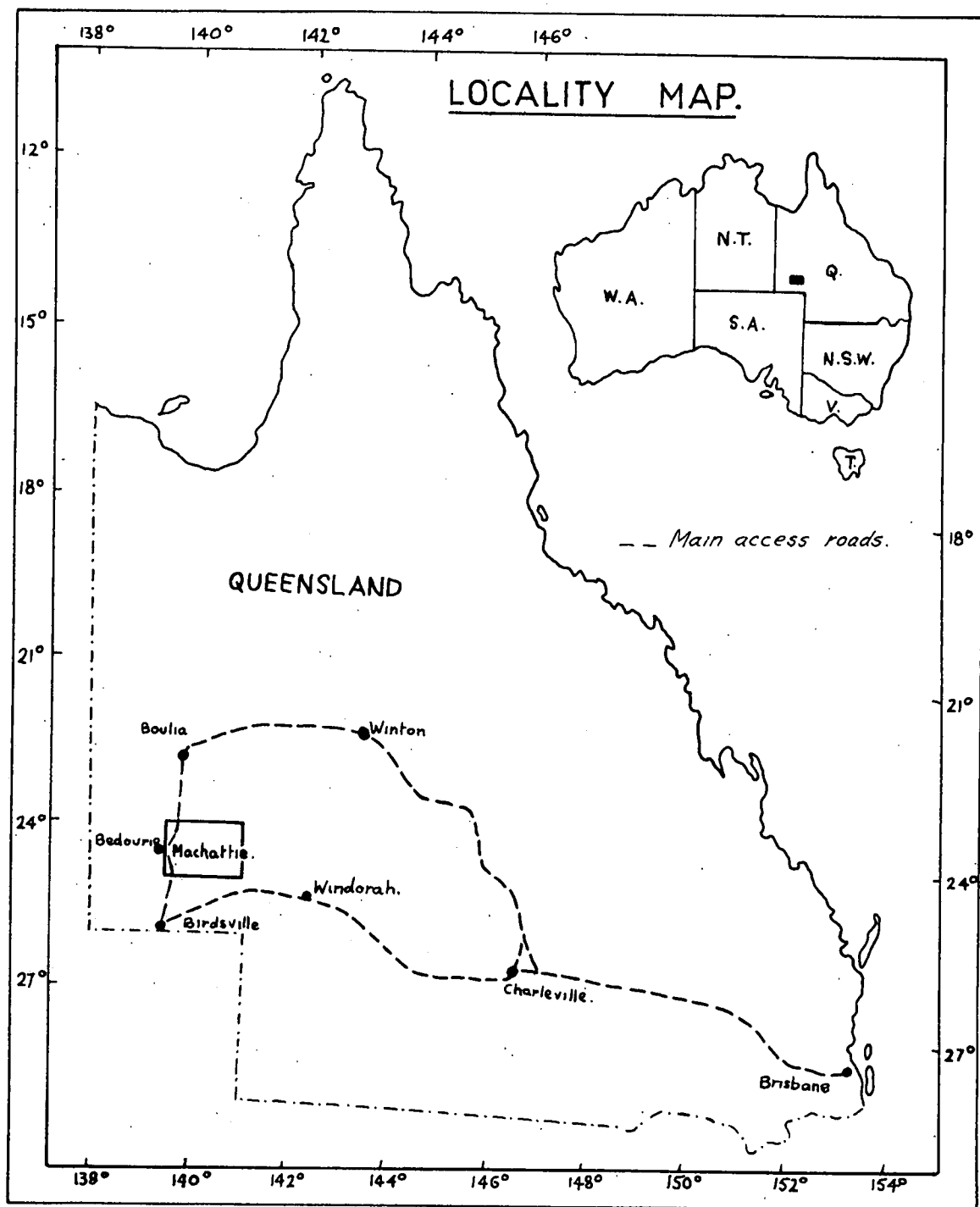
The sandstones of the Lower Cretaceous Longsight Sandstone are possible reservoir rocks in the Machattie area.

Neither oil nor gas has been recorded from any of the bores (11 artesian, 2 sub-artesian). Showings were reported from the Bedourie Bore, 5 miles west of the area, and from Delhi-Frome-Santos Betoota No. 1 Well, 50 miles south of the Machattie area.

A major north-east trending structure is present in the north-east corner of the area. It is possibly a continuation of the structure against which the Burke River Structure terminates in the Springvale 4-mile Sheet area, north of the Machattie area.

No economic mineral deposits are present in the area.

Figure 1.



## INTRODUCTION

The Machattie 4-mile area of Western Queensland is between latitudes  $24^{\circ}$  and  $25^{\circ}$  South and longitudes  $139^{\circ} 30'$  and  $141^{\circ}$  East; the township of Bedourie (population 40) on Eyre Creek is just outside the western edge of the Machattie area.

Mapping of the Machattie area was carried out in 1960 as part of the regional mapping of the western part of the Great Artesian Basin. Geology and topography were plotted on aerial photographs (at 1 : 50,000 scale) taken by "Adastral" in 1957. Portions of Kamaran Downs, Coora-bulka, Davenport Downs, Cluny, Monkira and Glengyle stations occur in the area; they are cattle stations and generally carry about 35,000 head of stock in the sheet area.

The country is mainly low undulating plateau of white and red rocks with a veneer of ironstone gravel in many places. Broad belts of channels and alluvial plains of Eyre and King Creeks and the Diamantina River cross the area. Rolling downs, typical of the Great Artesian Basin area, occur in the north-east corner. Lake Machattie is in the south-west corner; it is occasionally filled by floods of the Georgina River.

The higher country supports little vegetation; trees are generally confined to the river and creek courses; the downs support Mitchell grass. The climate is dry with warm to hot days and cold to cool nights for most of the year. Cold winds from the south sometimes bring rain in winter months but more often dust and sand storms. Most rain falls during the summer. Rainfall, however, is low - the annual average is only 7 inches and droughts are common.

Traversing the gravel covered plateau area is easy and good interstation tracks have been formed; sand dunes form barriers in some places. The lower downs and channel country provide rough travel and many of the steep-sided

channels are impassible. Main roads from Boulia to Birdsville, Bedourie to Springvale and Windorah cross the area; they are well graded but unsurfaced and soft, dusty to sandy, in parts. Roads and tracks become boggy in wet weather, and most rivers and creeks are impassible when flowing.

Water (mostly potable) is available from artesian bores and permanent water holes of the Georgina and Diamantina Rivers. Stock water is also provided by dams and earth tanks.

The Machattie 4-mile Sheet area forms part of Authorities to Prospect Nos. 66P and 67P, Queensland, held by Santos Ltd. and Delhi Australian Petroleum Ltd.

The Machattie 4-mile Sheet area has not attracted much attention in the past due to its geographical position and the absence of economic mineral deposits. Reports of Daintree (1872), Jack and Etheridge (1892), Dunstan (1920), Whitehouse (1930, 1940, 1941, 1945, 1948 and 1954), Sprigg (1958), Casey, Reynolds, Dow, Pritchard, Vine and Paten (1960) and Reynolds (1960) have contributed to the geological knowledge of the region.

Gravity surveys by the Geophysical Section of the Bureau of Mineral Resources were made in the western part of the Great Artesian Basin from 1957-1959.

Department of the Interior surveyors traversed the area in 1958 and 1960, and a seismic survey, covering the far south-west of Queensland and parts of South Australia was undertaken by the South Australian Mines Department in 1960 (Milton and Seedsman, 1961). Geosurveys of Australia Ltd. and Geophoto Services Inc. of Colorado, U.S.A., compiled photointerpretation maps of the Machattie area in 1959 and 1960 respectively.

#### PHYSIOGRAPHY

The Machattie 4-mile Sheet area is one of extensive,

low lying flood plains along major rivers which run through the area in a south-south-westerly direction; the Diamantina River flows through the south-east, and Eyre and King Creeks, (tributaries of the Georgina River) cross the north-west. A short section of the Georgina River also runs through the south-west of the area. All streams flow intermittently but mainly during the summer. The rivers have gradients of 10.5 inches per mile and have multiple channels; the secondary channels are more or less parallel and divide and connect frequently. Many waterholes in the channels hold water for many months and some are permanent. The total width of the multiple channels of King and Eyre Creeks is approximately 24 miles in the Machattie area. The Diamantina is about 12 miles wide north of Monkira Homestead but is constricted to form a bottle-neck, 4 miles wide, opposite the homestead. Rivers flow after falls of heavy rain at their headwaters about 200 miles to the north, and extensive flooding of the low channel country in the Machattie area occurs. Lake Machattie in the south-western corner of the area is a lateral lake of the Georgina River; when the river floods, water runs into the lake through a series of connecting channels. Between the alluvial plains of King Creek and the Diamantina River lie rolling downs soil plains in the north and a low dissected plateau in the south. The soil plains are low and flat and become partly flooded in summertime. The boundary between the downs country and the low plateau country formed by the weathered Winton Formation further to the south, is very distinctive and consists in places of a steep scarp which is seen along the Diamantina River, north-east of Monkira Homestead. The surface is covered in many places by ironstone gravel. An area of sand dunes lies north and east of Lake Machattie and consists of N.N.W.-S.S.E. trending sand ridges, separated by clay-pans and sand drifts. The dunes average 35 feet in height and in places are covered by spinifex.

TABLE I. - STRATIGRAPHY OF THE MACHATTIE 4-MILE SHEET AREA

Era	Period	Formation and Symbol	Lithology	Max. thickness	Occurrence	Correlation	Topographic expression
	Quaternary	Czs, Cza, Czg	Sand, alluvium and gibbers	Czs - 50' Cza - 65' + Czg - 1'	outcrop		Sand dunes, alluvial flats and gibber plains.
Cainozoic	Tertiary	Austral Downs Limestone (Ta)	Silicified limestone (chalcedony)	55' (Gemerchie Bore)	outcrop		Small hills but mainly as gibbers on the plains.
		Marion Formation (Tm)	Silicified sandstone and conglomeratic sandstone	10'	outcrop	Byrian Series (?) (Woolnough and David, 1926)	Flat-topped caps on hills; forms gibbers by erosion.
	Cretaceous Upper?	Winton Formation (KU?)	Partly silicified claystone and arkose.	+ (Georgina Bore)	Outcrop		Low weathered plateaus with moderate relief.
Mesozoic	Cretaceous Lower	Upper Wilgunya Formation (KBw2)	Shale and sandy shale with calcareous nodules.	2575' + (Georgina Bore)	Outcrop	Tambo Formation	Gently undulating plains (rolling downs).
		Toolebuc Member (Klwt)			bores (?)	(Whitehouse 1926)	
		Lower Wilgunya Formation (Klw1)	Mainly dark shale		bores	Roma Formation (Whitehouse, 1926)	not present
		Longsight sandstone (Kll)	Sandstone	180' + (Georgina bore)	bores	Upper Blythesdale Group (Jack, 1895)	in outcrop
Palaeozoic	Cambro-Ordovician (?)		"Hard Rock" and "Limestone"	18' + (?) (Coorabulka No. 10)	bores (Coorabulka No. 10 and Cluny No. 1)	Lower Palaeozoic rocks in Boulia area (?)	not present in outcrop



## STRATIGRAPHY

The stratigraphy of the area has been fully described in Reynolds et al. (1961). Table I summarizes the stratigraphy of the area and the lithology of the units, both surface and sub-surface. All units will be described separately in the following pages.

### Pre-Mesozoic sediments

The aim of all drilling in the Machattie area was to obtain stock water, and 8 of the 10 bores for which bore logs are available bottomed in the sandstone of the probable Lower Cretaceous aquifer.

Coorabulka No. 10 and Cluny No. 1 bores passed through the aquifer into rocks described by the drillers as "Hard Rock" and "Limestone". These rocks could be equivalent to the Lower Palaeozoic rocks which crop out approximately 80 miles to the north-west of the Machattie area on the edge of the Great Artesian Basin. They are shown as of pre-Mesozoic age on the sub-surface contour map of the base of Mesozoic sediments in Western Queensland by Reynolds (1960).

### Sandy unit equivalent to the Longsight Sandstone

The Lower Cretaceous Longsight Sandstone has been reached in most bores as it is the main aquifer of the area.

The formation was named by Casey (1959) after Longsight Peak ( $22^{\circ} 30' \text{ S.}, 139^{\circ} 31' \text{ E.}$ ) in the Boulia 4-mile Sheet area. The type area is at Longsight Peak and on the south side of Eastern Creek ( $22^{\circ} 17' \text{ S.}, 140^{\circ} 17' \text{ E.}$ ). No outcrops occur in the Machattie area; the nearest outcrops are to the north in the Mt. Whelan and Boulia 4-mile areas. A full description of the unit is given in Casey et al. (1960). The main lithologies described in bores are sandstone and shale; the formation reaches a thickness of at least 175 feet in Georgtina bore in the south of the Machattie area. The formation is conformably overlain by

the Wilgunya Formation.

Wilgunya Formation and Toolebuc Member

The formation was named by Casey (1959) after Wilgunya Creek, a tributary of the Hamilton River in the Boulia area. The type area of the formation lies 8 miles to the north-east of Dover Homestead at  $22^{\circ} 32' \text{ S.}$ ,  $140^{\circ} 50' \text{ E.}$

Reynolds (1960) divided the formation into 2 parts, the upper Wilgunya Formation and lower Wilgunya Formation; they were correlated with the Tambo and Roma Formations in the eastern regions of the Great Artesian Basin respectively. The Toolebuc Member occurs at the base of the upper part of the Wilgunya Formation. The member was named by Casey (1959) after Toolebuc Homestead in the north-east corner of the Boulia 4-mile Sheet. The type area lies on the Boulia-Winton road 7 miles east of the Hamilton Hotel. The unit consists of sandy calcarenite, calcareous siltstone and coquinite with some calcareous concretions, and is very fossiliferous; it is 30 feet thick in the type area.

The Wilgunya Formation, except the Toolebuc Member, has a poor macro-fauna. The macro-faunas of the lower and upper parts of the formation and the Toolebuc Member have been listed by Dickins (1960). The Toolebuc Member is rich in Aucellina hughendenensis and Inoceramus; other pelecypods are rare. Ammonites, fish scales, teeth and bones, and vertebrate bone fragments have also been found in the member. The micro-fauna of the Wilgunya Formation is a rich one (Crespin, 1960). The Toolebuc Member can easily be recognized by the presence of planktonic foraminifera (Globigerina planispira) only, which are abundant.

The top beds of the upper Wilgunya Formation crop out in the north and east of the Machattie 4-mile Sheet area and give rise to gently undulating soil plains with scattered small outcrops of calcareous sandstone. The sandstone occurs as lenses in shale and consists of angular quartz

fragments and fresh, angular pieces of feldspar set in a matrix of re-crystallized argillaceous and limonitic calcite. Fragments of mica-schist and chert are present. Crespin (1961) reports the presence of ostracods, *Inoceramus* prisms and glauconitic replacements of foraminifera. Pieces of wood also occur.

The lower part of the Wilgunya Formation and the Toolebuc Member do not occur in outcrop in the Machattie area. The lower Wilgunya Formation consists mainly of shale and it is impossible to determine the boundary between the lower and upper portions of the formation by means of water bore logs. The Toolebuc Member is not shown in bore logs - it may not extend into the deeper parts of the Great Artesian Basin as a predominantly calcareous unit, but sandy units shown about 450 feet above the base of the Wilgunya Formation in Nos. 2 and 4 bores, Cluny, may be its equivalent.

The Wilgunya Formation is conformably overlain by the Winton Formation, or, in the north-west corner of the area unconformably by the Tertiary Marion Formation. The beds of the Wilgunya Formation are marine, Lower Cretaceous, and form part of the Great Artesian Basin sequence. Their thickness is estimated from bore logs to be 2000 feet (maximum) in the Machattie area.

#### Winton Formation

Dunstan (1916) used the name "Winton Series" for Cretaceous rocks in the Winton district, central Queensland, and separated the unit from the "Rolling Downs Group". Whitehouse (1930) put the "Winton Series" conformably above the "Tambo Series" and tentatively assigned it to the Cenomanian and Turonian. Whitehouse (1953) used the name Winton Formation and in 1954, he put the formation in the Rolling Downs Group, giving its age as Cenomanian or later.

The formation crops out in the southern regions of the Machattie area where it forms low gentle rises. It does not occur north-west of King Creek, where Tertiary

deposits directly overlying the Wilgunya Formation.

The dominant lithology is arkose; interbedded clay-bands are present. Ironstone occurs as nodules and as a more or less continuous 1-2 inches thick band. This band occurs near the top of the outcrops, and on weathering, breaks up into angular pieces which remain on the surface and form the ironstone patches which are characteristic of the photopattern of the formation in the area. The rocks have been deeply weathered and partly silicified; on weathering they break up into small blocky fragments.

The Winton Formation conformably overlies the Wilgunya Formation; in some places it is unconformably overlain by Tertiary limestone. The formation is a lacustrine deposit. The thickness of the unit in the Machattie area is not known as its lithology is very similar to that of the underlying Wilgunya Formation, and it was found impossible to draw the boundary between the formations on the basis of bore logs only. The maximum thickness measured in outcrop was 50 feet.

#### Marion Formation

The Marion Formation was named by Casey (1959) after Marion Downs Homestead, 40 miles south-south-west of Boulia on the Boulia-Bedourie road. The type area lies 14 miles west of Marion Downs; the reference section is 5 miles north-west of Strathelbiss Station, 14 miles north of Boulia ( $22^{\circ} 44' \text{ S.}, 139^{\circ} 47' \text{ E.}$ ).

In the Machattie area, the formation is restricted to a small area, north-west of King Creek, where it caps small hills. The formation consists of silicified unsorted sandstone and sandy siltstone, which on weathering produce the pebbles that form the gibber plains.

The Marion Formation rests unconformably on the Wilgunya Formation. In places, the deeply weathered siltstones of the Wilgunya Formation are exposed.

The formation which is only a few feet thick in the Machattie area, is considered to be a fresh water and in part aeolian deposit (Casey et al., 1960). A probable Tertiary age has been assigned to it and the formation is probably related to the Eyrian Series of South Australia. Apart from fossil wood found in the Boulia area, it is unfossiliferous.

#### Unit equivalent to the Austral Downs Limestone

The formation was named by Noakes and Traves (1954) after Austral Downs Homestead in the Urandangi 4-mile area. The type localities lie in the Georgina Valley at Austral Downs ( $20^{\circ} 30' \text{ S.}, 137^{\circ} 46' \text{ E.}$ ) and Urandangi ( $20^{\circ} 40' \text{ S.}, 138^{\circ} 16' \text{ E.}$ ) homesteads.

In the Machattie area, the unit occurs as scattered chalcedony pebbles on the plains and as chalcedony cappings on small hills 8 miles north-east of Cluny, 13 miles north-west of Monkira and near Gernerchie bore. The chalcedony is thought to have originally been limestone. Because of its appearance, it is correlated with limestone (partly replaced by chalcedony) outcrops elsewhere, which have been related to the Austral Downs Limestone.

The unit is considered to be of lacustrine origin and reaches a thickness of 55 feet in the Machattie area (Gernerchie Bore). Paten (1960) suggested a late Tertiary or early Quaternary age for the formation.

#### Quaternary deposits

Extensive alluvial plains occur along King and Eyre Creeks, the Diamantina and Georgina Rivers and in the Lake Machattie area. The alluvium consists mainly of clay, sandy clay, sand and gravel, and reaches a thickness of 30 feet near Cluny Homestead and at least 65 feet in King Creek near the western edge of the sheet area.

Wind-blown sand occurs in the far north-east of the sheet area and north and east of Lake Machattie. The sand occurs in N.N.W.-S.S.E. trending sand ridges and in drifts

between them. Most dunes have a reddish colour due to the ferric oxide coastings of the sand grains. The sand is poorly sorted and fairly angular.

Gibbers are confined to the north-west corner of the sheet area north of King Creek. The gibbers are formed by the weathering of the Tertiary Marion Formation; they consist of silicified argillaceous sandstone and conglomeratic sandstone and are extremely resistant to further weathering.

Ironstone gravel occurs in huge "patches" over the Winton Formation in the central and south-western regions of the Machattie area. The gravel consists of pieces of limonitic material which form a 1-2 inches thick layer over the surface. The ironstone is derived from a probably more or less continuous band of the material which occurs in the Winton Formation near the top of the outcrops. Some ironstone is present on the rolling downs country in the north-east of the area.

#### GEOLOGICAL HISTORY

(see table I)

Coorabulka No. 10 and Cluny No. 1 bores passed through Lower Cretaceous aquifer sands into rocks which could be of Lower Palaeozoic age. However, little is known about the pre-Cretaceous history of the area (Reynolds et al., 1961).

The Cretaceous Period commenced with the deposition of sandstone, sandy shale and shale of the Longsight Sandstone equivalent in a shallow water environment; conditions changed during deposition from freshwater to marine.

These predominantly sandy beds were covered by the marine shales of the Wilgunya Formation, which were laid down in a transgressing and later regressing sea.

Probably towards the end of the Cretaceous Period, marine conditions gradually changed to become brackish, and

ultimately fresh. A lake had formed, and the claystones and arkoses of the Winton Formation were laid down; some lignitic beds are known from water bores.

Erosion followed the deposition of the Winton Formation. Tertiary sandstones of the Marion Formation were then unconformably laid down over the Wilgunya Formation in the north-west corner of the sheet area, north of King Creek.

Sedimentation was followed by lateritization and silicification, which brought about extensive changes to the textures and compositions of all rocks at or near the surface.

Late Tertiary or early Quaternary (Paten, 1960) limestones were unconformably laid down over the Wilgunya Formation and Winton Formation in isolated places. These limestones were subsequently silicified to varying degrees.

Recent alluvium and sand now cover large regions in the Machattie 4-mile Sheet area.

#### STRUCTURE

No major structures have been recognized in the area. The Cretaceous formations have very low dips to the south-east towards the centre of the Great Artesian Basin; some thickening also takes place in that direction.

A north-east trending structure is present in the north-east corner of the area. It is well marked on air-photos but cannot be distinguished in the field, as it occurs on black soil plains with concretions and lenses of calcareous sandstone of the upper part of the Wilgunya Formation. This structure is roughly parallel to those against which the Burke River structure terminates in the Springvale 4-mile Sheet area, north of the Machattie 4-mile area (Reynolds, 1960).

North-westerly dips of up to  $45^{\circ}$  occur in the Winton Formation north-east of Cluny Homestead. No structures have been recognized in that area, but Reynolds et al. (1961) suggest a possible small monoclinal flexure.

Gravity work revealed north-east trending gravity-high anomaly axes north of King Creek, north of Glengyle Homestead and west of Monkira Homestead. The edge of the Precambrian shelf (Boulia Shelf) was found to run through the Machattie area in a north-easterly direction in a position approximately coinciding with the course of the Diamantina River.

### ECONOMIC GEOLOGY

Petroleum. Twelve water bores, ranging in depth from 1500 to 2750 feet, have been drilled in the Machattie area, and none showed any trace of oil or gas. Most of these bores penetrated the Winton and Wilgunya Formations and part of the Longsight Sandstone equivalent (the main aquifer of the area).

Reeves (1951) stated that no traces of oil have been encountered in the Cretaceous in the 5,000 bores that have been drilled into or through the Cretaceous in the Great Artesian Basin. Moss (1932) however reported paraffin wax and petroleum gas from Lower Mesozoic rocks underlying marine Cretaceous rocks in the basin. Mott (1952) reported occurrences of oil from the Blythesdale Group, and the Bedourie bore 10 miles west of the area, was reported to contain a showing of oil or gas. Reeves (1951) stated that the only possibility of finding oil in the basin depends on whether the Cambro-Ordovician rocks, which crop out 80 miles to the north-west of the Machattie area, extend into the basin (see page 4).

The exploratory well at Betoota, 50 miles south of the Machattie area penetrated about 10,000 feet of sediments, the basal 4,000 probably being Lower Palaeozoic. Showings of oil and gas were reported from the well but drill stem tests proved negative in both cases.

Surface water. Permanent waterholes occur in the Diamantina and Georgina Rivers, and in some of the larger tributaries of these rivers. The waterholes are accessible to stock,



but some are traps due to the muddy nature of the banks. Many of the waterholes in the tributaries are curved around the ends of sand dunes. In many cases, the permanent nature of these holes must be due to the constant supply of water obtained from the dunes by soakage, as the evaporation is high and would cause most of them to dry up during the summer. In emergencies soaks can be dug between the dune and the waterhole to obtain clean water.

Where waterholes are absent, earth tanks have been built to conserve water for stock. They are constructed in streams with very low gradients to prevent silting.

The three homesteads in the area (Cluny, Monkira and Glengyle) obtain their water supply from nearby permanent waterholes.

Underground water. Surface waters are supplemented by 10 artesian and 2 sub-artesian bores with a total daily output of approximately 5,000,000 gallons.

The main aquifer of the area occurs in sandstones of the Longsight Sandstone equivalent. In the Machattie area, the aquifer dips in a south-easterly direction and water was found at depths ranging from 1475 to 2575 feet below the surface.

Sand and rock-aggregate. The sand that makes up the sand dunes in the area is in most cases too fine to be of use in the preparation of concrete. Coarse sand can be obtained from creek beds in some places.

Rock aggregate for concrete is hard to obtain as most rocks are too much weathered. Silicified gibbers are useful for this purpose, but occur only in the north-western corner of the sheet area, north of King Creek.

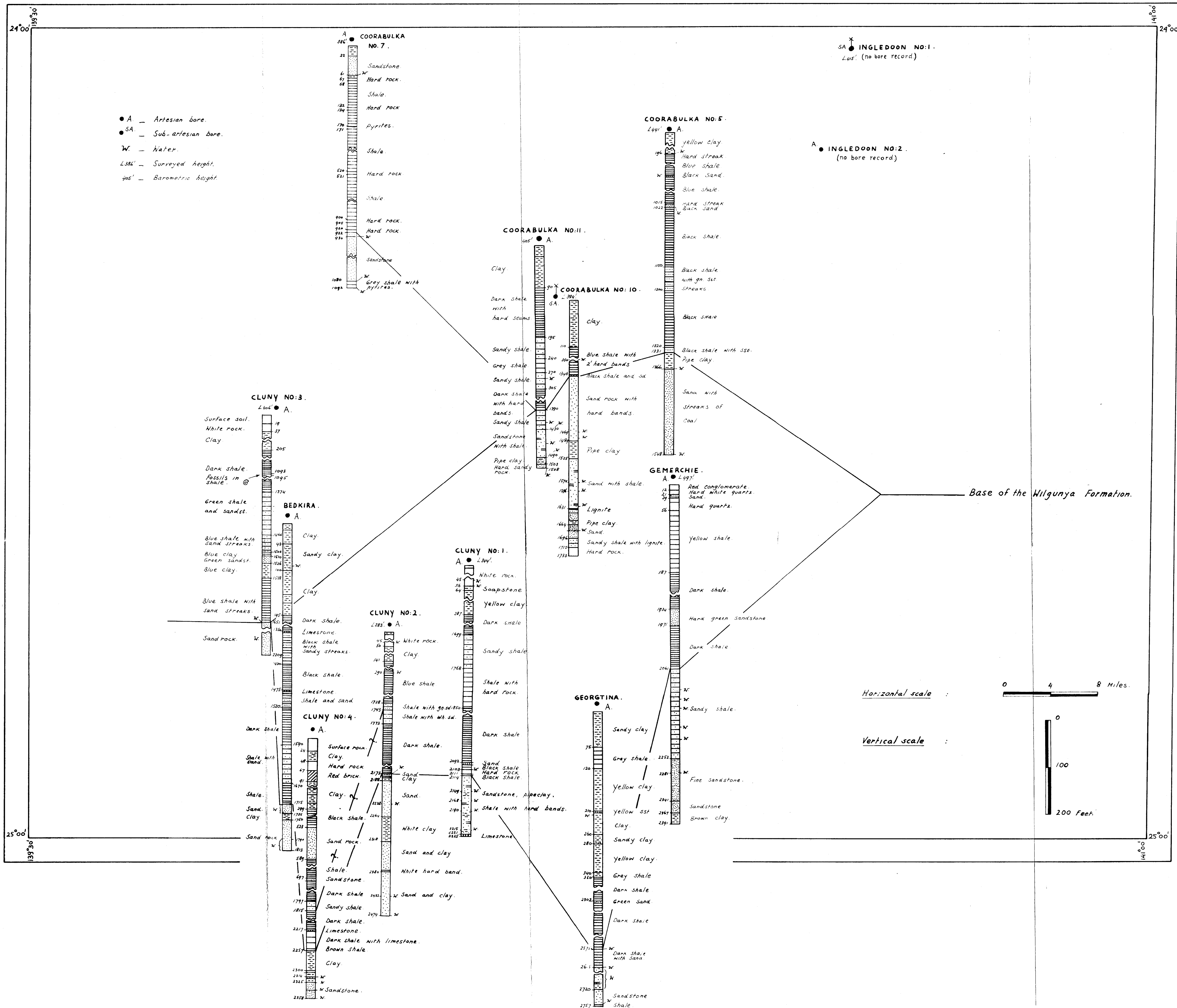
Opal. Potch opal has been found in the south west of the Machattie area. It is similar to that found north of Humpamurra Tank (Glengyle Station, Bedourie 4-mile Sheet), where precious opal is reputed to have been found (Reynolds, 1961).

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# DIAGRAMMATIC CORRELATION OF BORE LOGS IN THE MACHATTIE 4-MILE AREA.

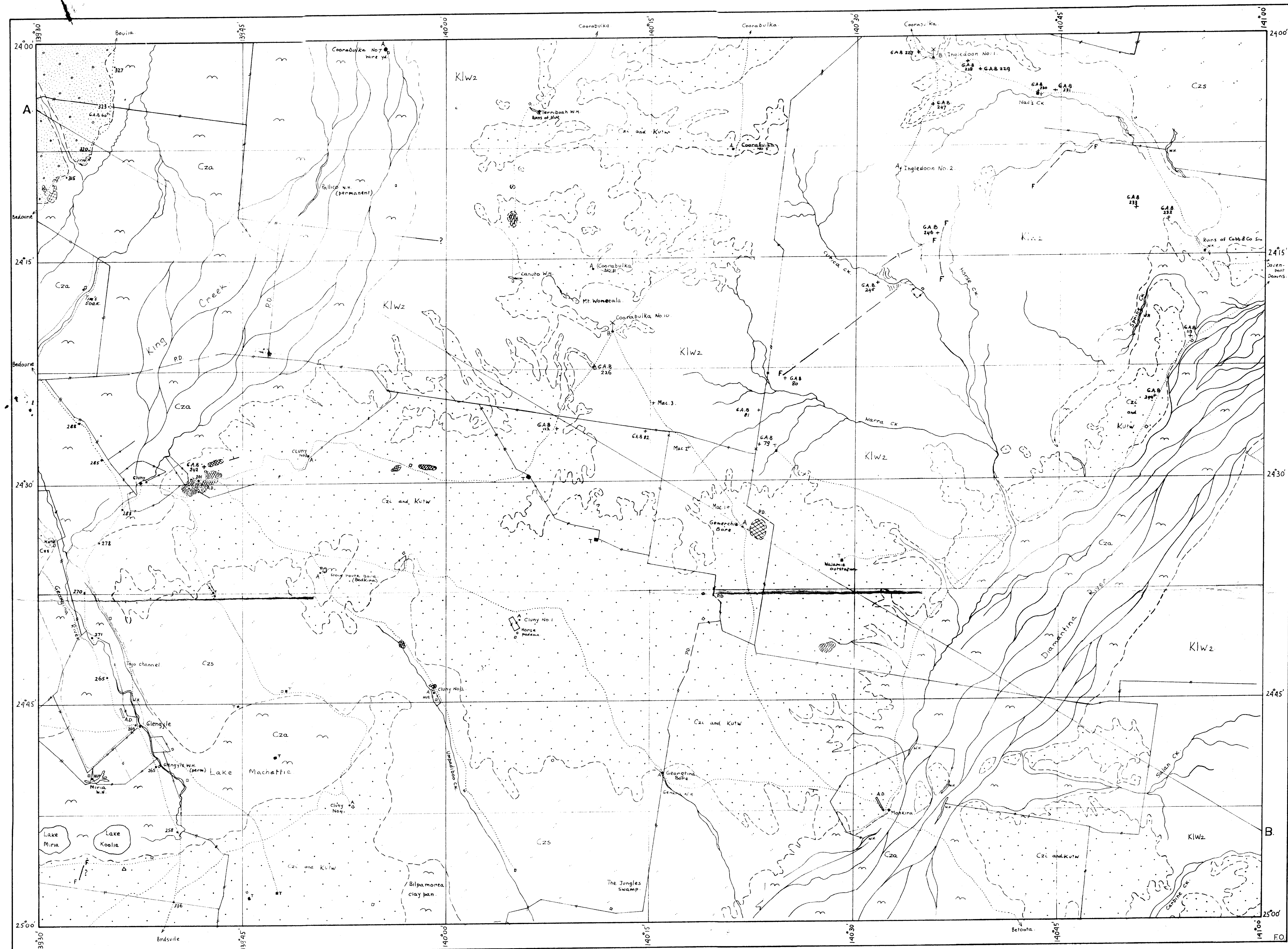


## MACHATTIE 4-MILE SHEET AREA

Name of Bore (Station)	Registered Number	Position	Artesian (A) or Sub-Artesian (S.A.)	Depth (Ft.) Water Struck	Depth (Ft.) Water Rose to.	Supply (Gallons per day)	Quality	Driller and Year Drilled
Bedkira. (Government bore on Cluny property).	12165	15 miles S.S.E. of Cluny No. 3 bore; 16 miles S.E. of Cluny Homestead.	A	91 1715-1735 1789-1813	42 Surface Surface	? 146,000 698,000	Salt Fresh Fresh	Godfrey Brothers 1953.
Cluny No.1 (Cluny).	2060	1 mile S of Cluny-Monkira Road; 32 miles from Cluny.	A	5 56 2103 2149 2168 2190 2215	Soak ? 4" over casing 3" " " 1" " " 15" " " 42" " "	? Large 1921- 875,000 1946- 825,000 1951- 825,000 1952- 838,000	Fresh Brackish Good	1917
Cluny No.2 (Cluny)	2061	28 miles S.E. of Cluny Homestead.	A	290 2173 2238 2432 2471	? Surface 4" over casing 20" over casing 56" over casing	Good supply ? 1920-1,205,000 1922-1,334,000 1948-1,260,000 1952-1,278,000	Good ? Good	1919
Cluny No.3 (Cluny)	2062	13 miles E. of Cluny Homestead	A	1651 1700 1746 1832 1909	Surface 11" over casing 18" " " 36" " " 39" " "	1922-1,178,000 1947-1,111,000 1951-1,113,000 1952- 843,000 1955- 861,000	Good	1922
Cluny No.4 (Cluny)	12607	30 miles S.S.E. of Cluny Homestead.	A	2314 2326	Surface	1955-1,115,000	Good	Godfrey Brothers 1955
Coorabulka No.5 (Coorabulka)	2129	On Duck Creek, 26 miles S. of Coorabulka Homestead	A	198 650 1200 1331 1336 1548	Soak Soak 50 4" over casing ? 50" over casing	Small ? ? 1903-1,930,000 1943- 365,440	? Salt Good Good	1903
Coorabulka No.7 or Pallico (Coorabulka)	2131	On King Creek, 36 miles S.W. of Coorabulka Homestead	A	61 930 935 1080 1092	Soak 1" over casing 3" " " 63" " " ? " "	Small 1905-1,250,000 1943- 725,530	? Good	1905
Coorabulka No.10 (Coorabulka)	2134	42 miles S. of Coorabulka Homestead	SA	350 1469 1483 1574 1596 1607 1684	141 Casing top 3" over casing 9" " " 29" " " 40" " " 56" " "	? 1909-1,062,400 1943- 251,290 Originally art- esian; has probably become S.A. due silt- ing and/or cor- rosion of casing	Salt Good	1909
Coorabulka No.11 (Coorabulka)	13130	5 1/2 miles S.W. of No.10	A	280 1405 1430 1460 1475 1495 1508	Surface Surface 4" over casing 1 1/2" " " 7" " " 20" " " 43" " "	Small flow Small flow 1956- 956,000 (GOL/sq.in.) Now controlled at 100,000	Good Good Good	1956
Gemerchie or Peppin (Monkira)	3822	20 miles S.E. of Coorabulka No.10	A	2105,2126, 2145,2184, 2212 2281	Surface	? ?	Good Good	
Georgtina (Government bore on Monkira property)	12312	25 miles W. of Monkira on Monkira-Cluny road	A	215 2575,2615 2640,2675 2720,2756	108 Surface	? 1,107,000	Good Good	
Ingledeon No.1 (Davenport Downs)	2391	Border of Machattie and Springvale 4-mile Sheets; 17 miles E.N.E. of Coorabulka No.5	SA	?	?	Was originally artesian bore; is now sub- artesian, prob- ably due to siltting and/or corrosion. No data of flow available.	Good	1903
Ingledeon No.2 (Davenport Downs)	2392	8 miles of Ingledeon No.1	A	?	?	?	Good	1909

# MACHATTIE QUEENSLAND

Figure 3.



## REFERENCE.

QUATERNARY.	Czs	Sand and sandstones.
	Cza	Alluvium.
	Czg	Gibber gravel (fm) of Marion Formation.
	Czi	Ironstone gravel.
TERTIARY.	Austral Downs Limestone	Silicified limestone as grey and black chalcodony.
	Marion Formation	Silicified coarse sandstone, fine sandstone and sandy siltstone.
CRETACEOUS.	Ninton Formation	Partly silicified arkose and siltstone.
	Upper Nilgunia Formation	Shale, sandy shale with calcareous sandstone lenses.
	Toolibuc Member	Calcareous, calcareous siltstone.
	Lower Nilgunia Formation	Sandstone, siltstone, sandy siltstone, claystone and shale.
	Longsight Sandstone	Sandstone.
LOWER PALAEOZOIC, PRECAMBRIAN.	Undifferentiated	Metamorphics, granite, "basement".

Geological boundary, position approximate.

Measured dip and strike.

Fault, position approximate.

Fence.

Road, track.

Town, homestead, ruins.

AD. Aerodrome.

Yard.

A. Artesian bore.

SA. Sub-artesian bore.

Abandoned bore.

T. Tank.

H. Windmill.

WH. Waterhole.

321. Surveyed height.

GAB 233. Specimen locality.

Index to adjoining sheets.

Mt. Melan.	Spingsvale	Brighton Downs.
Bedourie.	Machattie	Connamara.
Bendville.	Betoota	Canterbury.

Reliability diagram.

