WATER RESOURCES

OF THE

DARLING VALLEY

WITHIN NEW SOUTH WALES

SURVEY OF THIRTY TWO N.S.W. RIVER VALLEYS

REPORT No. 27 — JULY 1974

WATER RESOURCES OF THE DARLING VALLEY

(WITHIN NEW SOUTH WALES)

PREFACE

BY THE HON. G.F. FREUDENSTEIN, M.L.A.

MINISTER FOR CONSERVATION

NEW SOUTH WALES

In accordance with the policy of the New South Wales Liberal-Country Party Government announced prior to its election to office at the May 1965 State Elections, the Government directed the Water Conservation and Irrigation Commission to undertake a survey of the State's water resources on an individual valley basis to enable the formulation of a balanced and soundly based programme of water conservation.

The survey, which is the largest and most comprehensive study of its type ever undertaken, involved the preparation of twenty-eight reports covering thirty-two major river valleys of the State.

In the survey, studies were made of the physiography, climate, groundwater potential and surface water resources of each valley. In addition to reviewing current water requirements, assessments were undertaken of possible future water development.

Reports have been prepared progressively and those issued to date have covered thirty major valleys and a number of minor valleys. This report on the water resources of the Darling Valley within New South Wales is the twenty-seventh to be issued.

G.F. FREUDENSTEIN, M.L.A.

July, 1974.

WATER RESOURCES OF THE DARLING RIVER VALLEY

(WITHIN NEW SOUTH WALES)

CONTENTS

APPENDICES

FIGURES

FIGURES

WATER RESOURCES OF THE DARLING RIVER VALLEY

(WITHIN NEW SOUTH WALES)

1. INTRODUCTION

Water is one of man's most valuable natural resources for without it no life is possible.

The abundance of this resource is apparent when it is realised that there are about 320 million cubic miles of water in various forms on the Earth. However, 97.2 percent of this amount is in the oceans, 2 percent lies frozen in polar icecaps and over 99.5 percent of the remaining 0.8 percent is in the form of underground water. As surface water in streams and lakes represents only about 0.004 percent of the total water resources it is obvious that the proportion of the Earth's water resources which are in a form or location readily available for man's consumptive use is very small.

While it has been estimated that the continuous minimum daily requirement of an adult is small and is less than one gallon, the average per capita consumption in a large modern city may approach 300 gallons per day. Such averages may be somewhat misleading as water demands due to industry, home, gardens, parks and public services are included in determining the average demand.

Nevertheless industrial requirements can be relatively high when compared to domestic needs. About 300 tons of water are used in the production of a ton of steel, a ton of paper requires about 60 tons of water and about 2½ tons of water are used in growing sufficient grain to produce a loaf of bread. It has been estimated that over thirty tons of water are required to produce a normal daily diet for an adult.

In comparison with industrial or domestic requirements, irrigation demands are comparatively high. The annual water requirements of most crops vary from about two to three feet depth and during a drought it becomes necessary to provide a major proportion of this demand by irrigation. The relative size of this requirement can be assessed when it is realised that a depth of three feet over an area of only one acre is equivalent to more than 800,000 gallons (over 3,500 tons).

The gross water resources of a country are normally considered to be the total amounts of precipitation, in the forms of rain, hail or snow, which fall on the land surfaces. The surface water resources are usually regarded as the amounts of water in rivers and lakes.

Of all the habitable continents, Australia has the least annual rainfall, the average being only about 1½ feet whereas Africa, Asia, Europe and North America each receive about 2 feet whilst South America receives an average of almost 4½ feet.

When losses due to the natural processes of evaporation, transpiration and seepage are deducted from the annual precipitations of the continents, comparison of the remainders (or surface water resources) shows that Australia has a comparative runoff much less than indicated bv the average annual rainfalls. The surface water resources of the Australian mainland have been assessed at about 240 million acre feet per annum which is equivalent to a depth of less than 2 inches over the continental area. In comparison, runoffs for the other continents are about 7 inches in Africa, 9 inches in Asia and Europe, 11 inches in North America and about 19 inches in South America.

Another way of illustrating Australia's relatively meagre surface water resources is to compare them with those of some of the world's largest rivers. The total average annual flow of 240 million acre feet for all rivers on the Australian mainland is only about half that of the Mississippi River, a quarter that of the Congo River and only about one twelfth that of the Amazon River.

In contrast with the other continents, there are no streams on the Australian mainland which are permanently snow fed. Consequently streamflows in Australia are largely dependent on runoff producing storms and they tend to be more variable than those in other continents.

In view of the increasing demand for water for irrigation, industrial and domestic purposes, the continued development of Australia as a nation will require the construction of many more large water conservation storages in the future. Furthermore, it will be necessary to ensure that the flows provided by these and existing storages are used effectively.

The water resources of a nation are of major importance to national economy, the welfare of the community depending to a large extent on their proper development and use. Water conservation in Australia is therefore a service of prime national importance, essential to improved living standards and overall national wealth.

The Darling River Valley, as treated in this report extends from the Queensland border to the Victorian border but excludes the catchments of the New South Wales tributaries between the Dumaresq and Bogan Rivers. It has been assessed that the average annual surface water resources of this Valley are of the order of 100,000 acre feet. This represents the runoff from the abovementioned catchment only and does not include runoff entering the valley from the catchments of Queensland or New South Wales tributaries. As the average annual rainfall over the valley is about 12 inches the surface water resources represent a runoff of about 0.2 percent.

2. PHYSIOGRAPHIC FEATURES

The extent of the boundaries of the Darling River Valley as adopted in this report, which encompass an area of about 85,000 square miles is shown in Figure 1, together with the principal towns and physiographic features.

The valley includes most of the area of the State to the west of the Darling River, but not the extreme western parts. The boundary in this region generally follows a line between Hungerford, on the Queensland Border, and Broken Hill, and then to the Darling-Murray confluence. In places, the western boundary is difficult to define as relatively flat terrain predominates over much of its length. The highest relief is found near Broken Hill where the Barrier Range rises to heights of about 1,000 feet above sea level. Significant peaks along this range are Mount North Barrier (1,330 feet), about 70 miles north of Broken Hill, Mount Corona (1,434 feet), Mount Dering (1,478 feet), Mount Robe (1,555 feet) and Mount Umberumberka (1,431 feet).

To the east of the Darling River the boundary of the valley follows the Barwon River from Mungindi, on the Queensland border, to the Culgoa River confluence near Bourke. Heading toward the south-east, the boundary then follows the south-western watershed of the Bogan River to just south of the village of Nymagee. Thereafter the boundaries of the Lachlan, Murrumbidgee, and Murray River Valleys are followed to the Darling-Murray confluence.

The Darling River itself is the backbone of the drainage pattern of the entire valley. Where it enters the valley at Mungindi it is known as the Barwon River and has already drained a total catchment of some 17,000 square miles. From Mungindi it flows generally in a south-westerly direction being joined from

the east, near Collarenebri, by the waters of the Gwydir River system. Because of the losses which occur in the extensive ana branch and effluent creek network of the lower Gwydir River the contribution of flow from that system is usually relatively small.

The next significant stream to join the Barwon River is the Namoi River. At its confluence with the Barwon River this stream has drained an area of about 16,600 square miles, but its contribution of water into the Barwon is limited because of extensive losses in the lower river effluent system.

Downstream of Walgett, the Barwon River flows in a westerly direction for almost 300 miles to Bourke and in this reach several major tributaries make their contributions. From the north the Culgoa and Bokhara Rivers join the Barwon on the western bank after draining extensive areas of southern Queensland. Flow from these streams, although intermittent, enters the Barwon River through a defined system of meandering channels. The Narran River normally terminates in the Narran Lake, about 30 miles north-east of Brewarrina, but in extreme floods flows can reach the Barwon River.

Major tributaries joining the Barwon River from the east in the reach between Walgett and Bourke include the Castlereagh, Macquarie and Bogan Rivers. Flow contributions from these streams usually occur only during flood periods as at other times much of their runoff is lost in marshes and effluents which characterise their lower reaches.

At the Culgoa junction the Barwon is renamed the Darling River for the remaining 900 miles to the Murray confluence.

Downstream of Bourke the Paroo and the Warrego Rivers join the Darling after flowing southwards from the Queensland Border through extremely arid terrain. In this region, the country slopes down from an altitude of about 500 feet above sea level at the Queensland border to about 300 feet near the Paroo River junction. The topography of this area is flat and is characterised by sand dunes and clay pans.

On the eastern side of the Darling River near Wilcannia, the Cobar Upland (or Peneplain) dominates the topography. This area ranges between 500 and 1,000 feet above sea level with a slightly undulating surface characterised by a ridge and valley structure. Some of the ridges rise 200 to 500 feet above the general level but these do not extend for any great distance. The highest of these peaks are

the Gunderbooka Range (1,600 feet), Mt. Booroondarra (1,400 feet) and Gilgunnia Range (1,700 feet). Drainage of this sector of the valley is effected by ephemeral streams which only flow after exceptionally heavy rains.

In the reach of the Darling River below Wilcannia there are several ana branches which leave the Darling, the most notable of which is the Talyawalka Ana Branch. The Talyawalka which rejoins the Darling River near Menindee only flows during floods in the Darling but during these times it carries more water than the main river. A large proportion of these flood waters makes its way eastward to a number of shallow lakes located between Menindee and Ivanhoe where it is quickly dissipated by the arid conditions. On the western bank of the Darling near Menindee a series of broad shallow lakes has been developed into a water conservation project and now forms part of the Menindee Lakes Scheme, which is discussed in more detail later in this report.

About sixty miles to the west of the Menindee Lakes and near the most western point of the valley lies Broken Hill, the largest centre of population within the Darling Valley.

To the south of Menindee the Darling flows in generally a southerly direction for about 300 miles, passing the small settlement of Pooncarie and then finally entering the Murray River at Wentworth. Below Menindee a major distributary leaves the Darling on the western side. Known as the Great Ana Branch of the Darling River, it follows a separate path for nearly 300 miles to join the Murray downstream of Wentworth. It is a natural flood channel flanked by many usually dry lakes. The Great Ana Branch now receives periodic replenishment from the Menindee Storages and is a reliable source of water for stock and domestic use.

The land in the region traversed by the Darling and its Ana Branch south of Menindee is flat with slopes less than 3 degrees, and varies from flood plain to gently undulating sand ridges. Near the Murray the general elevation falls to only about 100 feet above sea level.

The major agricultural industry within the valley is directed toward wool growing but the valley has a low stocking capacity. Broken Hill and Cobar are the two major mining centres within the valley, with some 30,000 people living in the former and about 5,500 in the latter.

3. CLIMATIC FEATURES

Rainfall

The annual median rainfall over the Darling River Valley varies from 20 inches in the north-east near Mungindi to less than 8 inches over the western border of the valley near Broken Hill. (The median rainfall is that rainfall total which is equalled or exceeded on 50 percent of occasions.) In general, the annual median rainfall decreases westward across the valley with decreasing elevation. The distribution of annual median rainfall is shown at Figure 2.

The river valley traverses the semi-arid region of New South Wales where rainfall is highly variable. In the north-east, rainfall tends to be more reliable in the warmer months of the year and on the average, January, February and March have the most reliable rainfall with monthly median values of the order of 1 inch. Over the south-west of the valley, rainfall is very unreliable particularly in summer when monthly median rainfalls are of the order of 0.2 to 0.3 inches in January, February and March. In winter and spring over the south-east, rainfall reliability is better with monthly median rainfalls of the order of 0.6 to 0.8 inches. A transitional region exists over the central section of the valley. Monthly median rainfall distributions are shown at Figures 3 to 14.

Records of annual rainfall totals at thirty five selected stations throughout the valley are given in appendices 1 to 5 inclusive. Although low rainfall totals are generally recorded over the region, occasional relatively heavy falls over a period of a few days are experienced in sections of the valley. These falls are frequently associated with deep active extratropical depressions which move over the southern half of the region from south of the continent or with general rain depressions which result from the decay of a tropical cyclone which has moved inland over the region from tropical waters to the north, east or west of the continent. Rainfalls in the 24-hour period ended 9 a.m. have exceeded 5 to 8 inches at most stations in the north-east, 4 to 5 inches at most stations in the centre and 3 to 4 inches at most stations in the south-west portions of the valley. Well developed thunderstorms, which in general cover an area of up to 200 square miles have produced falls in excess of 4 inches in 24 hours at most stations in the valley. The bulk of this rainfall would generally occur in a much shorter duration of 3 to 6 hours. It has been estimated that point rainfalls over a 24-hour period could exceed 10 inches in the south and 11 inches in the north of the valley. Greatest 24-hour totals on record for stations representative

of the north-east, central and south-west parts of the valley are 8.08 inches at Weilmoringle north of Brewarrina on 14th January, 1964, 10.05 inches at Bakara south-west of Wilcannia on 8th February, 1956 and 5.93 inches at Menindee on 29th November, 1933.

The tables at Appendix 6 show on a monthly and yearly basis for Mungindi, Barringun, Bourke, Brewarrina, Fords Bridge, White Cliffs, Wilcannia, Broken Hill, Cobar, Nymagee, Menindee and Pooncarie the following data:-

(i) The highest and lowest rainfall totals on record.

(ii) The 10th, 30th, 50th, 70th and 90th percentiles.

(a rainfall observation less than the 10th percentile value can be expected once every ten years on the average. Similarly a rainfall observation less than the 70th percentile can be expected seven years out of ten or alternatively a rainfall observation greater than the 70th percentile can be expected on an average of three years in ten).

Tables showing the minimum cumulative rainfalls on record commencing in any month of the year and continuing for up to 12 months at Mungindi, Barringun, Bourke, Brewarrina, Fords Bridge, White Cliffs, Wilcannia, Broken Hill, Cobar, Nymagee, Menindee and Pooncarie are given at Appendix 7.

Prolonged dry spells occur frequently over the valley. At Bourke, for example, less than 4 inches of rain has been recorded in a 12 consecutive month period and less than 6 inches has been recorded in the 12 consecutive months commencing April on 10 percent of occasions. The corresponding median value is 13.65 inches. Over the valley generally a succession of three rainless months is not unusual. Spells of this nature are less frequent over the north-east than over the rest of the valley.

Temperature

The temperature regime of the valley is represented by eleven stations. Average and extreme values are shown in Tables 1 to 11. Mungindi, Collarenebri, Walgett and Brewarrina are representative of the northern section; Bourke, Cobar, White Cliffs and Wilcannia are representative of the central parts; Broken Hill, Menindee and Ivanhoe are representative of the southern parts.

TABLE 1

MUNGINDI (Elevation 528 feet)

Average Temperature (°C) based on 41 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	35.5	33.9	31.5	27.0	22.8	18.9	18.7	20.9	24.9	28.7	32.3	34.6	27.5
Average Minimum	20.3	19.8	17.3	12.4	8.4	5.7	4.6	5.8	9.1	13.3	16.5	19.1	12.7
Average Daily	27.9	26.9	24.4	19.7	15.6	12.3	11.6	13.3	17.0	21.0	24.4	26.8	20.1
Highest on record: 46.7°C							Lowest on record: -4.4°C						

TABLE 2

COLLARENEBRI (Elevation 477 feet)

Average Temperature (°C) based on 30 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	34.7	34.1	30.6	25.4	20.8	16.4	15.7	18.3	22.3	26.6	31.0	33.2	25.8
Average Minimum	18.6	18.2	15.1	10.6	6.5	4.2	3.4	4.7	7.1	10.6	14.6	16.8	10.9
Average Daily	26.6	26.2	22.8	18.0	13.6	10.3	9.6	11.5	14.7	18.6	22.8	25.0	18.3
Highest on record: 47.8°C							Lowest on record: -7.2°C						

TABLE 3

WALGETT (Elevation 436 feet)

Average Temperature (°C) based on 81 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	35.7	34.2	31.4	26.7	21.7	17.8	17.3	19.8	23.8	28.3	32.3	34.9	27.0
Average Minimum	20.4	19.9	17.2	12.6	8.2	5.5	4.3	5.7	8.7	12.8	16.4	19.1	12.6
Average Daily	20.1	27.1	24.3	19.6	14.9	11.7	10.8	12.7	16.2	20.6	24.3	27.0	19.8
Highest on record: 50.1°C							Lowest on record: -5°C						

TABLE 4

BREWARRINA (Elevation 392 feet)

Average Temperature (°C) based on 26 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	36.5	35.8	32.3	27.1	22.4	18.2	17.2	20.4	24.6	29.0	32.8	35.4	27.6
Average Minimum	20.2	20.0	17.0	12.1	7.9	5.2	4.4	5.7	8.6	12.4	15.8	18.2	12.3
Average Daily	28.4	27.9	24.6	19.6	15.2	11.7	11.1	13.1	16.6	20.7	24.3	26.6	19.9
Highest on record: 48.9°C							Lowest on record: -5.6°C						

TABLE 5

BOURKE (Elevation 361 feet)

Average Temperature (°C) based on 84 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	36.9	35.7	32.7	27.6	22.3	18.5	17.9	20.7	24.9	29.2	33.2	35.7	27.9
Average Minimum	20.9	20.4	17.6	12.8	8.6	5.7	4.5	6.1	9.2	13.2	16.8	19.4	12.9
Average Daily	28.9	28.0	25.1	20.2	15.4	12.1	11.2	13.4	17.1	21.2	25.0	27.6	20.4
Highest on record: 51.7°C							Lowest on record: -3.9°C						

TABLE 6

COBAR (Elevation 860 feet)

Average Temperature (°C) based on 68 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	34.7	33.6	30.4	25.2	19.8	15.9	15.4	17.9	22.2	26.6	30.7	33.3	25.5
Average Minimum	19.8	19.6	16.8	11.8	8.1	5.6	4.3	5.8	8.7	12.4	16.1	18.5	12.3
Average Daily	27.2	26.6	23.6	18.5	13.9	10.7	9.8	11.9	15.4	19.4	23.3	25.9	18.9
Highest on record: 48.2°C							Lowest on record: -4.2°C						

TABLE 7

WHITE CLIFFS (Elevation 400 feet)

Average Temperature (°C) based on 48 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	35.8	34.7	31.6	25.9	21.3	17.3	17.0	19.6	23.9	27.9	31.6	34.6	26.8
Average Minimum	19.9	19.5	16.4	11.5	7.6	4.8	3.6	5.2	8.5	12.4	15.9	18.6	12.0
Average Daily	27.8	27.1	23.9	18.7	14.4	11.0	10.3	12.4	16.2	20.1	23.7	26.6	19.4
Highest on record: 51.1°C							Lowest on record: -6.1°C						

TABLE 8

WILCANNIA (Elevation 267 feet)

Average Temperature (°C) based on 75 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	35.2	34.5	31.2	25.9	21.1	17.4	16.8	19.2	23.3	27.4	31.1	34.2	26.4
Average Minimum	19.3	18.9	15.9	11.4	7.8	5.3	4.2	5.6	8.4	12.0	15.4	18.0	11.8
Average Daily	27.3	26.7	23.6	18.7	14.4	11.3	10.5	12.4	15.8	19.7	23.3	26.1	19.1
Highest on record: 50°C							Lowest on record: -5.7°C						

TABLE 9

BROKEN HILL (Elevation 1,000 feet)

Average Temperature (°C) based on 70 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	32.9	32.3	29.1	23.8	19.3	15.6	15.1	17.3	21.1	25.1	28.9	31.7	24.3
Average Minimum	18.2	17.9	15.3	11.3	8.2	5.9	4.9	6.1	8.6	11.5	14.6	17.1	11.6
Average Daily	25.5	25.1	22.2	17.6	13.7	10.7	10.0	17.3	14.8	18.3	21.8	24.3	17.9
Highest on record: 46.6°C							Lowest on record: -2.8°C						

TABLE 10

MENINDEE (Elevation 200 feet)

Average Temperature (°C) based on 47 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	34.1	33.5	30.4	25.2	20.8	16.9	16.9	19.2	22.8	26.4	30.1	33.0	25.8
Average Minimum	18.0	17.5	14.9	10.2	6.8	4.5	3.6	4.9	7.7	11.1	14.2	16.5	10.8
Average Daily	26.1	25.5	22.7	17.7	13.8	10.7	10.2	12.1	15.2	18.7	22.2	24.7	18.3
Highest on record: 49.7°C							Lowest on record: -6.7°C						

TABLE 11

IVANHOE (Elevation 290 feet)

Average Temperature (°C) based on 18 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	35.7	33.4	31.1	25.2	20.2	17.0	16.6	18.7	23.1	26.3	30.2	33.8	25.9
Average Minimum	18.0	17.2	14.1	9.7	6.3	4.2	3.3	4.3	7.0	10.1	13.4	16.3	10.3
Average Daily	26.8	25.3	22.6	17.4	13.2	10.6	9.9	11.5	15.1	18.2	21.8	25.1	18.1
Highest on record: 46.7°C							Lowest on record: -4.9°C						

In summer, on the average, daytime temperatures are high, mean maxima being of the order of 32 to 35 degrees in the months December, January and February. In this season overnight temperatures are mild generally averaging around 18 to 20 degrees. Very hot conditions can occur over the basin in the summer months usually in association with north to west airstreams. Temperatures in summer may frequently exceed 38°C, particularly over the west and south-west sections where days with maxima exceeding 38°C may occur in spells lasting a week or more. All stations in the valley have recorded a screen air temperature of at least 46°C. The highest screen air temperature on record for the region (and in fact for the State) is 51.7°C which was recorded in Bourke in January, 1909.

In winter, maxima average from 18 to 20 degrees in the north and from 15 to 18 degrees in the south. Average minima in this season are of the order of 4.4°C. All stations have recorded screen temperatures less than -2.8°C. The lowest screen temperature on record for a station in the valley is -7.2°C which occurred at Collarenebri on 23rd June, 1911.

Frost

Frosts can occur over the entire valley from mid-April to mid-October. Severe frosts however are generally confined to the period June, July and August and frequencies of severe frost occurrence range from about 3 to 13 events per year depending on the local topography of each particular site.

Sunshine

Estimates of the average number of hours of bright sunshine per day in each month for the valley are shown in Table 12. Because of variations of cloud cover over the valley estimates for four representative stations have been given. These estimates are based on cloud amount observations together with a limited network of sunshine recorders.

TABLE 12

Estimated Average Number of Hours of Bright Sunshine in Hours Per Day

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
COLLARENEBRI	10.3	10.1	9.1	8.7	8.1	6.8	7.6	8.4	9.2	9.7	10.7	10.8	9.1
COBAR	11.3	10.7	9.5	9.0	7.9	6.8	7.2	8.1	9.1	9.8	11.0	11.4	9.3
BALRANALD	11.3	10.7	9.3	8.3	6.8	6.0	6.5	7.1	8.2	8.9	10.2	11.3	8.7
BROKEN HILL	11.1	10.5	9.5	8.6	7.3	6.5	7.0	7.7	8.7	9.4	10.6	11.0	8.9

Evaporation

Estimates of the average monthly and annual evaporation from an Australian Standard Tank are shown in Table 13 below, together with estimates of the appropriate standard deviations. These estimates are based on considerations of radiation, air temperature and humidity.

TABLE 13

Estimated Average Monthly and Annual Evaporation in Inches

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
COLLARENEBRI													
Evaporation (inches)	11.3	7.1	7.0	5.0	3.4	2.5	2.3	3.3	4.7	6.3	8.5	9.6	71
Standard Deviation	1.4	1.3	1.2	0.8	0.6	0.4	0.4	0.6	0.8	1.1	1.4	1.5	8.1
BOURKE													
Evaporation (inches)	13.3	9.1	8.4	5.8	3.9	3.1	2.6	4.0	5.7	8.0	9.5	12.6	86
Standard Deviation	1.5	1.2	1.4	0.9	0.7	0.5	0.5	0.8	0.9	4.2	1.5	1.7	8.2
COBAR													
Evaporation (inches)	12.5	8.7	7.5	5.2	3.2	2.6	2.4	3.4	4.9	7.0	8.5	11.4	77
Standard Deviation	1.4	0.9	1.2	0.8	0.6	0.5	0.5	0.7	0.9	1.1	1.4	1.6	7.6
BROKEN HILL													
Evaporation (inches)	12.0	9.5	8.2	5.6	3.5	2.5	2.4	4.0	5.2	7.5	9.1	10.5	80
Standard Deviation	1.5	1.2	1.2	0.8	0.8	0.5	0.5	0.7	1.0	1.2	1.4	1.5	8.0
IVANHOE													
Evaporation (inches)	11.8	9.0	7.0	4.8	2.8	2.0	1.9	2.9	4.8	6.5	8.3	10.2	72
Standard Deviation	1.3	0.9	1.4	0.7	0.6	0.5	0.4	0.6	0.8	1.1	1.3	1.5	7.1
BALRANALD													
Evaporation (inches)	9.8	7.9	6.9	4.1	2.7	1.9	1.7	2.6	3.9	5.5	7.3	8.9	63
Standard Deviation	1.3	1.1	1.3	0.7	0.5	0.4	0.3	0.5	0.7	1.0	1.0	1.2	7.0

Winds

Wind speeds over the valley are generally light to moderate. Strong winds from the north-west to south sector are experienced from time to time with the passage of an active cold front extending northwards from an intense low pressure system moving from west to east along the southern margins of the continent. Wind storms of this type can occur in any month of the year, however they are more frequent in the south than in the north and in winter and early spring than in summer.

Violent wind gusts may be experienced over limited areas in association with severe thunderstorms. Estimates of the extreme wind gusts likely to be experienced at a given point in the valley for various return periods are shown in Table 14.

TABLE 14

Estimated Extreme Wind Gust to be Expected with Given Return Periods

Return Period (Years)	10	20	50	100
Extreme Wind Gust equalled or exceeded (miles per hour)	81	87	93	100
(kilometres per hour)	(130)	(140)	(150)	(161)

4. GROUNDWATER POTENTIAL

Geologically the Darling catchment is extremely complex. The ages of the rocks range from some 2,000 million years to the present. The oldest are in the Willyama Complex near Broken Hill, and the newest are recent alluvial deposits of the present day streams and wind built sand ridges. The Great Artesian Basin which extends northwards beneath much of Queensland, underlies the northern part of the catchment whilst the Murray Basin underlies the southern part of the catchment, whence it extends westwards into South Australia and southwards into Victoria. The geological units are shown in the geological map of the area at Figure 15.

Both the average annual rainfall and the median annual rainfall are below 20 inches throughout this valley, and the average annual evaporation is at least three times that figure in virtually all the catchment. It is not surprising therefore that over much of the area shallow groundwaters tend to be brackish or saline because of the concentration of the dissolved cyclic salts by evaporation and the slow rate of movement of the percolating groundwaters. Locally, runoff may be concentrated by surface relief and better quality groundwater may result from higher infiltration rates and more rapid movement.

In the following sections the occurrence of groundwater is discussed in three main categories based on the nature of the rocks in which it occurs, viz., Jointed (or Fractured) Rocks, Porous Rocks and Unconsolidated Sediments. In the Jointed Rocks, water occurs in cracks, bedding planes and partings in otherwise impervious rock. In Porous Rocks, water is held in the pores or spaces between

the grains of the cemented or otherwise consolidated sedimentary rocks, whilst in the Unconsolidated Sediments water occurs in the interstitial space between the unconsolidated grains of sand, silt, gravel etc.

Jointed Rocks are found in the more elevated parts of the catchment; they comprise two main areas of outcrop, the eastern one centred on Cobar and the western one on Broken Hill. Both the Great Artesian Basin and the Murray Basin contain Porous Rocks in the form of extensive and thick sandstones, whilst the widespread alluvia which cover most of the lower lying parts of the catchment contain aquifers of unconsolidated sands and gravels.

Jointed Rocks

The permeability of strata of this type is dependent on the size and frequency of voids provided by joints and fractures, and these depend on the nature and hardness of the rock, its weathering properties and the degree of folding (or contraction in the case of igneous rocks) to which they are subjected. Hard rocks which are also chemically resistant to the weathering processes tend to develop more cracks or partings under regional pressures, and to retain them in a more open state, than softer, easily weathered types.

Water quality may also be affected by the chemical stability of the rocks, as those which break down readily will usually release more material to be taken into solution by the percolating groundwater. Hence bores in areas of jointed rocks should be so located as to ensure that permeable rock types are encountered at a depth below the local water table sufficient to provide useful supplies.

Where jointed rocks occur to the west of the Darling, relief is usually more than 100 feet. In the Barrier Ranges, the ancient Pre-Cambrian rocks form a series of ridges with a predominantly north-south trend. The maximum relief is about 1,000 feet and the intervening plateau is approximately 1,000 feet above sea level, declining to the south and the east to about 500 feet, the level of the surrounding plains. Rock systems of Ordovician and Devonian age overlie the Pre-Cambrian, often forming dip scarps and slopes. Inliers or rocks of Upper Devonian age are common to the east and north-east.

Rainfall in most of the area west of the Darling is less than 10 inches per annum whilst evaporation rates are more than 80 inches per annum; the result is that the best quality groundwater is found mainly close to watercourses where concentration of runoff serves to offset the accumulation of cyclic salts.

On Figure 15 the Pre-Cambrian rocks are subdivided into Lower and Middle to Upper Proterozoic, the former consisting of high grade metamorphic rocks (mainly schists and gneisses), and the latter of lower grade metamorphics and sediments (slate, quartzite, limestone and flaggy sandstone). Both are characterised by a low permeability and the percentage of failure bores is high. Wells are much more successful than bores because they intercept a larger number of joints and fissures in the otherwise impermeable rocks. However the failure rate would be lower had bores and wells been sited with due regard to hydrogeological conditions.

The Lower Proterozoic rocks exhibit a very variable porosity and permeability and boring must be regarded as highly speculative. Many successful wells have been constructed in shear zones where fissures are best developed. The majority of wells are less than 50 feet deep, and the total saline content is usually less than 2,500 parts per million (p.p.m.) and occasionally below 1,000 p.p.m. The yields are very variable and range up to 1,000 gallons per hour, although the average supply is about 300 gallons per hour.

The potential of the Middle to Upper Proterozoic rocks is somewhat poorer; there are more failures, the depth to water is generally greater, and the salinity a little higher. Where either of the Pre-Cambrian rock systems is encountered beneath younger rocks there is so little possibility of obtaining a useful water supply that deeper boring is not warranted.

The outcrops of Ordovician and Lower and Middle Devonian strata are small and their potential is unknown, but only stock supplies are likely. However, the Upper Devonian quartzites and sandstones often provide useful supplies of groundwater. Failures are less common than in the older rocks, but most supplies are brackish. The depth of bores varies from 150 to 600 feet, but the majority are less than 300 feet. Yields are very variable but are usually of the order of 500 to 1,000 gallons per hour. A number of bores have been abandoned because the water was too saline for all stock, but it has been established that where structure and surface configuration are favourable most bores encounter useful stock supplies in the joints in the more competent quartzites.

To the east of the river there is an extensive area of Jointed Rocks centred on Cobar. Relief is fairly subdued, but there are occasional hilly parts, most of which occur west of Cobar where resistant Devonian quartzites project above the

almost flat alluvial plains. Most of the country underlain by the older Silurian and Ordovician rocks has a relief of about 100 feet but there are localised exceptions.

The average annual rainfall is low (8 to 15 inches) and infiltration into the underlying strata is inhibited by the products of extensive weathering and very little removal of soils by erosion processes. As a result the groundwater salinity is generally high.

The general trend of the strata is slightly west of north and the Ordovician, Silurian and Devonian rock systems outcrop in a number of sub-meridional zones.

The Ordovician rocks are mainly schist, phyllite, and slate and quartz reefs and veins are a common feature. North of the Barrier Highway, these strata are characterised by deep weathering and very low relief and bores are mostly unsuccessful. Numerous failures are recorded and their depths range from less than 100 feet to 400 feet. Not only are yields usually low, but the water is often too saline even for sheep. Further south near Nymagee, the relief is greater and bores well sited topographically, normally yield useful stock water from depths between 100 to 350 feet.

Tuff, quartzite, slate, shale and sandstone are the more common Silurian rocks. North of Cobar relief is low, and bores almost invariably yield highly saline water (more than 20,000 p.p.m.) and very few useful supplies have been obtained. Further south the prospects improve slightly but in areas of very low relief there are a number of failure bores which yielded water with saline content as much as 30,000 p.p.m. Near Gilgunnia, bores up to 400 feet deep yield supplies of the order of 300 gallons per hour from the slates and mudstones, and useful supplies have also been obtained from sheared zones in the porphyries in this area. Reasonable stock supplies have been obtained in the more hilly country near Bobadah, usually at sites close to watercourses.

Lower and Middle Devonian strata are most widespread immediately to the west of Cobar. They comprise mainly shale and slate with occasional conglomerate, sandstone and quartzite. Many bores in them are unsuccessful because of poor yields and/or high salinity, but where hard strata are present it is possible to obtain useful stock supplies from depths usually in the range 100 to 300 feet.

The Upper Devonian Mulga Downs Group, in which sandstone and quartzite predominate over shaley strata, is much more favourable to the occurrence of groundwater. The quartzites are usually well jointed, and they comprise the main aquifers, though in some bores, supplies are obtained from porous sandstones. The depths of bores are variable, ranging up to 500 feet and yields are normally of the order of 200 to 300 gallons per hour. The quality of the water is usually fairly good and suitable for all classes of stock; it is sometimes good enough for most domestic purposes although rarely potable.

Where Tertiary sediments blanket the Mulga Downs Group, bores in the Tertiary or the underlying quartzites are generally failures.

There are small areas of granite to the south of Cobar. Relief is generally low but weathering is not very deep. In the vicinity of the more prominent ridges the prospects of bores obtaining useful stock supplies are reasonably good, but in the areas of low relief a number of deep failure bores have been constructed. On good sites supplies of the order of 200 gallons per hour may be obtained from depths up to 200 feet. The water is usually brackish and rarely suitable for domestic use. Hydrogeological conditions in the other smaller outcrops are expected to be worse and boring in them is highly speculative.

Porous Rocks

The Great Artesian Basin

With a total area of two thirds of a million square miles, this is one of the largest artesian basins in the world. Approximately one quarter (about 80,000 square miles) of the area of the State of New South Wales is occupied by the south-eastern part of the Basin. Water from the intake beds in the eastern highlands is transmitted to areas of the State where there is barely sufficient rainfall to maintain plant life, and where good quality stock water would not otherwise be available in such large and dependable quantities.

The age of sediments in the Artesian Basin in New South Wales ranges throughout most of the Mesozoic era. The older (Triassic) sandstones and shales occur mainly in the eastern part of the Basin, both in outcrop and sub-crop. The overlying Jurassic sequence includes a series of sandy and shaley formations in which the main flow producing aquifers of both New South Wales and Queensland occur. The main aquifers in the New South Wales part of the Basin are the Pilliga sandstones which outcrop along the eastern edge of the basin between Narromine and Narrabri and north of Warialda. They comprise the main intake

areas for the Basin in New South Wales. As the recharge water moves along these aquifers its salinity increases and its character changes due to a base-exchange process which replaces calcium and magnesium in the water by sodium.

In New South Wales the Pilliga sandstones appear to be confined to the deeper parts of the basin which lie to the east of Brewarrina. However the interbedded sandstones and shales which comprise the Upper Blythesdale Group are much more widespread, and are believed to extend over much of the western part of the basin. Yields are lower than those from the Pilliga sandstones, and because of the nature of the sediments and the more restricted circulation of groundwater in this series of relatively thin aquifers, the salinity is usually two or three times greater.

A thick sequence of Cretaceous shale, sandy shale, siltstone and thin sandstone of marine origin provides the main confining layer for the Artesian Basin. Aquifers are rare and usually have a low transmissivity; as a consequence of this, coupled with their marine origin, yields are usually low and quality poor. A similar sequence more typical of estuarine conditions, overlies these rocks. Again aquifers are poorly developed and the salinity of the waters is usually high.

The movement of water in the Artesian Basin is extremely slow. Calculations show the rate of travel of a particle of water usually lies within a range of 1 mile in 150 years to 1 mile in 1,000 years. However in the vicinity of discharging bores the velocity increases with proximity to the bore. Individual bores have flowed at rates in excess of 1.5 million gallons per day, but flows decrease fairly rapidly during the early life of the bore and tend towards a steady but much reduced discharge as time passes.

The high early flow is attributed mainly to aquifer compaction caused by the weight of the overlying sediments and to compression of the water itself. It has been estimated that 80 percent of the water which has flowed from the Great Artesian Basin has come from elastic storage in both the aquifers and the confining beds.

In New South Wales flowing supplies are still being obtained in about half the basin; the limit of flowing bores within the Darling Catchment is shown on Figure 15. The depths of flowing bores vary from 200 feet to about 4,000 feet, but in general, the deeper the bore the larger will be the flow.

Recharge into the intake beds is too slow to replace the water being withdrawn from the basin, and in fact, indications are that in New South Wales the water levels in bores in the intake areas are gradually falling and further shrinkage of the area in which flows can be obtained is inevitable.

Within the Darling River Valley, water from bores in the Great Artesian Basin is used mainly for watering stock. Because of the considerable cost in constructing deep bores and the high flows obtained from many of them, Bore Water Trusts or Artesian Well Districts were formed comprising a number of landholders, and water is supplied via bore drains. For many years bore drains have also been used on properties with individual bores, but since 1965, in order to eliminate waste, artesian licenses have included a condition limiting the use of the water to borehead supplies or distribution to tanks and troughs only by pipeline.

Throughout this area, it is almost always the case that the salinity of the water in the various aquifers decreases with increasing depth. Thus the lowest salinity water occurs in the deep aquifers east of Brewarrina and the Culgoa River. The depth of many bores in this part of the basin exceeds 2,000 feet and flows are still obtained from most such bores. Several of the very deep bores still flow at three quarters of a million or more gallons per day.

A short distance to the east of the Culgoa River the deep aquifers thin and eventually lens out against bedrock in the shallower parts of the basin; an inspection of Figure 15 shows the area around Brewarrina where a bedrock ridge projecting into the basin has the effect of cutting-out the deeper flow producing aquifers which are Jurassic Pilliga sandstones. Above the main aquifer system there is a confining bed of shale, followed by two relatively thin but persistent Upper Blythesdale aquifers, from which most of the shallower bores obtain flows ranging up to about 100,000 gallons per day. The salinity of the water from the main aquifers is usually less than 800 p.p.m., whilst that from the latter two aquifers is higher, but still less than 1,000 p.p.m.

Aquifers in the overlying Cretaceous shales usually contain brackish or saline water and are rarely utilised east of the Culgoa River.

West of the Culgoa, the bedrock is a complex series of buried hills and valleys and the thickness of the Artesian Basin sediment does not exceed 2,000 feet in this part of the Darling River Valley. The main Pilliga sandstone aquifer system is absent but the two Upper Blythesdale aquifers above it in the sequence are present; although extensive, they often become thin or are absent over

bedrock highs. The Cretaceous beds are sandier here than to the east and useful aquifers, usually containing stock quality water, occur in them at quite shallow depths. Thus in the Artesian Basin the shallower waters west of the Culgoa are usually less saline than those to the east, whilst the deeper waters are slightly more saline, although usually they still contain less than 1,000 p.p.m. total salts.

Once again the main use is for stock watering. Bores still yielding flows are usually more than 1,000 feet deep but flows rarely exceed 200,000 gallons per day and are usually less than 100,000 gallons per day.

In the marginal part of the basin between Bourke and White Cliffs, the water quality deteriorates as a result of restricted movement, but even here the salinity of water in the best aquifer does not usually exceed 3,000 p.p.m. In some bores located to the north-east of White Cliffs near Peery Springs there is an unusually high fluoride content, the highest recorded being 9 p.p.m. (about 10 times the recommended amount for human consumption and high enough to seriously affect the tooth and bone structure of stock).

Some town water supplies are obtained from bores in the Artesian Basin e.g. Wanaaring, Enngonia, Goodooga and Lightning Ridge. The latter also supplies 100,000 gallons per day to miners in the district for opal puddling.

The Murray Basin

Tertiary sediments within the geological structure known as the Murray Basin underlie the downstream part of the Darling River Valley. They do not crop out, and are everywhere covered by younger deposits to a thickness of up to 200 feet or more. The maximum known depth to which the sediments persist is about 1,400 feet, near Wentworth.

In this part of the Murray Basin, most of the sediments are of marine origin, but they grade into fresh water deposits to the east, and perhaps to the north-east. This distribution is largely responsible for the variation in salinity of the groundwater which occurs in these deposits. In the south-western extremity of the valley, the best groundwater available at any depth within the Tertiary sequence has a salinity within the range 7,000 to 14,000 p.p.m., with higher salinities common at shallower depths. This zone occupies about half the area of the Murray Basin within the Darling River Valley.

To the east, the salinity decreases and is in a range of 3,000 to 7,000 p.p.m., but once again shallow aquifers have higher salinity. For example, near Balranald, aquifers at depths around 1,000 feet yield water with a salinity of 3,000 to 4,000 p.p.m., while aquifers at 300 to 500 feet have water with a salinity greater than 14,000 p.p.m. (i.e. unsuitable for all stock). The lower salinity in this area is caused by westward movement of water through the aquifers, from the recharge areas in the Murrumbidgee and Lachlan River Valleys.

To the north of the main 7,000 to 14,000 p.p.m. zone, there is another zone of lower salinity water, extending to the margin of the Murray Basin. In this case, the lower salinity (which ranges from 3,000 to 7,000 p.p.m.) is due to recharge from the marginal areas of the Basin.

Because of the generally high salinity of water in these deposits, available yields are not a limiting factor. Supplies sufficient for stock watering are usually readily obtained, if the salinity is suitable. It is likely that much larger yields could be obtained from some areas, but so far they have not been sought.

Unconsolidated Sediments

Figure 15 shows two main subdivisions of unconsolidated deposits viz. (i) Residual and alluvial deposits and (ii) Alluvial clays, silts and sands. The former are restricted almost entirely to areas where solid rock is present at a relatively shallow depth. They comprise the more resistant components of the pre-existing rock. These strata are not thick enough to store useful quantities of groundwater even though they are usually sufficiently porous and permeable.

The alluvial clays, silts and sands are flood plain deposits of the Darling and its tributaries. Over most of their very extensive outcrop they consist of black or red heavy sands and clays, but there are both lateral and vertical variations.

Of the near surface materials, the coarsest are located in zones along streams, creeks and drainage channels or close to source areas. Major widespread vertical variations may be the result of climatic changes, whilst lesser ones may be due to proximity to a source of coarser material or the meanderings of the ancient stream channels. In general, clayey materials predominate and the permeability is low. This not only affects the average yield from bores or wells but limits the infiltration rate.

As mentioned earlier, the rainfall throughout this area is low and the annual evaporation rate is usually highest where the rainfall is least, ranging from about three times the annual rainfall in the east to about 8 times that figure in the west. As a result, any water which does not infiltrate rapidly is evaporated and any contained salts are concentrated. Either of two hydrogeological situations or a combination of both will result in local improvement of the groundwater quality viz. the presence at or near the surface of very permeable material, such as the sands in a prior stream bed, and concentration of runoff by physiographic features such as streams or hills. These conditions are responsible for the distribution of useful water in the alluvial deposits.

In the alluvia overlying the Great Artesian Basin the total saline content of the groundwater usually exceeds 14,000 p.p.m. and the water is useless even for sheep. However, in the flood plain along the Darling between Bourke and Menindee, there is a continuous zone of better quality water where bores 50 to 200 feet deep yield useful stock supplies within the salinity range 3,000 to 5,000 p.p.m. Locally the water quality may be good enough for some domestic and garden use, but such occurrences are rare and the individual potential very small.

There is similar improvement in water quality in zones related to the flood plains of the Queensland tributaries of the Darling. These areas of better quality water are close to the border and are relatively small. Successful bores and wells in these sediments are usually less than 100 feet deep.

The alluvia overlying the sediments of the Murray Basin are recharged by water from the Lachlan, the Murrumbidgee and the Darling River Systems. However the recharge is infrequent and slow, and results in a gradual increase in salinity away from the various sources of recharge. In the vicinity of the Murray River and in the interfluves the salinity exceeds 14,000 p.p.m. but elsewhere stock water suitable for sheep is usually obtainable.

In the vicinity of the Upper Devonian inliers concentration of runoff has resulted in the groundwater in the adjacent alluvia being of much better quality than would otherwise be the case. Total dissolved salts commonly are within the 3,000 to 5,000 p.p.m. range, and bores are usually less than 300 feet deep. As would be expected, the alluvial deposits close to the deeply weathered sediments of the Cobar Massif rarely yield useful supplies, the salinity being almost invariably higher than 14,000 p.p.m.

5. STREAM GAUGING STATIONS

Streamflow originates in the precipitation of atmospheric moisture which is mainly evaporated from the oceans and it is carried over the land masses by weather systems. Runoff is generally recognised to be that component of precipitation which appears as flow in streams after evaporation, transpiration and deep seepage losses have been satisfied.

In the assessment of streamflow or runoff, it could be expected that if satisfactory estimates were able to be made of losses due to evaporation, transpiration and deep seepage, the remainder of the precipitation, or runoff, could be reliably estimated. Further, as relatively long records of rainfall have been obtained in most areas of New South Wales a lengthy record of streamflow could be obtained by this method. However, despite intensive research, no suitable method has yet been formulated for estimating runoff from rainfall for any catchment to a satisfactory degree of accuracy.

It is therefore most desirable to have basic streamflow data available in order to enable satisfactory results and conclusions to be obtained in the assessment of water resources and other hydrologic proposals.

The measurement of streamflow usually involves two steps, the first being the measurement of river stage or gauge height in relation to a fixed datum and the second being the correlation of the measured height with discharge.

River heights are normally measured by visual observation of the water surface on a graduated scale or staff gauge or by means of a continuous record produced by a float or pressure actuated recorder. Individual measurements of stream discharge are obtained by the use of a current meter to measure flow velocities in conjunction with survey methods to determine the effective area of flow. The product of the velocity in feet per second and the cross-sectional area in square feet yields the discharge in cubic feet per second. In metric units, the discharge would be expressed in megalitres per day or cubic metres per second.

The correlation between discharge and river height is obtained by plotting the results of the direct discharge measurements as a graph of river height versus discharge. Using this graph it is possible to determine discharges when only river heights are available.

Discharge at a stream gauging station is usually given in terms of cusecs, one cusec flowing for one day being approximately equal to two acre feet or the volume of water that would cover an area of one acre to a depth of two feet.

The first stream height recording station established in the Darling Valley as defined in this report was at Menindee in 1881. Records of streamflow at this location date back to 1885, and these are the oldest such records in the Darling Valley. By 1900, nine stations had been installed along the Darling River, spaced from the Queensland-New South Wales border, south to Pooncarie and being located at Mungindi, Collarenebri, Walgett, Brewarrina, Bourke, Louth, Wilcannia, Menindee and Pooncarie. Recording of stream heights of the western bank tributaries did not commence until 1921 when gauges were installed on the Warrego River at Fords Bridge and on the Bywash which is an ana branch of the Warrego River.

At the present time, a total of 34 gauging stations are in operation in the Darling Valley, providing a gauging network extending from Mungindi on the Queensland border, to Burtundy about forty miles upstream of Wentworth. All the stations are operated by the Water Conservation and Irrigation Commission although a number of the stations on the Culgoa, and its effluent streams, have been installed on behalf of the Dumaresq-Barwon Border Rivers Commission and the Commonwealth Bureau of Meteorology.

The current density of gauging stations in the Darling Valley, as delineated in this report is about 0.4 stations per thousand square miles which is about one fifth of the density for inland New South Wales and about equivalent to the density for mainland Australia.

The current gauging network represents a comprehensive system for the measurement of water resources and operational requirements of the valley. Improvement of the standard of records at a number of the stations is proposed by the installation of long term float or pressure actuated recorders at locations where either staff gauges or short term recorders are presently installed.

The locations of all gauging stations in the Darling River Valley are shown at Figure 16 and relevant details concerning each station are given in Table 15.

TABLE 15

Stream	Station	Catchment Area (Sq. Miles)	Type of Gauge	Period of Operation
Barwon River	Mungindi	17,000	Float Recorder	1886 to date
Mooni River	Gundablouie	6,000	Float Recorder	1944 to date
Barwon River	Mogil Mogil	25,000	Staff Gauge	1938 to date
Barwon River	Collarenebri	33,000	Staff Gauge	1891 to date
Grawan Creek	Old Pokataroo	Effluent	Staff Gauge	1955 to date
Barwon River	Walgett	51,000	Servo Manometer Pressure Recorder	1886 to date
Barwon River	Hannafords	51,000	Staff Gauge	1956 to date
Barwon River	Combadery	51,000	Float Recorder	1954 to date
Barwon River	Brewarrina	115,000	Staff Gauge	1892 to date
Cato Creek	Brewarrina	Effluent	Staff Gauge	1947 to date
Narran River	New Angledool	Effluent	Staff Gauge	1964 to date
Narran River	Wilby Wilby	Effluent	Staff Gauge	1964 to date
Bokhara River	Goodooga	Distributary	Staff Gauge	1964 to date
Bokhara River	Bokhara	Distributary	Staff Gauge	1944 to date
Culgoa River	Brenda	Distributary	Staff Gauge	1964 to date
Culgoa River	Weilmoringle	Distributary	Staff Gauge	1964 to date
Culgoa River	Upstream Collerina	Distributary	Staff Gauge	1964 to date
Birrie River	Near Goodooga	Distributary	Staff Gauge	1964 to date
Birrie River	Talawanta	Distributary	Staff Gauge	1964 to date
Culgoa River	Downstream Collerina	Distributary	Staff Gauge	1944 to date
Darling River	Bourke Town	159,000	Float Recorder	1890 to date
		Slope Gauge	Float Recorder	1972
Warrego River	Barringun	22,000	Staff Gauge	1926 to date
Warrego River	Fords Bridge	) 23,000	Float Recorder	1921 to date
Warrego River	Fords Bridge Bywash	)	Float Recorder	1921 to date
Darling River	Louth	188,000	Staff Gauge	1899 to date
Darling River	Dunlop *	189,000	Staff Gauge	1944 to 1953
Paroo River	Wanaaring	16,000	Staff Gauge	1964 to date
Darling River	Wilcannia Weir	220,000	Staff Gauge	1944 to 1954 1961 to date
Darling River	Wilcannia Town	220,000	Float Recorder	1886 to date
		Slope Gauge	Float Recorder	1972
Darling River	Menindee Town	222,000	Staff Gauge	1881 to date
		Slope Gauge	Float Recorder	1972
Darling River	Menindee Weir 32	222,000	Float Recorder	1958 to date
Outlet Channel	Lake Cawndilla	Ana Branch	Pressure Recorder	1965 to date
Darling Ana Branch	Wycott	Ana Branch	Float Recorder	1967 to date
Darling Ana Branch	Bulpunga	Ana Branch	Staff Gauge	1954 to date
Darling River	Pooncarie *	249,000	Staff Gauge	1899 to 1941
Darling River	Studley *	250,000	Staff Gauge	1929 to 1949
Darling River	Burtundy	250,000	Float Recorder	1941 to date

Notes: 1. Only River heights obtained at:
(A) Collarenebri and Bourke until 1944
(B) Brewarrina until 1930

2. The Culgoa, Birrie and Bokhara Rivers are distributaries of the Balonne River.

3. The Narran River is an effluent of the Balonne River.

4. * indicates discontinued station.

5. Catchment area boundaries in the flat topography of the Darling Valley are largely indeterminate. Catchment areas are therefore shown only to thousands of square miles resulting, in some cases, in the same area being shown for more than one station. The figures shown should be generally regarded as being only indicative.

6. CATCHMENT YIELDS

The water yield of natural catchments varies considerably, being dependent on factors such as rainfall, topography, geology and vegetation in addition to the main catchment factor of catchment area. The relationship between these factors and the long-term water yield of a catchment is extremely complex and therefore the continuous measurement of streamflow over a period of many years is an essential pre-requisite for the estimation of accurate catchment yields.

The rate of streamflow is usually expressed in terms of cusecs; one cusec being equivalent to a volume of one cubic foot of water passing a given point in one second. Volumes of flow for given periods of time are usually expressed in acre feet; one acre foot of water being equal to the volume of water required to cover an area of one acre to a depth of one foot. The metric unit used for volume is the megalitre, which is equal to one million litres. A megalitre of water would cover an area of one hectare to a depth of one tenth of a metre and is roughly equivalent to four fifths of an acre foot.

For purposes of comparing the yields of different catchments it is convenient to express the rate or volume of runoff in terms of catchment area. These measurements are therefore expressed as cusecs per square mile, acre feet per square mile, or as inches of runoff. An inch of runoff is equivalent to the volume of water required to uniformly cover the catchment area to a depth of one inch. This unit is particularly appropriate when comparing runoff and rainfall.

The recording of streamflow information in the Darling Valley from before 1900 has provided a large volume of data for the determination of the yields at various locations in the valley.

During the eighty six years of records at Walgett on the Barwon River commencing in 1886 the average annual discharge has been 1,750,000 acre feet which is equivalent to an average flow of 2,400 cusecs (897,000 gallons per minute).

Further downstream at Bourke, the discharge has been increased by contributions from the Macquarie and Bogan Rivers on the left bank and the Bokhara and Culgoa Rivers on the right bank. The average annual flow at Bourke since streamflow records commenced in 1944 has been 3,286,000 acre feet which is equivalent to 4,502 cusecs (1,684,000 gallons per minute). This average cannot, however, be compared directly with the figures quoted above for Walgett because of the different period of records at the two locations.

At Wilcannia the average annual flow in the Darling River has been 2,604,000 acre feet during the eighty six years of records since 1886. This flow is equivalent to 3,567 cusecs (1,334,000 gallons per minute).

At Gundablouie the average flow in the Mooni River since 1944 has been 82,000 acre feet or 113 cusecs (42,000 gallons per minute).

For comparative purposes, the yields at selected streamflow stations over the respective periods of available records are given in Table 16. Details of monthly maximum, minimum and mean flows for the gauging stations listed in Table 16 are given in Appendices 8 to 17.

TABLE 16

Stream	Station	Years of Complete Records	Average Annual Yield Over Period of Records		
			Acre Feet Per Annum	Cusecs	Gallons Per Minute
Mooni River	Gundablouie	27	82,000	113	42,000
Barwon River	Walgett	86	1,750,000	2,400	897,000
Barwon River	Brewarrina	43	1,545,000	2,120	792,000
Bokhara River	Bokhara	27	59,600	82	30,500
Culgoa River	Downstream Collerina	27	378,000	518	194,000
Darling River	Bourke	29	3,286,000	4,502	1,684,000
Warrego River	Fords Bridge Bywash	51	44,100	60	22,600
Warrego River	Fords Bridge	51	18,200	25	9,300
Darling River	Wilcannia	86	2,604,000	3,567	1,334,000
Darling River	Menindee	92	2,619,000	3,588	1,342,000

7. AVERAGE ANNUAL RUNOFF

The area delineated in this report as the Darling River Valley covers only about thirty percent of the total Darling drainage system. It excludes the higher runoff regions in the Queensland headwaters and the productive tributaries of the Macintyre, Dumaresq, Gwydir, Namoi and Macquarie systems of northern New South Wales. The area considered is largely comprised of flat, barren plains which are not conducive to runoff, and consequently almost all the streamflow in the Darling River within the confines of the Darling Valley, originates outside the valley. Although some small streams in the Broken Hill and Cobar regions have provided

sufficient local runoff for town supplies, their yield is not sufficient to support sustained use. They flow for only short periods and nearly all of them become lost in the plains without ever reaching the Darling River.

No direct measurements have been made of runoff generated from the catchment bordering the Darling River. In the 1963 publication "Review of Australia's Water Resources" issued by the Australian Water Resources Council it was estimated that about 20,000 acre feet per annum would run off into the Darling River from this catchment. In addition it is considered that about 80,000 acre feet would be contributed from the New South Wales catchments of the Paroo, Warrego and Culgoa Rivers and would therefore total about 100,000 acre feet, from the total catchment of the Darling Valley.

In the following Table 17, the estimated long term average annual runoff for the Darling Valley as adopted in this report is compared with the total Darling River catchment and the Lachlan Valley.

TABLE 17

Valley	Average Annual Rainfall (Inches)	Catchment Area in Square Miles	Estimated Long Term Average Annual Runoff		
			Acre Feet Per Annum	Acre Feet Per Annum Per Square Mile	Percentage Runoff
Darling Valley (as adopted in this report)	12	85,000	100,000	1.17	0.2%
Darling River (including Queensland and New South Wales Tributaries)	17	247,100	5,981,000	24	3%
Lachlan Valley	18	32,700	1,075,000	34	4%

Although little runoff is generated from the catchment of the valley the main stream itself is an efficient carrier of streamflow and transmission losses are much less than those experienced in the lower reaches of some of the other inland valleys. This is more remarkable considering that the Darling traverses a very high evaporation area and that it flows almost entirely through country where the water table is below the level of the river bed and seepage losses would be expected to be high. The basis for this carrying efficiency is mainly twofold. Firstly, the stream channel is composed of a fine clay alluvium which permits only very low seepage rates and secondly, little flow is lost in distributaries as the two major ana branches only divert water in times of high flow in the main stream.

8. VARIABILITY OF STREAMFLOWS

While average annual flows are suitable for the comparison of long term yields from catchments, they do not reveal the variability which can be experienced in their annual flows or the probable extent to which the valley's surface water resources could be utilised without the construction of water conservation works.

An indication of the variability of streamflows at selected gauging stations in the Darling Valley is given in Table 18. This Table shows the maximum, minimum, and mean flows which have been recorded over the periods of record at these stations.

TABLE 18

Stream	Station	Period of Computed Records	Recorded Discharge in Cusecs		
			Maximum	Minimum	Mean
Mooni River	Gundablouie	Mar. 1945 to date	12,200	0	113
Barwon River	Walgett	Jan. 1866 to date	100,000	0	2,400
Barwon River	Brewarrina	Jan. 1930 to date	52,000	0	2,120
Bokhara River	Bokhara	Jan. 1945 to date	9,530	0	82
Culgoa River	Downstream Collerina	Jan. 1944 to date	4,950	0	518
Darling River	Bourke	Jan. 1944 to date	144,000	0	4,502
Warrego River	Fords Bridge Bywash	Nov. 1921 to date	909	0	60
Warrego River	Fords Bridge	Nov. 1921 to date	2,960	0	25
Darling River	Wilcannia	Jan. 1886 to date	97,000	0	3,567
Darling River	Menindee	Jan. 1881 to date	100,000	0	3,588

Available streamflow records in the Darling Valley indicate that a significant degree of variability exists in the annual flow from year to year along the Darling River. An indication of this variability at Downstream Collerina and Bokhara is shown at Figure 17 and for Wilcannia and Walgett at Figure 18.

At Wilcannia, annual flows have ranged from a maximum of about 23,507,000 acre feet in 1956 to a minimum of only 5,000 acre feet in 1902. Variability in annual flows decreases at the more upstream locations and at Walgett on the Barwon River, the maximum annual flow has been about 11,117,000 acre feet as compared with a minimum of about 16,400 acre feet.

Flow in the western bank tributaries has ceased on occasions for an entire year. At Bokhara, on the Bokhara River, the minimum annual flow has been zero while a maximum of about 525,000 acre feet was recorded during the flood year of 1956.

Monthly flows exhibit even greater variability than the annual flows. At Walgett, the monthly flows have ranged from zero on 43 monthly occasions to about 3,402,000 acre feet during August, 1950. At Wilcannia, about 4,300,000 acre feet were estimated to have flowed past the gauging station in the month of May during the 1890 flood. This volume is equivalent to over one and a half times the average annual flow. On the other hand, zero monthly flow has occurred on 49 different occasions.

An indication of the variation of monthly discharges for the gauging station at Walgett is shown by the histograms of flow at Figure 19. Monthly discharges are also plotted at Figure 20 for Bokhara and Downstream Collerina and at Figure 21 for Wilcannia.

Instantaneous flows tend to exhibit the greatest variability. For example, the estimated peak discharge at Wilcannia during the 1890 flood reached 97,000 cusecs. The recorded maximum discharge at the Bourke gauging station since records commenced reached 97,600 cusecs in August, 1950. As previously indicated, flow has ceased in the Darling River and its tributaries on numerous occasions.

The average monthly rainfalls for Walgett and Wentworth are shown at Figure 22 which indicates the variation in the annual pattern of rainfall going from north to south across the valley.

A predominance of summer rainfall is experienced throughout most of the valley except for the southern areas near Wentworth, where winter rainfall totals slightly exceed those which occur in summer.

The distribution of average monthly streamflows in the valley is not related to the localised rainfall pattern but is influenced more by the rainfall pattern on headwater catchments outside the Darling Valley. The average monthly streamflows at Walgett and Bourke, as shown at Figure 23, display two distinct peaks. The peak in March results from predominantly summer rainfall over the headwater catchments of the more northern tributaries while the August peak is caused by high winter flows in the tributaries further south where winter rainfall is more significant.

9. PERSISTENCE OF STREAMFLOWS

The Darling can be significantly different to other western flowing streams in its low flow behaviour in that streamflows which originate in distant headwaters often bear little relation to the weather conditions prevailing in the valley at a particular time. For example, it is not unusual for the river to be running at high levels through surrounding country which has seen no significant rainfall for months. When the headwater catchments receive little rain, rapid diminution of flow can occur.

An indication of the persistence of flow in any stream can be obtained from examination of flow duration curves. These curves indicate the percentages of time that discharges have varied from the minimum flow, which in many instances is zero, up to a maximum discharge or any other lesser flow. The curves are constructed to show the percentages of time that flows were equal to or greater than (or alternatively equal to or less than) any selected discharge. The flow duration curves and data given in this report correspond to the percentages of time that flows were equal to or greater than any indicated discharge.

The flow duration curve of the Barwon River at Walgett is given at Figure 24 and the frequencies of flow at this station are given in the following Table 19.

TABLE 19

Percentage of Time Flow Equalled or Exceeded	Corresponding Flows	
	Cusecs	Gallons Per Minute
10	6,000	2,244,000
30	1,600	598,000
50	610	228,000
70	240	89,800
90	35	13,100
95	20	7,480
100	0	0

The duration curve of discharge for the Darling River at Bourke is shown at Figure 25 and the flow frequency statistics for this station are given in the following Table 20.

TABLE 20

Percentage of Time Flow Equalled or Exceeded	Corresponding Flows	
	Cusecs	Gallons Per Minute
10	9,200	3,441,000
30	3,100	1,129,000
50	1,450	542,000
70	600	224,000
90	120	44,900
95	30	11,200
100	0	0

At Figure 26 the flow duration curve for the Mooni River at Gundablouie is shown and flow data corresponding to the curve are given in the following Table 21.

TABLE 21

Percentage of Time Flow Equalled or Exceeded	Corresponding Flows	
	Cusecs	Gallons Per Minute
3	1,000	374,000
5	435	163,000
10	100	37,400
15	40	15,000
20	10	3,740
25	4	1,500
32	0	0

The flow duration curve for the Bokhara River at Bokhara is appended at Figure 27, and flow frequency statistics for this station are given in the following Table 22.

TABLE 22

Percentage of Time Flow Equalled or Exceeded	Corresponding Flows	
	Cusecs	Gallons Per Minute
2	1,000	374,000
3	600	224,000
5	460	172,000
10	225	84,150
15	100	37,400
20	30	11,200
25	0	0

The duration curve of recorded flow at the gauging station located on the Culgoa River at Downstream Collerina is shown at Figure 28. Flow frequency statistics for this station are given at Table 23.

TABLE 23

Percentage of Time Flow Equalled or Exceeded	Corresponding Flows	
	Cusecs	Gallons Per Minute
2	4,000	1,500,000
10	2,260	845,000
30	310	116,000
50	63	23,600
70	10	3,740
80	5	1,870
90	0	0

At Figure 29, the flow duration curve for the Darling River at Wilcannia is shown and flow data corresponding to the curve are given in the following Table 24.

TABLE 24

Percentage of Time Flow Equalled or Exceeded	Corresponding Flows	
	Cusecs	Gallons Per Minute
10	8,000	2,992,000
30	2,500	936,000
50	950	355,000
70	320	120,000
90	40	15,000
95	0	0

The flow duration curve for the Darling River at Menindee is shown at Figure 30 and flow frequency statistics for the station are given in the following Table 25.

TABLE 25

Percentage of Time Flow Equalled or Exceeded	Corresponding Flows	
	Cusecs	Gallons Per Minute
10	9,000	3,366,000
30	2,850	1,067,000
50	830	310,000
70	220	82,400
90	20	7,500
93	0	0

The flow duration curves for the seven stations have been replotted in the form of duration curves of flow per square mile of catchment area and are shown at Figure 31.

10. OCCURRENCE OF FLOODING

Flooding in the Darling River Valley follows a different pattern to that experienced in other river valleys of the State. Floodwaters usually originate outside the valley and flow through the valley at slow velocities with a flood often taking more than a month to pass a particular location. The problems associated with the floodwaters concern the disruption of surface travel, inundation of low lying country and some buildings and the necessity of providing protective levees around towns. The slow moving waters cause relatively little structural damage and they are often beneficial as they provide hundreds of square miles of country with natural irrigation which can produce excellent grazing conditions.

The distribution and magnitude of flood heights exceeding 30 feet on the gauge at Bourke are given in Figure 32. A gauge height of 38 feet represents the danger height at which landholders in flood affected areas near Bourke would be alerted. The critical height in the river corresponds to a gauge height of 41 feet 6 inches.

The seasonal occurrence of floods in the valley is related to the climatic characteristics of the catchments outside the valley. As indicated in the following Table 26 floods at Bourke occur mostly in two periods, late summer to early autumn, and late winter.

TABLE 26

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
-	2	6	2	-	-	4	6	1	-	1	1

The occurrence of floods from February to April generally results from the predominantly summer monsoonal rainfall that is received on the northern headwater tributaries of the Darling River which drain the southern parts of Queensland. The consequent high flows from this region can take up to two months to reach Bourke. The frequency of floods in July and August is generally caused by high winter flows in the tributaries draining the central and northern parts of New South Wales.

Gauge height records have indicated that flooding of a sufficient degree to inundate low-lying country along the river has not been uncommon. From 1885 to 1900, there were six occurrences of flooding which affected grazing areas near the river. Included in this period was the record flood of 1890 when the river rose to a height of 47 feet 2½ inches at Bourke. Hastily constructed levees around the town gave way and all houses except those protected by individual embankments were flooded. In addition the Culgoa and Mooni Rivers, to the north-east of Bourke, broke their banks and followed new courses. During this flood, thousands of sheep were lost and the river level at Bourke remained above the critical height of 41 feet 6 inches for a continuous period of 59 days. Archival records indicate that the flood of 1864 was 5 inches higher than that of 1890.

The recent flood of 1974 reached 46 feet 3 inches and is the highest since that observed in 1890. However, an improved system of levees protected the Bourke township and stock losses were minimised by aerial dropping of fodder to isolated sheep flocks.

The three highest recorded floods at Brewarrina, Bourke and Menindee over the period of available discharge records, are indicated in the following Table 27.

TABLE 27

Location	Date	Magnitude (Cusecs)
BREWARRINA	Aug. 1950 July 1956 Feb. 1971	52,000 36,800 46,600
BOURKE	Aug. 1950 March 1956 March 1971	144,000 114,800 90,500
MENINDEE	June 1890 Sept. 1950 Sept. 1956	100,000 50,500 65,100

Limited historical information indicates that the flood of 1864 was one of the highest ever experienced by the settlers along the Darling River and could have exceeded the 1890, 1950 and 1956 floods.

11. DROUGHT PERIODS

There does not appear to be any specific definition of the term "drought". Generally it is considered to be an extended period of low rainfall at any location. Such a generalised definition can be misleading as drought conditions vary with geographical location, average rainfall and normal crop requirements. For example a continuous period of twelve months with low rainfalls may be considered to be a drought on a coastal catchment whereas such rainfalls may be considered to be normal on an inland catchment.

In general an area is considered to be under drought conditions when the soil moisture is insufficient for the requirements of the majority of crops during the growing season or when water shortages for domestic, industrial or municipal purposes are experienced. A prime indicator of drought conditions is a diminished or exhausted rate of streamflow.

The Darling Valley, being located in the far west of the State, is exposed to a harsh and arid climate that has produced frequent and prolonged droughts throughout the valley. Drought conditions were reported by the explorer Sturt in 1828 and in 1845 when he journeyed through the area.

Rainfall records have been obtained at some locations in the valley as early as about 1870. Graphs showing annual rainfalls for Mungindi, Bourke, Broken Hill and Pooncarie are shown at Figures 33 and 34 representing areas in the northern, central, western and southern parts of the valley. It can be seen that a number of periods of below average annual rainfall have occurred since records commenced. During the eight year period 1895 to 1902 the valley experienced one of the most severe and destructive droughts in living memory. Sheep numbers, which had increased many-fold in the dozen or so generally good years preceding the drought, were decimated due to lack of feed, and many properties had no water for their stock to drink.

Other severe droughts followed in the years 1911 to 1916, 1918 to 1920, 1940, 1943 to 1946 and recently from 1964 to 1966.

Because the Darling Valley covers such a vast area, it is not unexpected to find that the minimum annual rainfalls on record at Mungindi, Bourke, Broken Hill and Pooncarie have occurred in different years. The minimum annual totals at these four rainfall stations are given in Table 28, together with the annual average over the period of records and the minimum twelve monthly totals for unrestricted twelve monthly periods.

TABLE 28

Location	Average Annual Rainfall (Inches)	Minimum Annual Rainfall (Inches)	Minimum Twelve Monthly Rainfall (Inches)
Mungindi	19.86	6.62	3.98
Bourke	13.74	4.02	2.08
Broken Hill	9.33	2.24	2.16
Pooncarie	10.24	2.82	1.68

Since the commencement of streamflow records on the Barwon River at Walgett in 1886, the minimum twelve monthly flow of about 16,400 acre feet, which represents about 1 per cent of average annual flow at that station, was recorded from January to December 1902.

Downstream at Wilcannia, a minimum twelve monthly flow of about 1,840 acre feet was recorded from July 1919 to June 1920 and was less than one thousandth of the average flow at Wilcannia over the 86 years of record.

Recorded twelve monthly flows of all tributaries joining the Darling on its right bank, have reached zero on a number of occasions with the exception of the Culgoa River which, at Downstream Collerina, has recorded a minimum of about 17,400 acre feet from March 1960 to February 1961. This is less than 5 percent of the average annual flow recorded at Collerina since 1944 when records commenced.

All streams in the Darling Valley have ceased flowing on at least one occasion during extended dry periods and at most stations for periods of at least three months.

At Walgett on the Barwon River, the longest consecutive period of no flow has been 272 days from March to December 1902. Another period of 257 consecutive days of zero flow occurred from April to December 1888.

Because of additional evaporation losses during dry periods, longer periods of zero flow have been recorded at downstream locations. The Darling River ceased flowing for almost a year in 1902 when 362 days of no flow were recorded at both Wilcannia and Menindee from January 1902 to January 1903. On two other separate occasions no flow has occurred for continuous periods in excess of 230 days at these stations.

Some of the tributaries joining the Darling from the north have recorded far greater periods of no flow during droughts. On the Bokhara River at Bokhara for example, almost 21 consecutive months of no flow occurred during the recent drought of the mid-nineteen sixties with flow ceasing for a total of 625 days from April 1964 to January 1966.

The minimum twelve monthly and six monthly discharges recorded at selected gauging stations in the valley over the periods of computed records are shown in the following Table 29.

TABLE 29

Stream	Station	Minimum Recorded Six Monthly and Twelve Monthly Flow	
		Twelve Months (Acre Feet)	Six Months (Acre Feet)
Mooni River	Gundablouie	0 June 1951-May 1952	0 July-Dec. 1951
Barwon River	Walgett	16,372 Jan.-Dec. 1902	0 May-Oct. 1888
Barwon River	Brewarrina	102,516 Jan.-Dec. 1965	7,052 June-Nov. 1940
Bokhara River	Bokhara	0 Apr. 1957-Mar. 1958	0 Apr.-Sept. 1946
Culgoa River	Downstream Collerina	17,357 Mar. 1960-Feb. 1961	0 Jan.-June 1965
Darling River	Bourke	116,590 Jan.-Dec. 1965	17,618 Feb.-July 1965
Darling River	Wilcannia	1,842 July 1919-June 1920	0 July-Dec. 1902
Darling River	Menindee	1,154 Jan.-Dec. 1902	0 Feb.-July 1902

At most of the stations listed in Table 29, more than one period of zero flow has occurred during the period of record but only the first recorded period has been listed.

The following Table 30, sets out the longest recorded durations of zero flow in selected streams in the valley and also shows for each gauging station, the total number of days of no flow during each period.

TABLE 30

Stream	Station	Period of Records	Period of Zero Flow	Number of Consecutive Days
Mooni River	Gundablouie	1944 to December 1972	May 1951 to October 1952	519
			August 1959 to December 1960	501
			Nov. 1964 to December 1965	371
Barwon River	Walgett	1886 to December 1972	March 1902 to December 1902	272
			April 1888 to December 1888	257
			Aug. 1940 to December 1940	122
Darling River	Brewarrina	1930 to December 1972	December 1944 to Feb. 1945	65
			October to December 1940	64
			December 1967 to Jan. 1968	25
Bokhara River	Bokhara	1944 to December 1972	April 1964 to January 1966	625
			May 1968 to October 1969	517
			March 1957 to July 1958	488
Culgoa River	Downstream Collerina	1944 to December 1972	January 1965 to Aug. 1965	223
			June to December 1960	175
			November 1951 to March 1952	147
Darling River	Bourke	1944 to December 1972	November 1944 to Feb. 1945	87
			October to November 1969	18
			June to July 1966	14
Darling River	Wilcannia	1886 to December 1972	January 1902 to January 1903	362
			May 1888 to February 1889	257
			August 1919 to March 1920	248
Darling River	Menindee	1881 to December 1972	February 1902 to Jan. 1903	362
			July 1888 to April 1889	316
			August 1919 to April 1920	235

Rainfall records and streamflow behaviour have indicated that of the number of extended dry periods experienced throughout the valley, the most severe were probably those from 1895 to 1903, 1911 to 1916, 1936 to 1941 and 1964 to 1967.

12. THE 1964 to 1968 DROUGHT

During the years 1964 to 1968 the Darling Valley experienced a general rainfall deficiency which included a number of periods of extremely low rainfall. Details of the recorded monthly rainfalls at Bourke, Broken Hill, Nymagee and Pooncarie for the period from October, 1964 to December, 1968 are given in Table 31. These locations are considered to represent respectively the northern, western, eastern and southern areas of the valley.

TABLE 31

Month	Year	Rainfall in Points			
		Bourke	Broken Hill	Nymagee	Pooncarie
October	1964	234	212	177	62
November	1964	0	1	26	11
December	1964	33	38	9	42
January	1965	18	0	30	0
February	1965	6	0	0	0
March	1965	29	10	18	0
April	1965	6	0	6	25
May	1965	12	60	64	52
June	1965	49	101	92	67
July	1965	15	25	33	50
August	1965	37	146	144	221
September	1965	40	49	28	93
October	1965	62	38	149	26
November	1965	17	5	54	96
December	1965	231	66	155	19
January	1966	48	104	22	14
February	1966	27	105	68	40
March	1966	87	51	101	70
April	1966	0	2	15	14
May	1966	94	49	200	50
June	1966	26	14	18	51
July	1966	105	59	199	58
August	1966	210	54	208	53
September	1966	84	11	64	19
October	1966	68	52	162	60
November	1966	186	132	114	152
December	1966	163	176	343	126
January	1967	36	86	19	4
February	1967	6	98	0	63
March	1967	430	49	174	13
April	1967	0	0	0	2
May	1967	100	9	107	52
June	1967	88	31	202	6
July	1967	6	5	0	20
August	1967	152	12	82	69
September	1967	0	1	39	17
October	1967	43	30	148	34
November	1967	2	7	85	2
December	1967	41	0	6	0
January	1968	767	457	364	205
February	1968	307	0	13	0
March	1968	123	57	253	30
April	1968	162	155	99	142
May	1968	349	332	403	248
June	1968	9	72	55	90
July	1968	166	89	122	81
August	1968	43	55	128	62
September	1968	21	5	76	5
October	1968	12	20	54	76
November	1968	26	49	120	55
December	1968	79	75	164	67

From November 1964, the entire valley entered a period of low rainfall that continued, at some locations, up to the end of 1967 before significant relief was obtained. At Bourke, representing the northern area of the valley, only one month of above average rainfall was recorded during the twenty month period from November 1964 to June 1966. Although periods of low rainfall occurred in this area throughout 1967 and 1968, they were generally broken by months of above average falls.

The southern and western areas of the valley received least rainfall during this drought. During the three year period from 1965 to 1968, the average monthly rainfall value was exceeded at Broken Hill, on only six separate monthly occasions. At Pooncarie, the occurrence of above average monthly rainfalls in this period was also six, and, as well, the entire twelve months of 1968 were below average.

Following the poor rainfalls in late 1964 rural conditions throughout the valley generally deteriorated. In the central and northern areas of the valley pastoral conditions became acute and by March 1965 all areas north of about Menindee were declared as drought affected. The far north-west of the State had suffered to a greater degree and had already been a drought declared area for most of 1964.

Conditions improved sufficiently by about mid 1967 for most of these areas to have drought relief suspended. However, the pattern of low rainfalls was again experienced and by September 1967, the central and southern areas of the valley were receiving drought relief. This situation extended over the entire valley by November of 1967.

Good rainfalls in January, March, April and May 1968 relieved the critical situation in the valley and although dry conditions returned over most of the valley from June 1968 to January 1969, well above average rainfalls in March 1969 restored favourable pastoral conditions and presented landholders with the best grazing conditions for a number of seasons.

The effect of these extended dry periods on streamflows in the valley was quite marked. At Walgett, on the Barwon River, streamflows had diminished to about 1 cusec by May 1966 and although some recovery occurred with freshes of about 5,000 cusecs in November and December 1966, flows generally diminished throughout 1967 and reached about 1 cusec again in December 1967, and January 1968.

At both Brewarrina and Bourke, flows ceased altogether on a number of occasions during 1966 and again during the last three months of 1967.

Flows in the western bank tributaries rapidly diminished at the onset of the drought and lengthy periods of zero flow were recorded. On the Culgoa River at Downstream Collerina during the period January 1963 to December 1969, there was a total of 11 monthly occasions when zero flow was recorded for the entire month. At Bokhara on the Bokhara River, 68 occasions of zero monthly flow occurred during the same period.

The behaviour of the Menindee Lakes Storages clearly reflects the effect of this drought on the available surface water supplies in the valley. The two largest lakes Menindee and Cawndilla were both dry by May and November 1966 respectively, while Lake Pamamaroo had only about 60 percent of its full capacity available for release during this period.

Improved streamflows during late 1966 and early 1967 enabled the storages to recover and although Lake Menindee again dried up from December, 1967 to February, 1968, the storages generally were able to meet the downstream requirements during the remainder of the drought.

Details of the minimum twelve and six monthly flows recorded at selected stream gauging stations in the Darling Valley during the dry period from 1964 to 1968 are given in Table 32.

TABLE 32

Stream	Station	Minimum Recorded Flow (Ac. Ft.)	
		Twelve Months	Six Months
Mooni River	Gundablouie	0 Dec. 1964 - Nov. 1965	0 Jan. - June 1965
Barwon River	Walgett	103,448 Dec. 1964 - Nov. 1965	13,226 April - Sept. 1965
Barwon River	Brewarrina	102,516 Jan. - Dec. 1965	11,658 March - Aug. 1966
Bokhara River	Bokhara	0 May 1964 - April 1965	0 May - Nov. 1965
Culgoa River	Downstream Collerina	39,262 Dec. 1964 - Nov. 1965	0 Jan. - June 1965
Darling River	Bourke	116,590 Jan. - Dec. 1965	17,618 Feb. - July 1965
Darling River	Wilcannia	89,904 Jan. - Dec. 1965	8,962 March - Aug. 1965
Darling River	Menindee	53,200 March 1966 - Feb. 1967	15,850 July - Dec. 1965

A comparison of Table 32 with Table 29 in Section 11 indicates that at Brewarrina and Bourke, the minimum twelve monthly flow recorded during the recent drought was also the minimum value recorded since records commenced at both stations. This was also the case for the minimum six monthly flow at Bourke. The gauging stations at Gundablouie and Bokhara also recorded minimum twelve and six monthly flows of zero during this drought, however, these values have been recorded at both stations on previous occasions.

In addition to the low twelve monthly discharges recorded during the 1964-68 drought, very low flows were also recorded over much shorter durations.

Table 33 lists the minimum thirty day and three monthly discharges recorded at selected gauging stations during this drought.

TABLE 33

Stream	Station	Minimum Recorded Flow During the 1964-68 Drought (Acre Feet)	
		Thirty Days	Three Months
Mooni River	Gundablouie	0 July 1964	0 July to Sept. 1964
Barwon River	Walgett	400 June - July 1965	3,980 May to July 1965
Barwon River	Brewarrina	456 June to July 1966	2,710 June to Aug. 1966
Bokhara River	Bokhara	0 May 1964	0 May to July 1964
Culgoa River	Downstream Collerina	0 January 1965	0 Jan. to March 1965
Darling River	Bourke	266 June to July 1966	2,430 June to Aug. 1966
Darling River	Wilcannia	0 Dec. 1965 to Jan. 1966	2,500 April to June 1965
Darling River	Menindee	3,980 July to Aug. 1966	6,380 July to Sept. 1966

13. WATER REQUIREMENTS FOR CURRENT DEVELOPMENT

The thousands of square miles of open plains that comprise the Darling River Valley mainly support an extensive grazing industry. The climate and terrain are such that most landholders rely heavily on dry land grazing although some irrigation is conducted adjacent to the main river. The principal crops are lucerne and irrigated pastures while a number of holdings that support citrus orchards are located between Brewarrina and Bourke.

The area authorised for irrigation by license under the Water Act has increased from 3,240 acres at June, 1944 to 57,276 acres at June, 1973, the corresponding number of licenses being seventy-six at June, 1944 and 386 at June, 1973. The variations in total area and number of licenses for authorised irrigation over the period from 1944 to 1973 in the Darling River Valley are given in Figure 35.

The area authorised for irrigation remained relatively constant between about 2,500 and 4,400 acres until 1959. Thereafter a steady rise has occurred each year reaching a peak of 62,000 acres in 1971. Similarly, a marked increase in the number of licenses issued for irrigation is apparent from 1959, reaching a peak in 1970 of 421.

This growth pattern of irrigation in the valley resulted in the average area per license remaining between about 30 and 40 acres up to 1962. Thereafter a sharp increase occurred and by 1973, the average area per license had risen to 148 acres.

In addition to licenses for irrigation purposes, there are a number of licenses in the valley issued for town, industrial and stock and domestic water supply purposes. At June, 1973, there were 44 such licenses issued with a total authorised capacity of about 35,220 gallons per minute. Supplies for town water are either pumped directly from weir pools on the main river or obtained from artesian bores or artificial off-river storages located near the towns.

Broken Hill is the largest town in the valley and originally obtained town water supplies from two small storages located on Stephens and Umberumberka Creeks which drain elevated parts of the Barrier Range. In recent years, the Broken Hill Water Board has augmented this supply by pumping water from the Darling River at Menindee to storage reservoirs near Broken Hill.

The Menindee Lakes Scheme is the largest water conservation storage in the valley. The Scheme consists of a block dam and weir in the Darling River, designed to raise the water level and enable flows to be diverted into the smaller upstream natural depressions forming Lakes Malta, Balaka, Bijijie and Tandure. The storage formed behind the block dam and weir is known as Lake Wetherell and stores up to 120,000 acre feet. To prevent the spread of water on to the surrounding plains, 20 miles of levees were constructed on the eastern side of the river.

To the west of the Darling River, Lakes Pamamaroo, Menindee and Cawndilla form the three largest storages in the Scheme. Lake Menindee is the largest storage in the Scheme holding three quarters of a million acre feet while Lake Pamamaroo stores over 300,000 acre feet. A diagrammatic representation of the Scheme is shown on Figure 36.

The total operating capacity of the storages is approximately 1,470,000 acre feet, covering an area of about 112,000 acres.

Although the Menindee Lakes Scheme is the only major water conservation storage in the Darling Valley, a number of weirs have been constructed and more are planned along the Darling River. When this programme is completed it will provide a series of almost continuous pools from the Queensland border to the Murray River and will encourage further irrigation due to the presence of a more assured water supply along the river.

The areas authorised for irrigation by license under the Water Act, as at 30th June, 1973 on various streams in the valley are shown in the following Table 34.

TABLE 34

Stream	Area Authorised For Irrigation at 30th June, 1973 (Acres)
(a) Mungindi to Bourke	
Darling River	24,947
Mooni River and Tributaries	480
Bokhara River and Tributaries	3,226
Culgoa River and Tributaries	749
Other Darling River Tributaries for Section	20
(b) Bourke to Wilcannia	
Darling River	11,714
Paroo River and Tributaries	210
Warrego River and Tributaries	5,666
Other Darling River Tributaries for Section	400
(c) Wilcannia to Wentworth	
Darling River	9,590
Great Ana Branch of Darling River	264
Other Darling River Tributaries for Section	10
TOTAL - DARLING RIVER VALLEY	57,276

From the above Table 34 it is apparent that the scale of private irrigation is most intense along the Darling River. Total irrigation from the Darling River tributaries only amounts to 20 percent of the total area authorised for irrigation in the valley.

The following Table 35 indicates the maximum pump diversion capacities in the valley in gallons per minute for town, industrial and licensed stock and domestic water supply purposes.

TABLE 35

Section of Valley	Maximum Diversion Capacities for Town, Industrial and Licensed Stock and Domestic Water Supplies (G.P.M.)
Darling River	
- Mungindi to Bourke	8,295
- Bourke to Wilcannia	4,425
- Wilcannia to Wentworth	865
Mooni River and Tributaries	-
Bokhara River and Tributaries	3,665
Culgoa River and Tributaries	50
Paroo River and Tributaries	9,235
Warrego River and Tributaries	250
Great Ana Branch of Darling River	30
Other Darling River Tributaries	8,405
TOTAL	35,220 (94 cusecs)

The above requirements are based on the continuous operation of licensed pumps at full capacity. Experience has shown that licensed pumps for these purposes do not operate continuously on a daily basis and it has been found that continuous operation at about ¼ pump capacity would approximate the maximum annual diversion of these water supply requirements. Only about 8 percent of the total is licensed for town and industrial purposes, the majority of the pumps being licensed to provide for stock and domestic usage, often by pumping into large ground tanks for storage and use as required.

In addition to irrigation, town, industrial and licensed stock and domestic water supplies, there is also a substantial demand for stock and domestic supplies from landholders whose properties border streams in the valley, and who are entitled to divert water, subject to conditions, without requiring a license under the Water Act. Stream frontages of properties in this category total about 2,300 miles in the valley.

14. POSSIBLE IRRIGATION DEVELOPMENT

Available information indicates there could be as much as four million acres of land topographically suitable for irrigation in the area defined in this report as the Darling Valley. This is the total area of land extending less than two miles from the river. The distribution of these areas is shown in Table 36.

TABLE 36

Valley Section	Assessed Area Suitable for Irrigation (Acres)
(a) Mungindi to Bourke	
Barwon and Darling Rivers	530,000
Mooni River	4,000
Bokhara River	210,000
Culgoa River and Tributaries	495,000
Narran River and Tributaries	240,000
Other Darling Tributaries for the Section	33,000
(b) Bourke to Wilcannia	
Darling River	502,000
Paroo River and Tributaries	188,000
Warrego River and Tributaries	260,000
Other Darling Tributaries for the Section	3,000
(c) Wilcannia to Wentworth	
Darling River	630,000
Menindee Storages and Associated Lakes and Creeks	201,000
Talyawalka Ana Branch and Associated Lakes	305,000
Great Ana Branch of Darling River and Associated Lakes	365,000
Other Darling Tributaries for the Section	34,000
Total:	4,000,000

Most of the areas referred to in Table 36 are located on flood plains or lake margins. Many of these areas are dissected by flood channels.

From a practical viewpoint, only a small proportion of the topographically suitable land could support profitable irrigation enterprises. Apart from limitations imposed by available water resources, other problems, including drainage, flooding, and soil types require consideration when assessing the suitability of any area for irrigation.

Detailed investigations would be required to establish the feasibility and economics of establishing a permanent large-scale irrigation scheme in any area of the valley. Such investigations would need to include soil surveys and agro-economic studies.

Although the prospects of establishing viable large-scale schemes in such remote areas appear poor, irrigation could be of considerable value in stabilising the existing pastoral industries in the valley. Small carefully planned schemes could produce sufficient stock feed to augment natural pastures in drought periods.

15. INVESTIGATION OF STORAGE PROPOSALS

The earliest investigations concerning the waters of the Darling River were made by the Department of Public Works. These were related to the provision of locks and weirs to assist navigation by paddle steamers and barges. In 1885, the Department recommended the construction of 23 locks and weirs between Bourke and Wentworth at an estimated cost of $2,160,000.

Later, from 1892 to 1893, the Department also carried out investigations into the possible use of the waters of the Darling River. The resultant report contained information on the areas which might be irrigated by pumping from weirs on the river, the estimated storage capacities of the major natural lakes adjacent to the river and economic and other aspects of irrigation.

In June 1895, the construction of an experimental weir and lock at Bourke was commenced and in following years several schemes were proposed for providing navigation locks on the Darling River, and for developing large water storages for irrigation. The latter proposals included dams downstream of Menindee and at a site near Louth, and a scheme for storing water in Lake Menindee.

Although many proposals were examined, only four weirs were built on the Darling River in the period to 1945. Three of these, at Bourke, Wilcannia and Menindee, were built by the Department of Public Works for town and railway water supplies whilst the fourth was built at Mungindi in 1936 and was later taken over by the Dumaresq-Barwon Border Rivers Commission.

The Darling River Water Act, passed in 1945, authorised the construction of up to forty weirs to provide an almost continuous series of pools from the Queensland border to the Murray River. The first of these weirs Weir No. 1 near Mungindi was completed in 1949.

Since the inception of the weir construction programme in 1945, a total of eight weirs have been constructed on the Darling River. Five of these weirs, at Bourke, Collarenebri, Brewarrina, Tilpa and Louth have been constructed since 1965, with the most recent weir, at Louth, having been completed in 1973.

Five weirs have also been constructed on the Culgoa, Bokhara and Narran Rivers. One weir is located towards the downstream end of the Culgoa River, there are two on the Bokhara River and two also on the Narran River. The most recent of these weirs is Bangate Bridge Weir on the Narran River, which was completed in 1970.

At the date of this report construction had commenced on a series of divisor structures to equitably distribute flows in the Culgoa, Birrie, Bokhara and Narran Rivers. These structures will be located in these streams at the four principal bifurcations of which three are in Queensland and one is in New South Wales where the Birrie River offtakes from the Bokhara River.

The largest water conservation storages in the Darling Valley are the Menindee Lakes Storages, which were authorised for construction in 1949 and completed in 1968, and which are described on pages 45 and 46.

Owing to the topographic and hydrologic conditions in the Darling Valley, there is no scope for the provision of large conventional water conservation dams on the Darling River. Over its entire length from Mungindi to Wentworth, a distance of about 1,350 miles, the fall of the river is only about 400 feet. River gradients vary from about 8 inches per mile near Mungindi to about 2½ inches per mile downstream of Menindee; conditions which are conducive to the provision of substantial storage within the stream channel.

The Commission therefore plans to continue its investigations for weir sites. The future construction programme for weirs on the Darling River is dependent upon the funds which can be made available for water conservation works generally and the occurrence of favourable river conditions for investigations and construction work. However, forward planning is proceeding on the basis that provided favourable streamflows and site conditions are encountered a new weir will be constructed each year on average.

Investigation work is currently at an advanced stage for weir sites between Walgett and Collarenebri, with a view to including a weir in this section of the river in the construction programme at an early date. Site investigations are also in progress for an additional weir near Wilcannia.

The locations of existing and proposed works in the Darling Valley are shown on Figure 37.

In the immediate future it appears inevitable that any additional major water conservation works for the Darling River will necessarily be restricted to strategically placed weirs. However, individuals or groups of landholders may see advantage in providing their own small local storages to increase stock and domestic water supplies over prolonged dry periods. Such augmentation of water supplies from small local storages could result in greater stability of income for those people dependent for their livelihood on the pastoral industries of the valley.

16. ACKNOWLEDGMENTS

The Water Conservation and Irrigation Commission gratefully acknowledges the assistance provided by the Director, Bureau of Meteorology in supplying the section on the Climatic Features, the Rainfall Statistical Data and the Median Rainfall Maps for inclusion in this report and by the New South Wales Department of Public Works in providing details of existing town water supply schemes.

ANNUAL RAINFALL
(Points)

Year	Albermarle	Barringun	Bourke	Brewarrina	Broken Hill	Byrock	Carinda	Year
1871			*					1871
1872			2471	1677				1872
1873			1214	2338				1873
1874			*	3416				1874
1875			992	1248				1875
1876	941		1314	2068				1876
1877	N.R.		*	1661				1877
1878	N.R.		1331	1543				1878
1879	N.R.		1736	1508				1879
1880	N.R.		2328	2222				1880
1881	N.R.		1636	1576				1881
1882	N.R.	1959	2247	1942				1882
1883	N.R.	1120	1011	949				1883
1884	N.R.	861	967	916				1884
1885	N.R.	1364	1427	1421				1885
1886	1465	2085	2048	1877				1886
1887	1837	2845	2440	2457				1887
1888	515	462	683	N.R.				1888
1889	1389	2317	1971	N.R.	1658			1889
1890	1105	2918	2971	N.R.	1210	*		1890
1891	1370	2290	2560	2577	937	2325		1891
1892	774	1357	815	1329	1145	1338		1892
1893	874	1520	1256	1559	1000	1780		1893
1894	1298	1795	2389	2007	1250	2291		1894
1895	765	1133	1137	1531	718	1356		1895
1896	899	1562	1958	1716	650	2649		1896
1897	720	1639	1720	1576	534	1381		1897
1898	562	1009	1076	1256	852	915		1898
1899	475	816	1009	1110	532	962	*	1899
1900	947	807	1052	662	694	834	1019	1900
1901	708	966	816	1010	1220	651	1383	1901
1902	325	1012	699	605	359	850	742	1902
1903	961	1435	1323	1451	1439	1428	2011	1903
1904	744	1390	1116	1180	724	1042	1386	1904
1905	582	1374	1019	1426	920	1656	1802	1905
1906	1304	2172	1535	1920	812	2161	2207	1906
1907	952	1558	1440	1863	912	1453	1410	1907
1908	673	1388	1067	1501	922	1341	1836	1908
1909	586	1585	1457	1624	797	1371	1750	1909
1910	849	1905	1184	1537	1166	1586	2055	1910
1911	1880	1710	1463	1357	1761	1548	1726	1911
1912	871	798	696	1131	1535	895	1222	1912
1913	634	1135	938	1257	563	1403	1609	1913
1914	479	755	667	887	813	1348	1546	1914
1915	661	501	845	588	874	726	945	1915
1916	848	1626	1519	1701	1019	1878	2135	1916
1917	1643	1211	1613	1507	1707	1702	1642	1917
1918	834	1005	627	871	952	589	976	1918
1919	627	661	588	604	866	751	865	1919
1920	1066	1946	1560	1967	1171	1591	2325	1920
1921	1469	1728	1921	2787	1563	2092	2296	1921
1922	446	828	555	830	676	N.R.	983	1922
1923	897	933	854	1291	1022	N.R.	1344	1923
1924	672	1229	1582	1593	646	N.R.	1764	1924
1925	974	1314	1849	1990	838	N.R.	1892	1925
1926	693	1982	1621	2133	1053	1121	1854	1926
1927	313	649	630	1069	381	879	1109	1927
1928	721	1117	818	1333	966	930	1072	1928
1929	566	301	402	450	563	457	585	1929

* Records Incomplete

ANNUAL RAINFALL
(Points)

Year	Albermarle	Barringun	Bourke	Brewarrina	Broken Hill	Byrock	Carinda	Year
1930	1152	1555	1532	1462	818	1647	1778	1930
1931	1296	2309	1676	2241	1166	1767	2197	1931
1932	980	846	1144	978	709	1171	1316	1932
1933	706	1661	1448	2458	892	1332	1912	1933
1934	541	1292	1230	1433	682	1408	2267	1934
1935	386	706	470	701	488	813	1098	1935
1936	957	1680	2577	1617	820	2230	2019	1936
1937	634	739	645	945	951	491	974	1937
1938	397	980	975	848	626	1161	1472	1938
1939	1614	1567	1958	2177	1257	2516	2662	1939
1940	117	649	806	845	224	760	814	1940
1941	663	1225	1176	1600	581	1263	1836	1941
1942	894	1611	1343	2494	966	1425	2084	1942
1943	666	763	786	1470	463	1207	1416	1943
1944	157	790	692	899	541	661	1078	1944
1945	578	859	1109	1214	604	1058	1254	1945
1946	909	860	797	1081	1042	909	1083	1946
1947	1218	1815	2293	2525	1338	1910	2115	1947
1948	436	1460	1540	1693	435	1289	1721	1948
1949	762	1910	1890	1741	1118	1839	1647	1949
1950	985	3438	3362	3699	1376	3583	4221	1950
1951	605	610	754	976	569	785	1221	1951
1952	779	1606	1143	1640	991	1280	1402	1952
1953	758	1037	1125	1667	902	1131	1208	1953
1954	895	1395	1323	1561	1100	1369	1810	1954
1955	1256	2118	2030	2606	1756	*	2680	1955
1956	2215	2415	2567	2804	1480	2685	3057	1956
1957	838	430	581	727	712	583	865	1957
1958	997	1294	1096	2078	1288	1211	1736	1958
1959	675	1234	1286	2321	519	1164	2311	1959
1960	1108	1185	1175	1311	845	1142	975	1960
1961	593	1449	1387	1700	988	1365	1356	1961
1962	1142	1535	1762	2745	1257	1969	2279	1962
1963	1341	1780	2296	2830	1015	2051	1661	1963
1964	702	1166	896	1675	988	1106	1130	1964
1965	530	728	522	1003	500	442	593	1965
1966	806	1112	1098	1292	809	1317	1128	1966
1967	320	1059	904	916	328	600	1013	1967
1968	917	1225	2064	1497	1366	1646	1598	1968
1969	950	804	1366	1469	724	1740	1789	1969
1970	975	1096	1098	1471	763	1401	2115	1970
1971	914	1276	1367	1842	1248	1646	1810	1971
1972	*	540	731	1393	669	961	1673	1972

* Records Incomplete.

ANNUAL RAINFALL
(Points)

Year	Cobar	Collarenebri	Cuthero	Enngonia	Fords Bridge	Fulham Park	Girilambone	Year
1881			1068					1881
1882	1606		900					1882
1883	724		805			678	718	1883
1884	713		676			831	914	1884
1885	1593	1288	942			1618	N.R.	1885
1886	2076	2960	1258			1455	N.R.	1886
1887	1484	2173	1888			2311	N.R.	1887
1888	529	1061	559			530	563	1888
1889	2117	2378	1981			2018	2465	1889
1890	2843	2692	1137	3451		1550	3496	1890
1891	3148	2027	1652	N.R.		2063	2669	1891
1892	1224	2323	1220	1446		901	1264	1892
1893	1726	2106	1161	1355		1135	2249	1893
1894	2333	2336	1707	1674		2187	2723	1894
1895	1408	2183	874	1301		833	1627	1895
1896	2295	1646	858	1658	*	1291	2436	1896
1897	1417	1440	510	1404	1388	1107	*	1897
1898	997	1053	806	1459	987	500	934	1898
1899	867	1255	685	718	761	488	960	1899
1900	1052	857	850	798	783	864	1072	1900
1901	795	1626	841	934	602	773	982	1901
1902	568	683	267	811	833	N.R.	694	1902
1903	1106	2778	1151	1435	1082	N.R.	1707	1903
1904	1379	1887	919	1734	1056	781	1350	1904
1905	1216	1709	996	1161	915	877	2122	1905
1906	1800	2157	1264	1748	1723	2290	2706	1906
1907	1162	2521	960	*	1673	*	1830	1907
1908	1238	2206	902	1217	1314	971	1028	1908
1909	1267	1954	894	1610	1464	930	1736	1909
1910	1360	1912	954	1518	1199	846	*	1910
1911	2203	1883	1431	1472	1382	1469	1669	1911
1912	753	1723	1066	772	*	1282	1126	1912
1913	1051	2130	597	1315	864	1069	1848	1913
1914	1134	2401	657	1000	749	953	1391	1914
1915	996	1212	735	592	455	942	1389	1915
1916	1875	2211	1075	1760	1502	1399	1952	1916
1917	1919	2138	1563	1530	1527	1805	2306	1917
1918	903	1191	1086	1400	972	867	931	1918
1919	748	1198	620	298	412	335	944	1919
1920	1395	2294	1124	2241	1604	1207	1857	1920
1921	1591	3354	1333	1729	1417	1261	2380	1921
1922	727	1456	644	657	456	469	719	1922
1923	962	989	1313	1093	532	746	1015	1923
1924	1493	2149	875	1311	858	663	1759	1924
1925	1294	2021	673	1655	1298	1275	1984	1925
1926	962	2053	900	2037	1582	930	1173	1926
1927	954	1255	429	906	512	520	1331	1927
1928	1621	1430	491	851	1110	N.R.	2065	1928
1929	672	1213	673	438	436	N.R.	639	1929
1930	1678	1785	971	1576	1147	*	1910	1930
1931	1770	2353	1176	1904	1870	1538	2139	1931
1932	1364	1400	1253	700	1602	815	1173	1932
1933	1324	2010	931	1571	1419	1051	1237	1933
1934	1623	2142	591	1035	1302	1078	1634	1934
1935	683	1026	524	561	671	363	943	1935
1936	2223	1624	1240	2025	2261	2009	2782	1936
1937	456	1627	1108	668	338	505	798	1937
1938	616	1530	571	1261	996	415	1074	1938
1939	2106	2519	1541	1773	1729	1991	1634	1939
1940	736	1118	308	641	633	323	696	1940
1941	1350	1498	1217	1096	1384	1093	1322	1941
1942	1387	2964	900	1539	1260	856	1304	1942
1943	722	1512	437	776	973	787	974	1943
1944	1002	855	424	913	670	553	666	1944
1945	1154	1717	598	921	1022	782	1567	1945

* Record Incomplete .

ANNUAL RAINFALL
(Points)

Year	Cobar	Collarenebri	Cuthero	Enngonia	Fords Bridge	Fulham Park	Girilambone	Year
1946	772	942	1192	936	821	1177	958	1946
1947	2115	3278	1254	1771	1717	1538	2094	1947
1948	1211	2274	624	1226	1564	1149	1718	1948
1949	1680	2388	941	1747	1856	1078	1674	1949
1950	3137	4032	1093	3620	3372	1322	3878	1950
1951	1147	1878	827	615	725	808	739	1951
1952	1725	1509	976	1251	1267	964	1977	1952
1953	1607	1785	868	1291	1114	942	1047	1953
1954	1429	2019	992	1143	1240	1265	1389	1954
1955	1930	2730	1211	2143	1810	1497	3007	1955
1956	3039	3295	1767	2495	2693	2492	3537	1956
1957	694	976	720	503	454	299	697	1957
1958	1062	2027	1086	1436	867	1090	1458	1958
1959	1592	2773	505	1337	1371	787	1644	1959
1960	1485	1330	1106	1050	1029	1346	1194	1960
1961	1393	1557	606	1564	1260	1216	1708	1961
1962	2013	2710	1144	1446	1219	1253	2026	1962
1963	1944	2451	1191	2091	1559	1527	2562	1963
1964	1043	2816	876	1197	978	611	1422	1964
1965	612	985	551	544	388	633	765	1965
1966	1540	1750	515	1127	1082	755	1312	1966
1967	691	919	287	1193	720	383	927	1967
1968	1543	1760	*	1501	1852	1031	2161	1968
1969	1845	2340	1491	1128	1187	1338	2331	1969
1970	1446	1972	730	1177	967	1399	1805	1970
1971	1157	1913	*	1536	1399	*	2354	1971
1972	1013	1520	*	950	537	*	1137	1972

* Records Incomplete

ANNUAL RAINFALL
(Points)

Year	Goodooga	Gnalta	Hungerford	Ivanhoe	Louth	Lightning Ridge	Menindee	Year
1876							835	1876
1877							N.R.	1877
1878							N.R.	1878
1879							N.R.	1879
1880							766	1880
1881					1510		*	1881
1882					1354		895	1882
1883					1018		619	1883
1884			660		678		669	1884
1885			1552	1441	1878		873	1885
1886			1677	1453	1903		1553	1886
1887			2800	2204	2381	*	2040	1887
1888			613	774	247	1052	282	1888
1889			1371	1282	2343	3303	1672	1889
1890			3008	1405	2753	3480	1049	1890
1891	2756		1944	2029	*	2759	1171	1891
1892	1315		818	1139	786	1607	998	1892
1893	1691		779	1367	1232	1979	992	1893
1894	N.R.		1286	2311	1195	2639	1696	1894
1895	*	641	779	967	748	1696	674	1895
1896	1434	268	1411	1018	2282	N.R.	622	1896
1897	N.R.	635	1381	833	1318	N.R.	725	1897
1898	N.R.	454	1118	1008	1026	N.R.	758	1898
1899	N.R.	317	1168	798	706	N.R.	552	1899
1900	N.R.	578	1023	1158	842	N.R.	694	1900
1901	N.R.	714	518	860	670	N.R.	873	1901
1902	N.R.	368	695	465	630	N.R.	521	1902
1903	N.R.	1283	1184	913	852	N.R.	1071	1903
1904	*	565	684	1111	1637	N.R.	548	1904
1905	987	672	545	1138	818	N.R.	799	1905
1906	1862	843	2082	1845	1604	N.R.	988	1906
1907	1888	896	1534	738	1689	1951	913	1907
1908	1374	607	1501	744	1030	1941	763	1908
1909	1601	516	957	848	1193	2142	589	1909
1910	1452	693	1070	914	1305	*	827	1910
1911	1515	1468	1317	1861	1770	*	1643	1911
1912	1147	737	343	1191	543	1494	1027	1912
1913	1604	532	853	613	849	2006	502	1913
1914	1539	725	887	347	604	1619	627	1914
1915	738	625	718	756	641	1120	667	1915
1916	2104	738	1768	1353	1617	2470	837	1916
1917	1947	1052	1448	1672	1905	1957	1731	1917
1918	1032	*	989	1118	660	1059	862	1918
1919	747	*	473	598	546	1123	743	1919
1920	2129	691	1347	1659	1745	870	1140	1920
1921	3362	777	1274	1758	1651	2813	1713	1921
1922	930	N.R.	521	707	502	*	480	1922
1923	1008	652	579	1365	996	1272	962	1923
1924	1594	*	871	1404	1197	1920	572	1924
1925	1654	N.R.	689	1184	935	1755	847	1925
1926	2157	N.R.	1647	1081	1011	2785	787	1926
1927	1653	N.R.	408	539	786	*	384	1927
1928	952	538	728	640	904	*	729	1928
1929	859	425	220	765	336	984	534	1929
1930	1457	750	760	1338	1102	1348	959	1930
1931	2098	745	1517	1153	1305	2298	1113	1931
1932	916	652	839	1121	1056	1184	1198	1932
1933	1594	696	1345	1080	1188	2059	1025	1933
1934	1469	463	669	1016	805	1896	576	1934
1935	760	482	790	550	601	860	471	1935
1936	1829	841	1190	2196	1887	1704	867	1936
1937	1182	433	710	865	298	1544	823	1937

* Records Incomplete.

ANNUAL RAINFALL
(Points)

Year	Goodooga	Gnalta	Hungerford	Ivanhoe	Louth	Lightning Ridge	Menindee	Year
1938	1158	429	552	498	483	1257	612	1938
1939	1920	1266	1250	2480	1654	1993	1460	1939
1940	863	228	410	282	477	902	282	1940
1941	1335	662	1287	602	1135	1288	657	1941
1942	2036	1146	1020	997	990	2026	1004	1942
1943	1075	635	440	984	726	1030	591	1943
1944	582	693	886	349	514	671	310	1944
1945	1246	884	649	663	720	1108	557	1945
1946	719	1146	763	1111	720	1043	962	1046
1947	2162	799	1471	1475	1259	2507	1186	1947
1948	1769	370	1043	905	866	1698	572	1948
1949	1892	1203	2627	1039	1693	2278	1125	1949
1950	4416	1421	2538	1538	2032	3740	1409	1950
1951	1249	534	503	1014	679	1248	668	1951
1952	1320	860	1694	1263	1701	1552	952	1952
1953	1913	679	1510	995	965	1718	717	1953
1954	1772	925	1610	1480	1181	1612	928	1954
1955	3344	1284	1507	1881	2281	2776	1227	1955
1956	2998	1542	2399	*	2787	2430	1556	1956
1957	1061	450	264	661	511	938	677	1957
1958	1382	777	1130	934	1086	2700	1248	1958
1959	2306	314	1172	862	1293	2725	660	1959
1960	1030	678	1143	1227	1405	958	1055	1960
1961	1346	820	1706	1147	1031	1774	746	1961
1962	1979	957	1592	1231	2035	2030	1062	1962
1963	1818	1036	984	1347	1450	1949	1249	1963
1964	1733	512	923	837	881	2194	748	1964
1965	748	251	246	884	368	922	634	1965
1966	1322	716	949	847	1169	1794	710	1066
1967	988	501	797	271	599	1226	203	1967
1968	1918	837	1120	1459	1586	2168	912	1968
1969	1751	660	808	1293	1307	1518	1023	1969
1970	1865	*	649	1356	1314	1791	873	1970
1971	1827	1315	1454	1060	1754	2039	1057	1971
1972	979	*	482	895	466	1059	503	1972

* Records Incomplete.

Appendix 4
Sheet 1

ANNUAL RAINFALL
(Points)

Year	Mount Murchison	Mulurulu	Mungindi	New Angledool	Nymagee	Paddington	Pooncarie	Year
1878						1627		1878
1879	1188					1855		1879
1880	N.R.					1126		1880
1881	956					1198		1881
1882	871	958				1363	*	1882
1883	840	720				1125	863	1883
1884	851	692				974	695	1884
1885	2010	682			1871	1764	750	1885
1886	1232	1575			2137	1730	1174	1886
1887	2010	2162	2078		2953	2835	1407	1887
1888	378	527	1617		1035	797	519	1888
1889	1698	1859	2541		2331	2617	1904	1889
1890	1668	1189	3988	3188	2664	2077	1285	1890
1891	1372	1791	2738	1622	2489	2457	1397	1891
1892	855	1123	2340	1405	1275	942	1175	1892
1893	1046	1186	3079	1728	1644	1372	890	1893
1894	1753	1842	2959	3108	2202	2134	1986	1894
1895	791	1001	1934	1772	1176	1046	931	1895
1896	786	910	1650	1823	1685	1277	781	1896
1897	705	646	1877	1094	1642	974	592	1897
1898	895	701	1208	1536	931	726	709	1898
1899	553	691	1147	1492	920	793	927	1899
1900	880	960	1211	844	1371	1013	959	1900
1901	729	858	1283	1403	1341	593	845	1901
1902	336	517	662	579	700	554	373	1902
1903	900	1040	2711	1874	1145	788	1221	1903
1904	649	1067	2182	1973	1120	1027	902	1904
1905	724	1437	1601	1353	1691	1227	1038	1905
1906	1250	1705	2100	1856	2002	2475	1643	1906
1907	1169	1028	2121	1578	1582	1296	1002	1907
1908	559	655	2383	1489	1297	1021	840	1908
1909	565	686	2409	1411	1862	930	785	1909
1910	775	899	2008	1330	1980	1041	1202	1910
1911	1516	1592	1795	1645	2689	1760	1388	1911
1912	913	1253	1475	1243	1046	1187	1072	1912
1913	692	818	2173	1970	1628	992	903	1913
1914	1161	765	3088	1413	1420	1007	735	1914
1915	1084	945	934	882	1397	878	815	1915
1916	1449	1386	2361	2124	2675	1488	1319	1916
1917	1610	2113	2103	2183	1987	1928	1929	1917
1918	576	1473	1060	969	1002	863	1016	1918
1919	*	550	1401	1246	761	596	693	1919
1920	1129	1618	2310	2028	1905	1637	1246	1920
1921	633	1477	2709	3087	1924	1313	1648	1921
1922	437	521	1432	823	860	570	754	1922
1923	N.R.	1087	1519	972	884	849	1219	1923
1924	564	964	2429	1863	1577	1156	1074	1924
1925	*	862	2204	1622	1936	1676	884	1925
1926	N.R.	1122	1641	1696	1492	786	1234	1926
1927	*	542	2062	1879	937	716	497	1927
1928	1007	715	1766	1198	1704	1101	650	1928
1929	589	594	1305	1128	1198	696	635	1929
1930	1204	1251	1979	1515	2093	1758	890	1930
1931	960	1268	2299	2211	2034	1488	1181	1931
1932	1099	1295	1303	1002	1278	1358	1093	1932
1933	907	1232	1981	1814	1100	937	783	1933
1934	847	896	2146	1591	1526	1447	797	1934
1935	415	549	803	674	846	510	515	1935

* Records Incomplete.

Appendix 4
Sheet 2

ANNUAL RAINFALL
(Points)

Year	Mount Murchison	Mulurulu	Mungindi	New Angledool	Nymagee	Paddington	Pooncarie	Year
1936	1747	1247	1533	1582	2482	2356	1220	1936
1937	749	823	1440	1319	677	570	1064	1937
1938	319	575	1705	1432	615	592	665	1938
1939	1456	1836	2132	1390	1763	1703	1592	1939
1940	344	428	1572	1216	848	458	323	1940
1941	769	973	1667	1296	1334	860	1197	1941
1942	770	1179	1918	2104	1330	1028	968	1942
1943	735	641	1520	1154	885	811	503	1943
1944	473	475	733	574	948	624	434	1944
1945	713	591	1136	1180	1383	1002	754	1945
1946	986	1229	1275	920	1360	955	1453	1946
1947	1154	1504	2677	2168	2351	2055	1546	1947
1948	627	954	1718	1672	1481	1412	865	1948
1949	958	1336	2190	1808	1710	1363	1153	1949
1950	1097	1563	4225	3610	3501	1561	1163	1950
1951	474	788	1636	1112	1103	901	957	1951
1952	1353	1122	2292	1471	2043	1785	1198	1952
1953	821	850	2105	1366	1706	1373	751	1953
1954	1168	989	2191	2034	1983	1619	1159	1954
1955	1152	1457	2361	2763	2355	2053	1307	1955
1956	2028	2246	2921	2642	3464	2511	1584	1956
1957	321	1038	1258	1071	840	477	843	1957
1958	691	1032	2192	1643	1399	1290	1215	1958
1959	783	850	2871	2864	1798	964	659	1959
1960	1240	1259	1488	1194	1608	1381	1219	1960
1961	624	826	2163	1311	1760	1165	759	1961
1962	1144	1242	2828	2465	2139	1246	1624	1962
1963	1110	1510	2920	2307	2246	1342	1037	1963
1964	477	778	2132	1976	1150	825	755	1964
1965	449	635	1303	1228	773	629	649	1965
1966	514	836	1848	1589	1514	1126	707	1966
1967	505	232	1199	962	862	441	282	1967
1968	969	1006	2139	2286	1851	1227	1061	1968
1969	763	1488	2682	1727	1948	1531	918	1969
1970	690	*	1727	1669	1660	1430	913	1970
1971	1078	654	2037	1806	1617	*	909	1971
1972	393	*	1558	834	1267	599	669	1972

* Records Incomplete

Appendix 5
Sheet 1

ANNUAL RAINFALL
(Points)

Year	Purnanga	Teryawynia	Tilpa	Wanaaring	White Cliffs	Wilcannia	Yancannia	Year
1876		672						1876
1877		823					1797	1877
1878		933					1131	1878
1879		1385				1423	1532	1879
1880		855				1080	1156	1880
1881		1148				1082	N.R.	1881
1882		1092				835	613	1882
1883		686	780			684	697	1883
1884		685	942	*		765	562	1884
1885	1747	1078	1296	1558		1837	1642	1885
1886	1712	1382	1426	1436		1200	1633	1886
1887	2020	1746	1267	2562		2199	1674	1887
1888	478	425	574	495		323	310	1888
1889	1441	1729	1341	1511		1408	1128	1889
1890	2041	1194	1777	2345		1517	1836	1890
1891	1715	1161	1940	2204		1389	1306	1891
1892	1001	1130	806	1064		987	844	1892
1893	1359	713	1394	1043		1080	953	1893
1894	1274	1485	1764	1169		1662	1331	1894
1895	1020	1106	1049	727		1077	965	1895
1896	1247	1019	1158	1633		730	727	1896
1897	935	541	839	979		725	882	1897
1898	1502	596	889	765		543	983	1898
1899	492	417	626	790		476	524	1899
1900	753	954	846	549		886	628	1900
1901	542	598	520	466	661	952	N.R.	1901
1902	400	279	513	585	340	482	N.R.	1902
1903	860	1040	922	1168	1147	978	691	1903
1904	952	673	1367	857	876	598	749	1904
1905	379	758	716	491	509	765	346	1905
1906	1430	1695	1751	1612	1213	1488	962	1906
1907	1034	868	1139	1898	1153	1090	974	1907
1908	712	548	1196	1366	763	684	759	1908
1909	464	575	849	1003	539	641	460	1909
1910	678	654	755	1312	776	734	766	1910
1911	1477	1279	1357	1185	1604	1612	1332	1911
1912	886	990	616	426	759	1087	712	1912
1913	629	608	783	658	662	894	518	1913
1914	952	425	810	795	1097	837	767	1914
1915	646	660	672	509	603	674	602	1915
1916	*	884	1319	1172	1236	1281	1300	1916
1917	*	1614	1500	1469	1482	1563	1496	1917
1918	N.R.	679	871	951	923	678	731	1918
1919	*	515	515	526	360	532	318	1919
1920	N.R.	998	1185	1468	930	1084	1419	1920
1921	N.R.	1099	1302	1174	1288	1005	1483	1921
1922	N.R.	312	648	410	765	546	622	1922
1923	N.R.	953	804	839	694	908	736	1923
1924	N.R.	554	613	1113	632	648	436	1924
1925	N.R.	905	1231	917	873	1498	629	1925
1926	N.R.	775	822	1631	742	823	1036	1926
1927	N.R.	299	603	616	452	376	401	1927
1928	N.R.	726	868	1041	1140	992	529	1928
1929	N.R.	549	481	416	434	619	403	1929
1930	N.R.	943	1484	768	1374	1378	1084	1930
1931	N.R.	1094	1687	1047	1369	1088	1209	1931
1932	N.R.	954	725	809	1194	1525	1113	1932
1933	N.R.	828	996	1143	888	1051	979	1933

* Records Incomplete.

Appendix 5
Sheet 2

ANNUAL RAINFALL
(Points)

Year	Purnanga	Teryawynia	Tilpa	Wanaaring	White Cliffs	Wilcannia	Yancannia	Year
1934	N.R.	716	1026	1060	713	675	759	1934
1935	N.R.	572	500	633	602	482	464	1935
1936	*	1569	1873	2182	1708	1942	972	1936
1937	536	520	367	566	526	674	426	1937
1938	218	503	421	803	255	441	379	1938
1939	1015	1958	1624	1402	1288	1118	970	1939
1940	481	234	735	632	406	261	420	1940
1941	980	591	1473	1165	691	705	943	1941
1942	1201	1012	1288	762	1107	1118	1077	1942
1943	348	766	328	627	552	873	573	1943
1944	400	424	677	546	550	590	410	1944
1945	661	613	822	657	800	784	641	1945
1946	*	979	850	581	877	1134	1373	1946
1947	1297	1337	1460	1528	1204	1045	1294	1947
1948	*	836	855	832	698	744	623	1948
1949	1306	781	1535	1975	1455	1004	1472	1949
1950	1392	1204	1654	1806	1440	1602	1117	1950
1951	584	644	720	335	477	645	463	1951
1952	843	864	1388	901	1559	1280	821	1952
1953	673	787	1155	805	650	951	294	1953
1954	1623	1001	1342	1200	1393	1434	1700	1954
1955	1533	1277	2109	1370	*	1421	1767	1955
1956	2373	2689	2487	2634	1923	2679	2277	1956
1957	394	760	492	387	454	547	420	1957
1958	736	585	1296	961	772	1175	657	1958
1959	920	396	1254	1267	884	782	551	1959
1960	1138	947	1317	1100	1239	950	799	1960
1961	975	610	763	985	1195	567	763	1961
1962	1181	1352	1541	1847	1105	1226	1421	1962
1963	680	1353	991	1020	766	1264	551	1963
1964	500	694	652	633	503	537	581	1964
1965	274	*	369	260	415	458	278	1965
1966	669	*	1022	851	536	671	759	1966
1967	477	*	487	484	534	418	667	1967
1968	1181	*	1681	1002	1426	1029	N.R.	1968
1969	465	*	1208	526	894	863	519	1969
1970	618	*	806	388	695	769	584	1970
1971	1727	*	1261	1529	2079	1166	*	1971
1972	311	*	*	*	420	346	*	1972

* Records Incomplete

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Mungindi (1887-1965)	Minimum	17	0	0	0	0	0	0	0	0	0	0	0	662
	10%	35	12	4	3	3	20	7	3	5	12	18	29	1208
	30%	99	78	58	38	35	73	57	27	30	65	52	76	1512
	50%	180	182	170	80	95	133	88	72	81	113	105	161	2008
	70%	353	309	269	183	194	189	156	113	157	176	222	304	2204
	90%	593	654	577	279	277	305	299	214	249	329	377	405	2871
	Maximum	902	1130	1081	555	510	466	1012	409	584	554	627	756	4225
Barringun (1882-1969)	Minimum	0	0	0	0	0	0	0	0	0	0	0	0	301
	10%	0	0	0	0	0	0	0	0	0	0	0	0	697
	30%	33	37	24	5	30	33	19	10	7	31	20	30	1007
	50%	58	104	74	39	79	69	62	42	28	73	78	103	1294
	70%	165	214	141	111	124	156	104	80	75	125	132	215	1598
	90%	477	518	446	281	267	287	223	179	195	270	303	283	2129
	Maximum	749	747	968	575	439	602	579	520	419	687	550	927	3438
Bourke (1871-1969)	Minimum	0	0	0	0	0	0	0	0	0	0	0	0	402
	10%	1	1	0	0	1	7	4	1	3	7	2	7	640
	30%	27	31	19	14	35	44	24	23	20	38	31	44	994
	50%	81	89	45	50	79	79	68	49	49	73	71	93	1243
	70%	156	186	163	145	155	166	109	92	100	130	131	177	1580
	90%	399	368	485	301	227	269	192	196	197	253	264	316	2306
	Maximum	1224	1116	883	719	436	502	622	371	385	607	626	620	3362

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Brewarrina (1872-1969)	Minimum	0	0	0	0	0	0	0	0	0	0	0	0	450
	10%	4	0	3	1	0	13	5	0	2	0	2	5	847
	30%	42	38	36	17	40	52	40	24	23	30	45	41	1252
	50%	109	102	91	46	84	103	90	62	51	79	82	97	1534
	70%	223	231	181	109	136	193	130	105	101	143	157	184	1729
	90%	496	464	468	309	267	321	246	274	245	290	308	382	2510
	Maximum	1395	806	1077	628	528	757	598	381	664	965	901	812	3699
Fords Bridge (1896-1969)	Minimum	0	0	0	0	0	0	0	0	0	0	0	0	338
	10%	0	0	0	0	0	0	0	0	0	0	0	0	467
	30%	27	23	18	7	17	41	23	20	9	15	22	18	862
	50%	81	69	41	29	72	73	53	43	39	57	69	108	1114
	70%	164	150	131	92	129	134	94	76	78	109	128	166	1400
	90%	331	272	364	249	262	253	187	206	153	192	215	233	1794
	Maximum	922	633	813	674	515	641	279	307	275	621	521	496	3372
White Cliffs (1901-1969)	Minimum	0	0	0	0	0	0	0	0	0	0	0	0	255
	10%	0	0	0	0	0	0	0	0	0	0	0	0	450
	30%	9	8	2	2	27	27	20	15	8	26	8	24	645
	50%	30	54	32	18	52	58	41	37	22	47	37	62	788
	70%	94	133	94	55	96	97	81	70	68	92	73	136	1149
	90%	276	315	252	157	188	171	173	130	147	244	210	294	1441
	Maximum	495	720	892	602	325	266	233	354	360	381	331	478	1923

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Wilcannia (1879-1969)	Minimum	0	0	0	0	0	0	0	0	0	0	0	0	261
	10%	0	0	0	0	1	2	0	5	4	4	0	0	492
	30%	13	13	7	9	35	30	21	21	17	33	16	21	684
	50%	37	56	43	28	71	65	54	48	36	57	38	45	950
	70%	94	115	86	77	131	110	82	88	66	92	92	107	1101
	90%	257	316	177	202	226	198	173	171	143	263	203	238	1523
	Maximum	930	562	1277	362	445	400	332	332	340	497	367	864	2679
Broken Hill (1889-1968)	Minimum	0	0	0	0	0	0	0	0	0	0	0	0	224
	10%	0	0	0	0	4	6	7	11	4	9	1	0	502
	30%	9	11	10	9	21	30	27	33	22	36	11	11	710
	50%	25	35	36	30	49	58	51	62	44	57	34	29	907
	70%	87	95	64	72	113	124	84	91	72	109	89	86	1050
	90%	265	313	218	171	249	207	144	148	167	212	223	184	1433
	Maximum	457	437	472	448	367	584	349	358	448	402	482	453	1761
Cobar (1882-1964)	Minimum	0	0	0	0	0	0	0	0	0	0	0	0	456
	10%	5	4	0	0	2	24	8	12	8	14	12	10	717
	30%	26	33	18	23	39	58	45	55	36	40	29	43	1045
	50%	80	79	58	71	102	97	86	95	63	89	80	114	1360
	70%	148	173	163	121	149	160	120	157	118	144	151	178	1618
	90%	323	333	310	260	242	282	181	249	213	313	263	316	2169
	Maximum	943	1107	938	590	388	408	350	450	365	513	549	621	3148

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nymagee (1885-1969)	Minimum	0	0	0	0	0	0	0	0	0	0	0	0	615
	10%	6	0	0	4	9	27	11	23	23	12	2	7	854
	30%	40	31	27	34	56	65	54	61	48	47	33	50	1187
	50%	112	82	90	70	111	133	100	109	76	97	79	110	1552
	70%	196	163	182	128	182	194	153	163	130	162	157	203	1888
	90%	390	489	339	294	288	307	228	254	242	292	334	364	2419
	Maximum	800	670	998	784	514	572	451	507	499	527	569	633	3501
Menindee (1876-1968)	Minimum	0	0	0	0	0	1	0	0	0	0	0	0	282
	10%	0	0	0	0	3	9	4	9	2	12	0	0	531
	30%	4	6	8	15	25	26	21	30	19	33	13	11	668
	50%	22	37	29	31	60	69	41	55	44	62	43	36	827
	70%	68	88	77	68	122	119	82	84	73	105	79	94	1002
	90%	215	259	181	142	206	194	144	162	156	188	201	205	1479
	Maximum	346	619	353	366	374	440	447	266	312	446	644	777	2040
Pooncarie (1882-1968)	Minimum	0	0	0	0	0	0	0	0	0	0	0	0	282
	10%	0	0	0	0	5	7	19	16	10	10	0	0	570
	30%	8	4	12	17	27	37	40	50	28	41	14	15	781
	50%	26	28	37	40	69	88	66	78	57	69	36	46	958
	70%	85	69	82	73	140	147	91	119	93	101	106	99	1195
	90%	234	262	183	143	248	231	186	172	186	249	505	232	1557
	Maximum	589	463	488	312	597	515	282	363	401	345	390	790	1986

MINIMUM RAINFALL RECORDED IN CONSECUTIVE PERIODS OF UP TO

TWELVE MONTHS COMMENCING IN THE MONTH INDICATED

Station	Number of Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Mungindi (1887-1965)	1	17	0	0	0	0	0	0	0	0	0	0	0
	2	28	11	0	0	19	11	9	0	18	9	22	36
	3	31	15	4	22	23	27	35	20	40	30	54	37
	4	32	17	22	27	68	59	71	81	69	57	55	83
	5	59	37	38	78	127	96	95	110	137	58	123	87
	6	79	40	113	127	139	120	199	137	138	164	127	87
	7	82	155	162	139	163	233	226	138	172	168	127	107
	8	281	242	174	163	276	323	227	339	176	168	147	110
	9	284	315	198	276	366	425	428	426	176	188	150	309
	10	357	392	311	366	570	635	564	426	196	191	349	312
	11	434	613	401	580	718	690	630	446	199	390	352	385
	12	662	655	634	724	721	690	650	449	398	393	425	462
Barringun (1882-1969)	1	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0
	3	11	0	0	0	0	0	0	0	0	35	0	0
	4	11	0	52	0	0	0	0	0	35	54	0	0
	5	23	82	52	0	0	0	38	35	76	54	25	23
	6	97	82	52	0	0	110	120	85	79	66	56	23
	7	97	125	52	0	110	133	167	85	91	80	56	97
	8	150	155	52	133	133	171	170	105	105	80	112	97
	9	180	155	154	133	240	226	190	224	105	136	112	172
	10	180	225	185	258	240	238	254	305	161	136	187	180
	11	250	276	264	258	260	258	307	377	161	211	195	252
	12	301	465	319	278	336	311	450	377	236	219	267	396

MINIMUM RAINFALL RECORDED IN CONSECUTIVE PERIODS OF UP TO

TWELVE MONTHS COMMENCING IN THE MONTH INDICATED

Station	Number of Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Bourke (1871-1969)	1	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	4	0	0	0	0	3	1	9
	3	0	0	4	8	10	0	14	31	3	5	45	9
	4	10	4	8	14	12	43	52	34	82	59	45	27
	5	20	8	14	72	43	77	57	90	111	82	47	33
	6	37	14	97	104	77	77	94	135	111	86	51	33
	7	43	97	122	105	77	94	148	136	111	90	51	37
	8	126	129	122	108	276	148	183	173	115	90	55	43
	9	170	200	125	296	316	183	259	257	115	94	61	126
	10	226	207	321	350	328	259	268	260	119	100	144	170
	11	226	400	371	385	365	268	284	270	125	183	188	244
	12	402	440	426	435	433	284	374	277	208	227	262	324
Brewarrina (1872-1969)	1	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	9	9	0	19	31	30	25	2	0	0	0
	4	53	9	9	49	46	65	33	38	43	0	0	5
	5	61	9	54	73	65	65	79	97	104	0	50	68
	6	61	92	135	175	65	140	187	125	144	50	91	68
	7	107	173	212	175	159	222	241	144	153	139	91	106
	8	188	217	212	210	264	315	266	200	165	142	129	107
	9	239	217	260	341	404	334	301	312	165	180	130	188
	10	239	379	391	419	417	371	348	312	203	181	211	259
	11	394	428	486	432	420	381	412	344	204	262	294	259
	12	450	538	535	435	444	412	464	348	285	345	337	394

MINIMUM RAINFALL RECORDED IN CONSECUTIVE PERIODS OF UP TO

TWELVE MONTHS COMMENCING IN THE MONTH INDICATED

Station	Number of Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Fords Bridge (1896-1869)	1	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	8	45	0	11	0	0	0	0	0	0
	4	9	33	54	57	11	36	0	20	0	0	0	0
	5	49	54	57	67	78	36	36	36	0	0	0	30
	6	54	57	104	96	96	36	36	36	0	0	32	52
	7	57	110	116	96	96	36	36	36	0	30	52	54
	8	110	145	116	96	175	36	36	36	30	60	54	57
	9	213	189	116	175	175	36	36	66	60	63	57	110
	10	213	198	175	175	175	36	66	96	63	66	110	213
	11	279	307	175	175	175	66	96	161	66	210	213	213
	12	338	355	175	175	205	96	314	199	210	275	213	279
White Cliffs (1901-1969)	1	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	2	0	5	0	0	0
	3	0	0	0	0	0	31	5	7	8	8	2	2
	4	0	0	0	0	46	41	40	14	14	8	2	2
	5	0	2	0	46	63	41	40	14	14	8	2	2
	6	4	9	46	63	80	41	76	14	55	8	2	2
	7	11	46	63	80	124	76	154	102	55	8	2	4
	8	48	63	80	167	186	154	154	112	55	8	4	11
	9	65	80	169	246	215	154	154	150	55	33	11	48
	10	82	234	251	273	275	154	164	150	57	40	48	65
	11	240	255	278	305	275	164	191	196	64	77	65	82
	12	255	282	307	305	279	198	231	199	101	94	82	240

MINIMUM RAINFALL RECORDED IN CONSECUTIVE PERIODS OF UP TO TWELVE MONTHS COMMENCING IN THE MONTH INDICATED

Station	Number of Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Wilcannia (1879-1969)	1	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	3	0	0	0	0
	3	0	5	3	12	16	16	19	14	13	36	0	2
	4	28	5	15	16	35	39	44	18	60	37	22	4
	5	37	17	19	45	39	50	46	64	74	53	23	34
	6	75	21	66	72	51	50	92	74	78	61	34	82
	7	75	67	93	127	65	96	164	131	96	72	96	120
	8	81	94	152	138	111	194	204	200	107	96	134	120
	9	108	175	153	176	203	216	204	211	221	134	134	126
	10	189	211	191	281	338	216	215	262	236	134	140	153
	11	214	251	307	357	338	223	262	343	240	140	167	234
	12	261	348	372	402	349	262	363	343	266	167	248	237
Broken Hill (1889-1968)	1	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	4	0	11	13	6	1	0	0
	3	4	10	3	33	10	21	18	28	22	1	7	3
	4	10	53	59	45	38	49	48	31	30	11	36	4
	5	63	77	77	57	58	52	55	39	65	88	49	48
	6	87	114	106	58	88	55	55	87	130	132	49	64
	7	139	136	107	88	91	63	197	182	174	141	89	88
	8	163	163	137	95	95	251	251	237	183	141	113	149
	9	195	209	144	95	279	251	251	281	183	165	174	163
	10	213	212	144	283	345	251	311	297	207	226	232	209
	11	216	220	311	354	389	311	346	298	268	241	254	213
	12	224	336	398	446	423	346	426	303	322	268	313	216

MINIMUM RAINFALL RECORDED IN CONSECUTIVE PERIODS OF UP TO TWELVE MONTHS COMMENCING IN THE MONTH INDICATED

Station	Number of Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cobar (1882-1964)	1	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	2	0	14	0	0	7	15	3	10	4
	3	10	11	22	14	44	0	60	55	39	42	27	12
	4	14	33	48	50	69	60	60	78	64	47	27	46
	5	46	48	84	69	114	60	78	155	104	74	61	46
	6	60	84	103	114	135	78	157	185	116	120	61	46
	7	96	103	148	203	135	207	197	190	132	120	61	60
	8	115	148	237	265	295	242	209	223	153	120	75	96
	9	160	237	290	295	335	253	225	244	158	134	111	115
	10	249	355	299	335	347	269	246	265	172	170	130	160
	11	400	364	339	347	363	269	275	310	208	189	175	249
	12	456	404	351	363	384	275	312	451	227	234	264	425
Nymagee (1885-1969)	1	0	0	0	0	0	0	0	0	0	0	0	0
	2	5	0	16	0	22	4	32	9	41	0	7	6
	3	5	16	20	32	28	42	81	54	59	45	25	9
	4	30	30	94	46	54	121	121	120	97	92	25	10
	5	30	124	138	80	148	121	125	145	145	107	83	63
	6	133	138	172	157	148	125	166	222	162	147	89	104
	7	147	172	249	234	148	166	226	224	200	174	120	133
	8	181	249	326	342	347	226	228	277	234	222	149	147
	9	258	326	381	422	407	228	281	296	247	271	163	181
	10	335	490	422	482	409	281	300	351	294	303	197	258
	11	499	525	482	484	462	300	355	414	331	337	274	335
	12	615	556	484	523	481	355	414	534	365	414	351	499

MINIMUM RAINFALL RECORDED IN CONSECUTIVE PERIODS OF UP TO

TWELVE MONTHS COMMENCING IN THE MONTH INDICATED

Station	Number of Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Menindee (1876-1968)	1	0	0	0	0	0	1	0	0	0	0	0	0
	2	0	0	0	0	4	6	8	0	8	0	0	0
	3	0	2	10	17	17	14	24	23	16	18	3	4
	4	20	23	19	21	43	31	53	25	35	28	25	5
	5	26	32	70	51	52	56	57	44	61	53	25	36
	6	35	93	78	125	75	58	76	67	105	69	49	70
	7	113	103	134	148	77	77	140	130	122	70	70	90
	8	113	146	172	148	96	208	189	146	122	70	90	131
	9	165	184	178	210	244	217	195	189	122	90	131	131
	10	214	190	243	284	253	223	203	197	142	131	131	176
	11	220	269	290	293	259	231	211	240	183	131	195	276
	12	282	302	299	299	267	239	245	281	183	195	265	220
Pooncarie (1882-1968)	1	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	10	3	0	10	20	0	0	0
	3	0	0	0	12	10	3	10	44	29	21	5	0
	4	15	25	12	34	10	17	48	70	29	43	22	18
	5	28	50	34	52	20	67	74	120	51	46	34	18
	6	53	60	52	130	104	93	142	142	103	92	34	31
	7	63	81	142	150	150	148	222	180	134	120	47	56
	8	84	142	162	150	200	269	250	204	151	133	72	66
	9	145	162	162	202	339	269	250	228	164	158	82	87
	10	165	162	215	369	357	269	293	271	189	168	103	148
	11	165	252	381	398	370	299	336	299	199	189	164	168
	12	282	381	418	398	381	342	386	325	220	250	184	168

Appendix 8
Sheet 1

MOONI RIVER AT GUNDABLOUIE

LOCATION:	Latitude 29°09' Longitude 148°38'
PERIOD OF ESTABLISHMENT:	August, 1944 to date
COMPLETE YEARS OF COMPUTED RECORDS:	27
ZERO OF GAUGE:	R.L. 95.00 Assumed Datum
CATCHMENT AREA:	6,100 square miles
CONTROL:	Clay and gravel. Subject to alteration
EQUIPMENT:	Automatic Recorder (Float Type) Staff Gauge, range 0 to 12.5 feet
CURRENT METER OBSERVATIONS:	(a) Number Obtained : 91
	(b) Maximum Observation in Cusecs : 5,349
	(c) Minimum Observation in Cusecs : 0
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	12,200 cusecs
MEAN DAILY DISCHARGE FOR 27 YEARS:	113 cusecs
MEAN ANNUAL DISCHARGE FOR 27 YEARS:	82,000 acre feet
REMARKS:	

Appendix 8
Sheet 2

MOONI RIVER AT GUNDABLOUIE

Year 1945					Year 1946				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	..	..	..	..	Jan.	240	0	57	3,564
Feb.	..	..	..	..	Feb.	340	0	39	2,162
Mar.	220	0	44	2,730	Mar.	0	0	0	0
Apr.	0	0	0	0	Apr.	0	0	0	0
May	17	0	1.4	84	May	0	0	0	0
June	82	0	10	578	June	0	0	0	0
July	11	0	1.6	102	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	128	0	11	688
Dec.	0	0	0	0	Dec.	420	0	19	1,172
Total	..	..	..	..	Total	..	..	..	7,586

Year 1947					Year 1948				
Jan.	4	0	0.6	39	Jan.	54	0.3	18	1,143
Feb.	3870	1	739	41,368	Feb.	0	0	0	0
Mar.	7800	7	1335	82,782	Mar.	11	0	1.5	96
Apr.	1290	4	174	10,428	Apr.	0	0	0	0
May	4	0	1.3	79	May	11	0	2	133
June	2	0	0.3	20	June	400	0	71	4,256
July	0	0	0	0	July	27	4	10	632
Aug.	0	0	0	0	Aug.	4	0	1.2	76
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	112	0	7	428	Nov.	0	0	0	0
Dec.	180	1	62	3,816	Dec.	0	0	0	0
Total	..	..	..	138,960	Total	..	..	..	6,336

Year 1949					Year 1950				
Jan.	180	0	12	776	Jan.	82	0	7	418
Feb.	0	0	0	0	Feb.	96	0	11	628
Mar.	7	0	0.5	32	Mar.	320	0	65	4,030
Apr.	0	0	0	0	Apr.	525	7	139	8,336
May	0	0	0	0	May	17	1	6	350
June	0	0	0	0	June	17	2	6	378
July	0	0	0	0	July	4750	1	669	41,468
Aug.	0	0	0	0	Aug.	7600	64	2145	133,000
Sept.	0	0	0	0	Sept.	55	2	10	622
Oct.	220	0	21	1,300	Oct.	390	1	82	5,074
Nov.	21	0	4	221	Nov.	900	8	160	9,572
Dec.	1	0	.1	5	Dec.	3040	2	620	38,432
Total	..	..	..	2,334	Total	..	..	..	242,308

Year 1951					Year 1952				
Jan.	76	1	19	1,208	Jan.	0	0	0	0
Feb.	900	24	348	19,466	Feb.	0	0	0	0
Mar.	370	5	69	4,256	Mar.	0	0	0	0
Apr.	1450	5	260	15,592	Apr.	0	0	0	0
May	4.5	0	1	70	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	208	0	47	2,896
Nov.	0	0	0	0	Nov.	31	0	4	264
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	40,592	Total	..	..	..	3,160

Appendix 8
Sheet 3

MOONI RIVER AT GUNDABLOUIE

Year 1953					Year 1954				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	0	0	0	0	Jan.	0	0	0	0
Feb.	12200	0	1546	86,570	Feb.	1230	0	265	14,864
Mar.	11800	11	2599	161,132	Mar.	165	0	43	2,660
Apr.	126	2	23	1,352	Apr.	0	0	0	0
May	925	2	157	9,756	May	0	0	0	0
June	2	0	0.3	16	June	0	0	0	0
July	0	0	0	0	July	9990	0	1766	109,520
Aug.	0	0	0	0	Aug.	430	0	80	4,978
Sept.	0	0	0	0	Sept.	126	0	12	725
Oct.	0	0	0	0	Oct.	2300	0	199	12,318
Nov.	0	0	0	0	Nov.	2820	15	694	41,600
Dec.	0	0	0	0	Dec.	73	0	16	996
Total	..	..	..	258,826	Total	..	..	..	187,661

Year 1955					Year 1956				
Jan.	630	0	116	7,182	Jan.	2470	0	380	23,580
Feb.	680	0.5	215	12,023	Feb.	4980	1770	3222	186,850
Mar.	2060	0	387	23,984	Mar.	2380	23	849	52,616
Apr.	0	0	0	0	Apr.	229	2	52	3,114
May	98	0.5	34	2,120	May	1700	8	594	36,806
June	8	0	0.6	34	June	785	4	349	20,914
July	0	0	0	0	July	2560	250	1257	77,940
Aug.	0	0	0	0	Aug.	250	0	25	1,564
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	42	0	5	284	Oct.	165	0	9	565
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	45,627	Total	..	..	..	403,949

Year 1957					Year 1958				
Jan.	310	0	55	3,419	Jan.	550	0	18	1,100
Feb.	2	0	0.1	7	Feb.	430	4	89	4,974
Mar.	85	0	7	445	Mar.	229	0.5	83	5,119
Apr.	0	0	0	0	Apr.	310	0	60	3,589
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	3120	0	583	35,010
July	0	0	0	0	July	144	4	64	3,976
Aug.	0	0	0	0	Aug.	4	0	0.5	47
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	2	0	0.2	11
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	52	0	2	150
Total	..	..	..	3,871	Total	..	..	..	53,976

Year 1959					Year 1960				
Jan.	680	4	170	10,540	Jan.	0	0	0	0
Feb.	4450	126	1451	81,252	Feb.	0	0	0	0
Mar.	4860	8	1060	65,716	Mar.	0	0	0	0
Apr.	680	0	70	4,214	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	3.5	0	0.5	28	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	42	0	5	327
Total	..	..	..	161,750	Total	..	..	..	327

Appendix 8
Sheet 4

MOONI RIVER AT GUNDABLOUIE

Year 1961					Year 1962				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	42	0	3	205	Jan.	1840	310	854	52,950
Feb.	85	0	11	627	Feb.	450	0.4	78	4,380
Mar.	290	0	52	3,240	Mar.	5560	0	1698	105,300
Apr.	0	0	0	0	Apr.	430	85	208	12,460
May	0	0	0	0	May	85	0.4	29	1,820
June	0	0	0	0	June	0.4	0	0.1	6
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	19	0	7	424
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	250	0	19	1,150	Nov.	0	0	0	0
Dec.	850	0	217	13,470	Dec.	0	0	0	0
Total	..	..	..	18,692	Total	..	..	..	177,340

Year 1963					Year 1964				
Jan.	1540	0	354	21,980	Jan.	530	0	51	3,180
Feb.	No Records			500*	Feb.	2	0	0.2	14
Mar.	1980	0	70	4,360	Mar.	6	0	0.5	34
Apr.	3600	58	1374	82,430	Apr.	46	0	5	310
May	107	6	44	2,750	May	6	0	0.6	35
June	70	0	8	490	June	10	0	0.8	45
July	2	0	0.2	14	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	6	0	0.5	28	Sept.	0	0	0	0
Oct.	10	0	3.4	210	Oct.	126	0	32	2,000
Nov.	0	0	0	0	Nov.	19	0	5	300
Dec.	229	0	36	2,230	Dec.	0	0	0	0
Total	..	..	..	114,992*	Total	..	..	..	5,918

Year 1965					Year 1966				
Jan.	0	0	0	0	Jan.	94	0	10	639
Feb.	0	0	0	0	Feb.	0	0	0	0
Mar.	0	0	0	0	Mar.	0	0	0	0
Apr.	0	0	0	0	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	610	0	25	1,520
Sept.	0	0	0	0	Sept.	430	1	92	5,700
Oct.	0	0	0	0	Oct.	0.7	0	0.1	7
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	430	0	159	9,830	Dec.	0	0	0	0
Total	..	..	..	9,830	Total	..	..	..	7,866

Year 1967					Year 1968				
Jan.	0	0	0	0	Jan.	210	0	26	1,630
Feb.	0	0	0	0	Feb.	400	0	41	2,390
Mar.	430	0	42	2,630	Mar.	30	0	1	78
Apr.	0	0	0	0	Apr.	0	0	0	0
May	0	0	0	0	May	160	0	11	706
June	No Records			500*	June	0	0	0	0
July	No Records			2,100*	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	5,230*	Total	..	..	..	4,804

* Estimated

Appendix 8
Sheet 5

MOONI RIVER AT GUNDABLOUIE

Year 1969					Year 1970				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	0	0	0	0	Jan.	150	0.5	20	1,232
Feb.	0	0	0	0	Feb.	30	0	5	300
Mar.	70	0	6	371	Mar.	270	0	23	1,445
Apr.	50	0	6	346	Apr.	0	0	0	0
May	14	0	1	91	May	0	0	0	0
June	410	3	86	5,140	June	0	0	0	0
July	90	2	10	591	July	0	0	0	0
Aug.	32	0	3	167	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	165	0	14	850
Oct.	1610	0	464	28,800	Oct.	480	0	73	4,510
Nov.	6920	170	1690	101,500	Nov.	0	0	0	0
Dec.	350	2	92	5,700	Dec.	2200	0	373	23,100
Total	..	..	..	142,706	Total	..	..	..	31,437

Year 1971					Year 1972				
Jan.	995	114	318	19,700	Jan.	475	0	94	5,830
Feb.	3020	920	1850	103,600	Feb.	26	0	3	145
Mar.	530	4	93	5,750	Mar.	0	0	0	0
Apr.	4	0	0.6	33	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	32	0	5	298	July	0	0	0	0
Aug.	138	0	17	1040	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	695	0	90	5,390
Dec.	0	0	0	0	Dec.	222	0	12	758
Total	..	..	..	130,421	Total	..	..	..	12,123

BARWON RIVER AT WALGETT

LOCATION:	Latitude 30°01' Longitude 148°02'
PERIOD OF ESTABLISHMENT:	January, 1886 to date
COMPLETE YEARS OF COMPUTED RECORDS:	86
ZERO OF GAUGE:	R.L. 389.44 Standard Datum
CATCHMENT AREA:	51,000 square miles
CONTROL:	Natural earth. Subject to alteration
EQUIPMENT:	Manometer-Servo Pressure Recorder installed September, 1967. Staff Gauge, range 0 to 40 feet
CURRENT METER OBSERVATIONS:	(a) Number Obtained : 306 (b) Maximum Observation in Cusecs : 22,700 (c) Minimum Observation in Cusecs : 0.1
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	60,500 cusecs (February, 1971)
MEAN DAILY DISCHARGE FOR 86 YEARS:	2,400 cusecs
MEAN ANNUAL DISCHARGE FOR 86 YEARS:	1,750,000 acre feet
REMARKS:	Station was established in January, 1886 and discontinued at the end of 1955. Records were obtained from Combadery for 1956 and from Hannafords for period January, 1957 to September, 1967. Station was re-established in September, 1967. The records shown for period 1886 to 1912 are approximate for those flows in excess of 7,000 cusecs.

Appendix 9
Sheet 2

BARWON RIVER AT WALGETT

Year 1886

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	1030	58	468	29,030
Feb.	815	0	421	23,576
Mar.	330	0	55	3,404
Apr.	0	0	0	0
May	1750	0	158	9,814
June	21500	2340	11448	686,870
July	34500	5330	18256	1,131,900
Aug.	39600	22900	32304	2,002,860
Sept.	40800	5410	23300	1,398,000
Oct.	32700	685	8125	503,760
Nov.	38500	6360	15389	923,340
Dec.	9840	548	3182	197,256
Total	..	..	..	6,909,810

Year 1887

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	470	0	233	14,460
Feb.	20800	565	11838	662,960
Mar.	14000	5590	10355	642,000
Apr.	5930	530	3317	199,030
May	490	82	230	14,222
June	74	0	13	800
July	10900	0	2654	164,540
Aug.	16900	1360	5609	347,760
Sept.	19900	5870	10769	646,120
Oct.	6290	58	1302	80,750
Nov.	0	0	0	0
Dec.	1860	58	670	41,560
Total	..	..	..	2,814,202

Year 1888

Jan.	1970	58	944	58,578
Feb.	7800	216	2741	158,970
Mar.	14900	1360	7972	494,250
Apr	1190	0	157	9,418
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	721,216

Year 1889

Jan.	1190	23	276	17,094
Feb.	625	0	175	9,784
Mar.	0	0	0	0
Apr.	625	0	160	9,632
May	1120	0	354	21,962
June	18200	1120	11190	671,410
July	18200	2770	10208	632,870
Aug.	18600	2340	9387	582,000
Sept.	2700	112	891	53,492
Oct.	540	112	318	19,694
Nov.	4360	112	1177	70,642
Dec.	1800	112	928	57,526
Total	..	..	..	2,146,106

Year 1890

Jan.	6650	94	1806	111,970
Feb.	7800	1860	5435	304,390
Mar.	44600	11500	33360	2,068,030
Apr.	100000	29900	58475	3,508,520
May	26700	4840	10776	668,140
June	22900	5590	14856	891,400
July	30400	15700	25580	1,585,760
Aug.	15700	5970	10550	654,080
Sept.	5480	1580	2426	145,540
Oct.	5080	1550	3035	188,160
Nov.	6520	1550	3943	236,610
Dec.	4130	273	1741	107,952
Total	..	..	..	10,470,552

Year 1891

Jan.	31900	273	6690	414,760
Feb.	35100	6180	24322	1,362,000
Mar.	5570	815	2066	128,120
Apr.	815	0	222	13,306
May	0	0	0	0
June	4130	0	936	56,180
July	7370	2920	4334	268,700
Aug.	22200	3850	12228	758,140
Sept.	14600	2490	5478	328,670
Oct.	17300	1840	8517	528,030
Nov.	1700	745	1056	63,360
Dec.	6070	715	3549	220,000
Total	..	..	..	4,141,266

Year 1892

Jan.	4130	490	1024	63,510
Feb.	585	112	366	21,268
Mar.	360	112	196	12,172
Apr.	2120	162	1064	63,854
May	2410	745	1346	83,430
June	5120	915	2385	143,080
July	6650	2160	4377	271,340
Aug.	2920	960	1682	104,300
Sept.	3960	780	2220	133,220
Oct.	14200	4060	9460	586,520
Nov.	27400	14700	21247	1,274,800
Dec.	18600	1400	7326	454,230
Total	..	..	..	3,211,724

Year 1893

Jan.	2560	1300	1846	114,430
Feb.	29600	1680	14024	785,324
Mar.	20400	5240	13742	852,000
Apr.	4320	1880	2448	146,880
May	5980	2560	4179	259,080
June	46800	1680	14204	852,230
July	45800	5160	21084	1,307,180
Aug.	14200	6360	11675	723,860
Sept.	23400	2340	12540	752,410
Oct.	3120	1550	2233	138,440
Nov.	3080	1010	1520	91,180
Dec.	3080	560	1465	90,810
Total	..	..	..	6,113,824

Appendix 9
Sheet 3

BARWON RIVER AT WALGETT

Year 1894					Year 1895				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4060	480	1753	108,680	Jan.	5840	340	1040	64,490
Feb.	3500	450	1052	58,940	Feb.	12900	1440	8941	500,722
Mar.	22900	380	6350	393,670	Mar.	1430	360	640	39,710
Apr.	31300	10400	21450	1,287,000	Apr.	350	112	185	11,122
May	19500	2600	9020	559,250	May	112	74	93	5,772
June	5840	3290	4525	271,500	June	70	11	33	1,970
July	6560	2270	4405	273,090	July	11	11	11	682
Aug.	3990	1550	2784	172,590	Aug.	11	11	11	682
Sept.	2920	1280	1748	104,890	Sept.	11	9	10	598
Oct.	2760	930	1354	83,940	Oct.	705	9	401	24,872
Nov.	5710	930	3518	211,060	Nov.	1460	370	782	46,936
Dec.	915	575	656	40,640	Dec.	2270	198	853	52,864
Total	..	..	..	3,565,250	Total	..	..	..	750,420

Year 1896					Year 1897				
Jan.	1810	510	913	56,610	Jan.	2390	625	1427	88,460
Feb.	2920	273	1296	75,170	Feb.	1400	0	633	35,450
Mar.	6560	875	3629	224,970	Mar.	3500	0	1217	75,440
Apr.	1030	450	664	39,820	Apr.	450	58	187	11,254
May	605	300	450	27,930	May	82	70	73	4,556
June	815	450	537	32,230	June	70	9	39	2,370
July	1080	310	663	41,140	July	2050	9	181	11,216
Aug.	1920	685	1217	75,440	Aug.	16300	915	8570	531,320
Sept.	2340	655	1231	73,850	Sept.	1370	655	924	55,430
Oct.	765	265	534	33,110	Oct.	4960	520	2754	170,750
Nov.	625	0	338	20,310	Nov.	4840	360	1406	84,360
Dec.	1400	0	479	29,690	Dec.	2760	255	615	38,150
Total	..	..	..	730,270	Total	..	..	..	1,108,756

Year 1898					Year 1899				
Jan.	4240	845	2775	172,030	Jan.	0	0	0	0
Feb.	5080	3000	4204	235,450	Feb.	6790	565	2646	148,170
Mar.	5710	480	2252	139,640	Mar.	4600	265	1019	63,142
Apr.	480	470	478	28,660	Apr.	450	112	253	15,176
May	470	450	460	28,540	May	310	112	179	11,098
June	450	410	420	25,220	June	112	112	112	6,720
July	530	410	462	28,620	July	2470	112	877	54,364
Aug.	685	380	451	27,980	Aug.	2730	565	1183	73,380
Sept.	900	330	525	31,530	Sept.	2760	765	1332	79,930
Oct.	565	216	320	19,802	Oct.	855	360	619	38,360
Nov.	Gauge silted up to			5,000*	Nov.	685	265	452	27,156
Dec.	5ft. Estimated Records			0*	Dec.	330	112	188	11,622
Total	..	..	..	742,472*	Total	..	..	..	529,118

Year 1900					Year 1901				
Jan.	815	112	212	13,174	Jan.	180	17	91	5,642
Feb.	625	29	246	13,770	Feb.	17	11	12	640
Mar.	1600	29	664	41,162	Mar.	58	11	18	1,118
Apr.	1490	162	658	39,500	Apr.	216	11	69	4,138
May	540	112	264	16,400	May	162	11	36	2,274
June	2080	112	1322	79,346	June	875	38	253	15,162
July	6650	1750	4603	285,400	July	1320	480	756	46,870
Aug.	9470	1650	5592	346,686	Aug.	1120	550	690	42,770
Sept.	1630	585	900	54,000	Sept.	7370	995	3968	238,070
Oct.	2410	330	1094	67,820	Oct.	875	430	599	37,100
Nov.	310	70	164	9,836	Nov.	685	310	482	28,900
Dec.	360	66	170	10,566	Dec.	350	47	192	11,950
Total	..	..	..	977,660	Total	..	..	..	434,634

*Estimated.

BARWON RIVER AT WALGETT

Year 1902

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	47	23	26	1,630
Feb.	330	11	73	4,112
Mar.	11	0	3	204
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	1040	0	168	10,426
Total	..	..	..	16,372

Year 1903

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	1600	27	602	37,328
Feb.	21	8	9	524
Mar.	1460	3	75	4,670
Apr.	1720	265	921	55,286
May	4130	198	1563	96,938
June	6340	735	3564	213,830
July	5800	560	1879	116,490
Aug.	12400	6180	10064	623,980
Sept.	12800	3290	6018	361,050
Oct.	26900	8680	20520	1,272,240
Nov.	11600	4320	6530	391,780
Dec.	11100	1300	6113	379,050
Total	..	..	..	3,553,166

Year 1904

Jan.	4600	330	1919	118,960
Feb.	330	120	207	12,030
Mar.	7800	470	4031	249,910
Apr.	6520	390	4050	243,000
May	4840	270	964	59,770
June	2810	270	1468	88,114
July	6110	770	2608	141,680
Aug.	6560	1450	3713	230,190
Sept.	1400	530	948	56,900
Oct.	3500	450	1381	85,610
Nov.	3850	300	1567	94,020
Dec.	300	170	235	14,588
Total	..	..	..	1,394,772

Year 1905

Jan.	400	120	213	13,230
Feb.	720	120	324	18,124
Mar.	194	136	163	10,128
Apr.	3050	70	822	49,326
May	2600	660	1543	95,660
June	2340	390	1164	69,820
July	1770	815	1396	86,550
Aug.	990	565	758	46,980
Sept.	720	300	498	29,900
Oct.	280	120	198	12,272
Nov.	610	120	294	17,676
Dec.	290	70	131	8,108
Total	..	..	..	457,774

Year 1906

Jan.	3030	54	1394	86,450
Feb.	2920	228	736	41,206
Mar.	460	220	297	18,434
Apr.	261	136	215	12,922
May	170	136	138	8,598
June	400	120	183	10,996
July	144	120	121	7,536
Aug.	120	94	98	6,088
Sept.	3080	94	1194	71,640
Oct.	5320	3570	4296	266,370
Nov.	5400	760	2197	131,820
Dec.	1810	136	581	36,042
Total	..	..	..	698,102

Year 1907

Jan.	5800	120	1991	123,432
Feb.	5840	635	2163	121,130
Mar.	2080	355	868	53,780
Apr.	3990	470	2377	142,630
May	470	120	230	14,262
June	1350	120	265	15,890
July	1450	300	677	41,990
Aug.	2200	252	1030	63,890
Sept.	760	152	437	26,252
Oct.	220	25	91	5,654
Nov.	186	25	86	5,204
Dec.	2470	25	929	59,600
Total	..	..	..	673,714

Year 1908

Jan.	2760	25	697	43,192
Feb.	3780	25	1086	62,990
Mar.	7800	2470	5224	323,890
Apr.	7800	880	3142	188,500
May	1000	330	527	32,680
June	470	211	301	18,094
July	390	261	351	21,740
Aug.	3500	252	1619	100,392
Sept.	6110	920	2776	166,580
Oct.	2760	470	1002	62,120
Nov.	540	244	363	21,768
Dec.	1420	94	561	34,782
Total	..	..	..	1,076,728

Year 1909

Jan.	540	120	191	11,894
Feb.	730	0	123	6,860
Mar.	1350	170	754	46,752
Apr.	170	0	53	3,200
May	170	0	73	4,554
June	760	0	116	6,982
July	1180	470	920	57,040
Aug.	5200	690	1713	106,210
Sept.	7650	4840	6601	396,090
Oct.	4360	440	1534	95,090
Nov.	760	290	501	30,050
Dec.	1860	211	958	59,398
Total	..	..	..	824,120

Appendix 9
Sheet 5

BARWON RIVER AT WALGETT

Year 1910					Year 1911				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	62500	430	14195	880,100	Jan.	3920	610	1731	107,310
Feb.	35100	1280	11118	662,590	Feb.		No Records		
Mar.	15700	645	3829	237,390	Mar.	7800	1580	4442	275,420
Apr.	15100	565	6424	385,412	Apr.	1550	270	756	45,380
May	425	320	373	23,150	May	261	186	221	13,712
June	1220	220	489	29,368	June	186	186	186	11,160
July	4960	450	2077	128,750	July	1510	186	483	29,924
Aug.	3080	800	1853	114,910	Aug.	1060	252	524	32,486
Sept.	760	400	600	36,010	Sept.	730	144	321	19,280
Oct.	320	144	220	13,676	Oct.	840	144	443	27,470
Nov.	590	170	278	16,706	Nov.	400	120	262	16,220
Dec.	2920	244	1188	73,678	Dec.	2080	161	934	57,904
Total	..	..	..	2,601,740	Total	..	..	..	..

Year 1912					Year 1913				
Jan.	236	120	149	9,246	Jan.	194	194	194	12,028
Feb.	120	0	87	5,040	Feb.	194	194	194	10,864
Mar.	14	0	4	274	Mar.	330	94	153	9,462
Apr.	0	0	0	0	Apr.	450	62	242	14,524
May	0	0	0	0	May	2560	186	576	35,708
June	0	0	0	0	June	5870	2200	3891	233,460
July	3120	270	1893	117,380	July	17100	2250	10514	651,870
Aug.	2600	1260	2074	128,600	Aug.	1970	400	838	51,950
Sept.	1090	400	757	45,440	Sept.	400	252	301	18,052
Oct.	380	170	269	16,652	Oct.	355	170	267	16,526
Nov.	510	170	268	16,118	Nov.	635	170	298	17,910
Dec.	220	70	119	7,380	Dec.	330	211	222	13,770
Total	..	..	..	346,130	Total	..	..	..	1,086,124

Year 1914					Year 1915				
Jan.	330	211	222	13,776	Jan.	815	78	449	27,828
Feb.	495	144	239	13,380	Feb.	186	0	42	2,366
Mar.	2340	194	1042	64,634	Mar.	0	0	0	0
Apr.	2200	400	1121	67,290	Apr.	0	0	0	0
May	1500	370	760	47,140	May	194	0	27	1,646
June	2100	480	1174	70,420	June	102	0	17	1,026
July	1930	690	1239	76,830	July	1030	0	219	13,572
Aug.	720	290	482	29,930	Aug.	2010	330	930	57,640
Sept.	261	14	125	7,538	Sept.	540	128	243	14,568
Oct.	9	0	0.6	40	Oct.	1260	170	504	31,242
Nov.	1620	0	548	32,890	Nov.	310	0	80	4,808
Dec.	1260	94	494	30,660	Dec.	660	0	185	11,498
Total	..	..	..	454,528	Total	..	..	..	166,194

Year 1916					Year 1917				
Jan.	390	0	153	9,502	Jan.	20100	1210	7416	459,800
Feb.	120	0	32	1,930	Feb.	30200	4360	17765	994,860
Mar.	2470	0	1037	64,280	Mar.	26900	620	7960	493,550
Apr.	2520	120	849	50,944	Apr.	600	186	324	19,434
May	1650	62	465	28,854	May	178	128	151	9,362
June	62	3	25	1,514	June	128	86	108	6,480
July	3080	3	1686	104,528	July	170	47	73	4,498
Aug.	8580	3640	5331	330,550	Aug.	370	186	276	17,120
Sept.	8680	975	4656	279,330	Sept.	1210	152	260	15,592
Oct.	2430	800	1522	94,360	Oct.	9970	1420	6645	411,980
Nov.	2760	1500	2020	121,210	Nov.	13800	1050	3372	202,350
Dec.	20400	2320	7329	456,398	Dec.	26500	10800	19460	1,206,500
Total	..	..	..	1,543,400	Total	..	..	..	3,841,526

Appendix 9
Sheet 6

BARWON RIVER AT WALGETT

Year 1918					Year 1919				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	14600	3920	8355	518,040	Jan.	2	0	1	64
Feb.	3710	1000	1988	111,356	Feb.	0	0	0	0
Mar.	960	300	489	30,300	Mar.	1630	0	420	26,070
Apr.	290	161	209	12,548	Apr.	450	136	248	14,862
May	152	102	131	8,104	May	136	32	67	4,130
June	102	62	81	4,856	June	47	25	33	1,998
July	54	14	36	2,208	July	86	20	63	3,918
Aug.	815	14	467	28,982	Aug.	62	3	30	1,900
Sept.	950	280	582	34,940	Sept.	3	0	0.5	32
Oct.	330	62	177	10,978	Oct.	0	0	0	0
Nov.	54	20	36	2,186	Nov.	0	0	0	0
Dec.	20	3	8	520	Dec.	355	0	101	6,274
Total	..	..	..	765,018	Total	..	..	..	59,248

Year 1920					Year 1921				
Jan.	425	0	125	7,782	Jan.	610	120	261	16,226
Feb.	590	120	316	18,332	Feb.	120	0	36	2,012
Mar.	102	0	14	882	Mar.	1280	0	517	32,060
Apr.	0	0	0	0	Apr.	1650	280	791	47,490
May	0	0	0	0	May	300	70	119	7,436
June	495	0	61	3,660	June	28600	580	12675	760,520
July	38500	1090	20438	1,267,160	July	68850	27400	43500	2,696,980
Aug.	9840	2540	5023	311,450	Aug.	36600	5080	23480	1,455,760
Sept.	10200	2920	5744	344,630	Sept.	4400	1450	2274	136,454
Oct.	8680	920	3545	219,770	Oct.	12600	4360	9171	568,600
Nov.	1990	705	1206	72,386	Nov.	7180	1420	2623	157,402
Dec.	1440	410	780	48,370	Dec.	3290	730	1311	81,270
Total	..	..	..	2,294,422	Total	..	..	..	5,962,210

Year 1922					Year 1923				
Jan.	15100	3300	9672	599,690	Jan.	880	161	472	29,286
Feb.	5410	440	1267	70,940	Feb.	310	40	128	7,168
Mar.	635	300	431	26,700	Mar.	32	0	10	632
Apr.	290	178	225	13,516	Apr.	0	0	0	0
May	186	0	64	3,964	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	152	1	43	2,686	July	1200	0	528	32,754
Aug.	1030	202	706	43,756	Aug.	760	355	538	33,330
Sept.	450	252	331	19,866	Sept.	2220	244	967	58,030
Oct.	635	202	380	23,530	Oct.	990	220	416	25,774
Nov.	252	70	160	9,604	Nov.	370	194	283	16,968
Dec.	1630	47	615	38,118	Dec.	1180	62	184	11,422
Total	..	..	..	852,370	Total	..	..	..	215,364

Year 1924					Year 1925				
Jan.	3400	865	1658	102,792	Jan.	1990	600	1272	78,850
Feb.	3680	470	1938	112,394	Feb.	1540	510	1055	59,060
Mar.	5040	620	2956	183,270	Mar.	920	370	584	36,230
Apr.	540	144	325	19,502	Apr.	650	160	290	17,414
May	410	94	210	13,006	May	160	160	160	9,920
June	220	62	87	5,212	June	580	202	241	14,448
July	1860	220	683	42,326	July	705	202	456	28,244
Aug.	1480	410	903	55,990	Aug.	1440	380	712	44,150
Sept.	2430	320	1217	73,030	Sept.	1650	470	1048	62,890
Oct.	2430	450	1333	82,510	Oct.	440	120	207	12,860
Nov.	20100	520	7345	440,690	Nov.	990	120	292	17,524
Dec.	18600	1290	9124	565,690	Dec.	1760	70	763	47,288
Total	..	..	..	1,696,412	Total	..	..	..	428,878

Appendix 9
Sheet 7

BARWON RIVER AT WALGETT

Year 1926					Year 1927				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4100	194	2153	133,536	Jan.	2790	3	1451	89,946
Feb.	370	62	119	6,692	Feb.	4880	1690	3283	183,860
Mar.	47	40	41	2,536	Mar.	1220	160	396	24,534
Apr.	675	40	271	16,292	Apr.	545	160	276	16,568
May	1450	70	660	40,964	May	180	73	132	8,166
June	1030	400	699	41,990	June	66	20	37	2,200
July	1060	220	521	32,302	July	60	13	33	2,046
Aug.	895	261	803	31,202	Aug.	26	0	12	744
Sept.	280	144	206	12,362	Sept.	0	0	0	0
Oct.	400	94	213	13,250	Oct.	0	0	0	0
Nov.	94	3	47	2,858	Nov.	0	0	0	0
Dec.	202	0	22	1,400	Dec.	2920	0	1010	62,612
Total	..	..	..	335,384	Total	..	..	..	390,676

Year 1928					Year 1929				
Jan.	2040	86	624	38,662	Jan.	7	0	2	142
Feb.	6890	743	2219	124,782	Feb.	2520	0	353	19,784
Mar.	16300	533	7022	435,356	Mar.	3780	180	1270	78,762
Apr.	5870	580	3472	208,340	Apr.	9350	153	4308	258,470
May	1460	420	855	53,000	May	1920	173	437	27,088
June	3920	250	888	53,254	June	173	106	132	7,900
July	6550	2780	4558	282,600	July	106	86	100	6,218
Aug.	12600	1410	7085	439,300	Aug.	1270	86	394	24,436
Sept.	1300	410	700	41,984	Sept.	1590	310	706	42,350
Oct.	410	180	249	15,424	Oct.	2100	186	490	30,394
Nov.	173	113	150	9,032	Nov.	2680	146	872	52,332
Dec.	106	7	45	2,816	Dec.	242	113	156	9,644
Total	..	..	..	1,704,550	Total	..	..	..	557,520

Year 1930					Year 1931				
Jan.	225	0	57	3,514	Jan.	130	22	67	4,148
Feb.	1270	126	524	29,372	Feb.	181	14	66	3,700
Mar.	430	46	171	10,618	Mar.	4520	14	1765	109,436
Apr.	330	100	175	10,526	Apr.	6830	980	4034	242,060
May	242	20	86	5,322	May	4240	560	1632	101,200
June	1670	46	230	13,826	June	6210	3480	4577	274,600
July	5200	2080	3508	217,490	July	28400	6770	21763	1,349,300
Aug.	1900	880	1235	76,560	Aug.	17900	1970	6793	421,180
Sept.	6070	790	2388	143,260	Sept.	1870	710	1104	66,240
Oct.	4270	660	1813	112,440	Oct.	2330	540	1165	72,240
Nov.	4270	255	1340	80,384	Nov.	600	255	361	21,648
Dec.	460	122	293	18,174	Dec.	11000	368	4748	294,396
Total	..	..	..	721,486	Total	..	..	..	2,960,148

Year 1932					Year 1933				
Jan.	11500	480	3561	220,760	Jan.	520	78	185	11,464
Feb.	460	78	181	10,494	Feb.	5400	400	3384	189,500
Mar.	71	26	41	2,548	Mar.	1140	85	403	24,996
Apr.	810	22	226	13,572	Apr.	78	31	53	3,184
May	600	114	278	17,238	May	31	18	24	1,498
June	114	92	102	6,128	June	138	14	42	2,520
July	347	107	139	8,610	July	1700	71	776	48,108
Aug.	347	107	210	13,048	Aug.	5400	1210	2788	172,880
Sept.	1060	92	180	10,810	Sept.	3630	860	1823	109,360
Oct.	4480	1400	2619	162,360	Oct.	8490	1080	5005	310,320
Nov.	1580	390	699	41,920	Nov.	9160	2030	5612	336,720
Dec.	700	226	476	29,494	Dec.	11000	1940	5372	333,040
Total	..	..	..	536,982	Total	..	..	..	1,543,590

Appendix 9
Sheet 8

BARWON RIVER AT WALGETT

Year 1934					Year 1935				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	2630	1040	1847	114,540	Jan.	9370	1180	5321	329,900
Feb.	7680	830	4711	263,840	Feb.	10400	910	4809	269,310
Mar.	4920	400	2359	146,240	Mar.	1090	326	571	35,372
Apr.	460	217	300	18,008	Apr.	315	181	219	13,128
May	540	305	384	23,820	May	172	163	164	10,196
June	305	208	221	13,260	June	163	163	163	9,780
July	540	208	330	20,474	July	245	163	209	12,968
Aug.	3570	368	2219	137,554	Aug.	265	153	190	11,754
Sept.	11000	2140	6049	362,960	Sept.	390	146	183	10,954
Oct.	4630	1210	2151	133,360	Oct.	796	275	454	28,120
Nov.	6710	1040	3790	227,400	Nov.	1720	250	796	47,786
Dec.	1140	670	843	52,240	Dec.	242	80	135	8,360
Total	..	..	..	1,513,696	Total	..	..	..	787,628

Year 1936					Year 1937				
Jan.	410	60	153	9,494	Jan.	2430	7	936	58,014
Feb.	193	20	119	6,902	Feb.	2600	330	978	54,752
Mar.	1860	133	432	26,794	Mar.	21200	120	4261	264,204
Apr.	390	126	197	12,186	Apr.	21400	215	5568	334,082
May	133	120	123	7,654	May	206	97	118	7,328
June	120	120	120	7,200	June	90	50	58	3,498
July	1410	120	449	27,832	July	251	137	191	11,834
Aug.	4320	960	2183	135,330	Aug.	455	170	306	18,986
Sept.	1590	545	925	55,530	Sept.	1660	505	1109	66,570
Oct.	840	180	400	24,814	Oct.	470	137	264	16,394
Nov.	267	53	148	8,854	Nov.	2190	206	854	51,252
Dec.	46	7	13	778	Dec.	1300	161	645	39,930
Total	..	..	..	323,368	Total	..	..	..	926,844

Year 1938					Year 1939				
Jan.	310	121	197	12,230	Jan.	242	9	53	3,314
Feb.	2350	113	963	53,914	Feb.	2430	161	949	53,154
Mar.	370	32	131	8,116	Mar.	8220	137	3087	191,366
Apr.	28	0	4	254	Apr.	3600	370	1255	75,310
May	40	0	6	366	May	320	83	132	8,180
June	6830	206	2190	131,402	June	83	24	58	3,482
July	270	76	146	9,080	July	1040	24	317	19,660
Aug.	4270	83	1649	102,266	Aug.	2540	760	1721	106,690
Sept.	3410	525	1882	112,890	Sept.	1220	153	560	33,592
Oct.	1550	224	599	37,120	Oct.	153	56	97	6,012
Nov.	1720	505	879	52,750	Nov.	90	36	67	3,990
Dec.	960	121	531	32,896	Dec.	170	45	120	7,446
Total	..	..	..	553,284	Total	..	..	..	512,196

Year 1940					Year 1941				
Jan.	300	83	139	8,620	Jan.	19000	370	7435	460,980
Feb.	3230	83	1099	63,742	Feb.	7400	2040	5090	285,040
Mar.	2570	52	748	46,398	Mar.	8400	565	3685	228,500
Apr.	1310	72	405	24,330	Apr.	8580	275	3169	190,114
May	195	19	43	2,678	May	259	78	119	7,374
June	19	14	17	994	June	2380	72	944	56,634
July	12	4	8	504	July	1850	410	855	53,030
Aug.	3	0	0.5	28	Aug.	535	116	313	19,402
Sept.	0	0	0	0	Sept.	203	67	129	7,748
Oct.	0	0	0	0	Oct.	109	22	46	2,824
Nov.	0	0	0	0	Nov.	380	96	195	11,700
Dec.	1050	0	301	18,632	Dec.	211	6	88	5,428
Total	..	..	..	165,926	Total	..	..	..	1,328,774

Appendix 9
Sheet 9

BARWON RIVER AT WALGETT

Year 1942					Year 1943				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	6	0	4	245	Jan.	7610	1500	5195	322,080
Feb.	1900	0	217	12,148	Feb.	6020	525	1582	88,620
Mar.	2030	73	535	33,158	Mar.	485	46	165	10,232
Apr.	525	46	256	15,370	Apr.	59	14	28	1,656
May	40	7	20	1,228	May	35	14	21	1,290
June	14	3	5	282	June	202	11	98	5,868
July	16500	59	5732	355,398	July	115	59	77	4,762
Aug.	7400	510	1998	123,880	Aug.	645	52	183	11,344
Sept.	485	124	276	16,590	Sept.	1310	450	741	44,480
Oct.	5440	106	1225	75,942	Oct.	1430	375	618	38,290
Nov.	8400	4010	5371	322,260	Nov.	2650	360	968	58,060
Dec.	5360	1340	2856	177,040	Dec.	4140	287	2154	133,520
Total	..	..	..	1,133,541	Total	..	..	..	720,202

Year 1944					Year 1945				
Jan.	3100	660	2060	127,710	Jan.	0	0	0	0
Feb.	2850	1360	2290	132,800	Feb.	915	0	257	14,430
Mar.	2530	124	691	42,838	Mar.	5290	525	3551	220,180
Apr.	115	30	65	3,916	Apr.	485	74	195	11,678
May	30	14	22	1,342	May	1000	58	302	18,726
June	675	14	237	14,166	June	3850	91	1202	72,110
July	930	66	293	18,164	July	7490	1130	3702	229,500
Aug.	1340	220	432	26,770	Aug.	5220	1360	3158	195,800
Sept.	4920	705	2499	149,930	Sept.	2920	1070	1816	108,970
Oct.	675	143	394	24,422	Oct.	1930	230	906	56,160
Nov.	134	3	57	3,388	Nov.	210	66	129	7,716
Dec.	2	0	0.1	4	Dec.	310	44	133	8,244
Total	..	..	..	545,450	Total	..	..	..	943,514

Year 1946					Year 1947				
Jan.	3330	161	853	52,872	Jan.	240	11	79	4,894
Feb.	4480	365	2414	135,200	Feb.	14100	5	5777	323,216
Mar.	540	58	228	14,128	Mar.	19200	1020	8252	511,650
Apr.	1050	32	442	26,508	Apr.	4850	620	2705	162,310
May	285	58	125	7,772	May	3360	460	1419	87,960
June	50	26	34	2,052	June	425	320	351	21,074
July	91	22	36	2,258	July	320	115	222	13,746
Aug.	66	16	30	1,870	Aug.	182	81	136	8,438
Sept.	16	9	14	818	Sept.	4210	152	2029	121,728
Oct.	1670	16	740	45,854	Oct.	4210	565	1494	92,640
Nov.	630	58	179	10,740	Nov.	1540	670	1022	61,300
Dec.	705	22	232	14,380	Dec.	8860	580	3849	238,660
Total	..	..	..	314,452	Total	..	..	..	1,647,616

Year 1948					Year 1949				
Jan.	10200	4070	7359	456,240	Jan.	1110	280	620	38,420
Feb.	3630	250	992	57,510	Feb.	1250	105	382	21,402
Mar.	1830	240	1070	66,340	Mar.	3090	655	1954	121,160
Apr.	980	173	529	31,720	Apr.	655	105	265	15,924
May	715	164	435	26,998	May	270	76	152	9,448
June	4210	240	1320	79,180	June	1570	63	422	25,342
July	7400	3630	5467	338,940	July	1970	340	898	55,650
Aug.	3970	640	1681	104,250	Aug.	2680	435	1264	78,360
Sept.	3270	610	1546	92,780	Sept.	15000	450	5493	329,560
Oct.	2140	340	1009	62,530	Oct.	19000	3910	9106	564,600
Nov.	610	129	293	17,578	Nov.	21600	3270	12024	721,460
Dec.	325	24	206	12,810	Dec.	6070	1290	3924	243,280
Total	..	..	..	1,346,876	Total	..	..	..	2,224,606

Appendix 9
Sheet 10

BARWON RIVER AT WALGETT

Year 1950					Year 1951				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	3690	540	1367	84,730	Jan.	4510	1700	2176	134,900
Feb.	4450	555	2162	121,060	Feb.	17700	2340	8323	466,060
Mar.	3820	625	1901	117,860	Mar.	18000	1310	6010	372,640
Apr.	14300	880	8353	501,180	Apr.	3090	661	1449	86,938
May	12100	475	2465	152,860	May	713	500	627	38,858
June	5680	625	2427	145,610	June	2810	500	975	58,502
July	34500	6070	21735	1,347,600	July	4310	1680	2924	181,280
Aug.	76000	25700	54875	3,402,260	Aug.	4230	1700	2624	162,700
Sept.	24800	2320	8315	498,900	Sept.	4430	845	2185	131,092
Oct.	30700	3260	13182	817,300	Oct.	1010	572	791	49,016
Nov.	32700	25700	29860	1,791,680	Nov.	992	214	459	27,514
Dec.	50600	5150	34459	2,136,440	Dec.	598	91	232	14,382
Total	..	..	..	11,117,480	Total	..	..	..	1,723,882

Year 1952					Year 1953				
Jan.	91	57	71	4,404	Jan.	702	272	406	25,190
Feb.	137	21	45	2,628	Feb.	4720	160	680	38,092
Mar.	1230	130	538	33,336	Mar.	45300	1860	21600	1,340,000
Apr.	1930	234	994	59,664	Apr.	1750	248	1020	61,178
May	1250	287	521	32,282	May	3600	284	1914	118,642
June	4270	1470	3030	181,800	June	916	423	629	37,744
July	7960	1720	4320	268,000	July	1120	272	476	29,494
Aug.	12000	2250	4770	296,000	Aug.	1780	437	799	49,516
Sept.	15300	2040	9360	562,000	Sept.	2140	824	1451	87,036
Oct.	7480	1510	3390	210,000	Oct.	748	152	364	22,542
Nov.	7720	4460	6410	385,000	Nov.	345	214	305	18,328
Dec.	4880	451	1292	80,106	Dec.	225	39	113	7,022
Total	..	..	..	2,115,220	Total	..	..	..	1,834,784

Year 1954					Year 1955				
Jan.	214	29	74	4,594	Jan.	3490	810	1349	84,000
Feb.	6050	21	1431	80,136	Feb.	3880	341	1527	86,000
Mar.	6600	522	3434	214,756	Mar.	32900	2100	17997	1,100,000
Apr.	479	91	207	12,394	Apr.	5340	1020	1857	110,000
May	91	37	69	4,284	May	1390	832	1104	68,442
June	109	35	43	2,586	June	2400	1130	1550	93,120
July	7090	52	1376	85,320	July	2670	1120	1742	107,980
Aug.	5830	204	1006	62,362	Aug.	2300	1570	1865	115,600
Sept.	598	116	278	16,664	Sept.	3720	1160	2183	130,980
Oct.	5780	47	998	61,892	Oct.	4790	661	1738	107,766
Nov.	19500	6300	14000	839,000	Nov.	18000	1570	9370	562,000
Dec.	18300	992	6520	404,000	Dec.	1850	674	1119	69,348
Total	..	..	..	1,787,988	Total	..	..	..	2,635,236

Year 1956					Year 1957				
Jan.	4840	490	1964	121,792	Jan.	2240	1060	1619	100,360
Feb.	55500	4520	30910	1,793,000	Feb.	1340	630	848	47,462
Mar.	55500	24500	42220	2,617,000	Mar.	1410	522	849	52,642
Apr.	22300	2750	7803	468,210	Apr.	1440	341	600	36,008
May	17600	2660	9164	568,156	May	548	277	359	22,240
June	16800	9700	13552	813,150	June	277	245	258	15,492
July	47300	10100	33340	2,067,000	July	509	269	398	24,660
Aug.	33200	4700	17175	1,064,840	Aug.	483	285	343	21,272
Sept.	4460	2290	3060	183,570	Sept.	884	261	478	28,708
Oct.	3880	1940	2585	160,330	Oct.	261	89	157	9,740
Nov.	3660	1290	2180	130,810	Nov.	83	21	48	2,850
Dec.	1210	840	999	61,960	Dec.	21	3	10	602
Total	..	..	..	10,049,818	Total	..	..	..	362,036

Appendix 9
Sheet 11

BARWON RIVER AT WALGETT

Year 1958					Year 1959				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	101	3	40	2,470	Jan.	4850	175	3212	199,144
Feb.	2000	47	929	52,020	Feb.	12700	3780	6580	368,500
Mar.	2590	374	1202	74,522	Mar.	13200	1460	8465	524,806
Apr.	2920	168	1109	66,544	Apr.	10500	1280	5643	338,568
May	147	72	109	6,756	May	1190	391	658	40,784
June	4240	89	1416	84,958	June	445	321	393	23,564
July	2140	222	504	31,262	July	955	269	432	26,762
Aug.	870	175	283	17,552	Aug.	2880	700	1556	96,496
Sept.	1780	433	1087	65,222	Sept.	672	214	358	21,450
Oct.	3750	1260	2408	149,278	Oct.	706	280	472	29,276
Nov.	3490	301	1033	61,972	Nov.	3140	430	1375	82,522
Dec.	400	119	213	13,204	Dec.	3720	912	2212	137,170
Total	..	..	..	625,760	Total	..	..	..	1,889,042

Year 1960					Year 1961				
Jan.	6620	4000	4061	251,812	Jan.	2020	137	517	32,048
Feb.	926	420	573	33,262	Feb.	420	70	122	6,834
Mar.	420	236	324	20,106	Mar.	372	137	255	15,824
Apr.	276	112	155	9,296	Apr.	348	88	179	10,750
May	268	118	158	9,800	May	94	70	84	5,204
June	324	172	235	14,088	June	112	82	87	5,196
July	1580	137	512	31,778	July	172	64	103	6,370
Aug.	2820	970	1846	114,452	Aug.	1220	72	350	21,720
Sept.	898	300	458	27,498	Sept.	1330	155	660	39,620
Oct.	970	158	437	27,068	Oct.	144	47	87	5,384
Nov.	1260	137	291	17,456	Nov.	362	39	92	5,524
Dec.	2120	300	961	59,576	Dec.	5300	530	4150	257,320
Total	..	..	..	616,192	Total	..	..	..	411,794

Year 1962					Year 1963				
Jan.	14600	2950	5753	356,710	Jan.	5900	380	2565	159,030
Feb.	22500	2570	12983	727,060	Feb.	3160	226	744	41,654
Mar.	12500	2260	5615	348,160	Mar.	585	178	270	16,768
Apr.	13800	3100	7775	466,480	Apr.	8120	935	5005	300,000
May	4760	595	1451	89,950	May	6560	410	2428	150,550
June	815	480	632	37,950	June	9600	4950	7461	447,660
July	2480	309	765	47,422	July	8190	2260	3152	195,440
Aug.	2630	920	1496	92,770	Aug.	2240	1460	1722	106,760
Sept.	3960	785	2057	123,410	Sept.	5800	1600	3223	193,400
Oct.	2000	710	1185	73,490	Oct.	2120	1120	1533	95,070
Nov.	2510	1100	1780	106,790	Nov.	1080	555	844	50,660
Dec.	1760	540	1320	81,800	Dec.	4760	1040	2869	177,900
Total	..	..	..	2,551,992	Total	..	..	..	1,934,892

Year 1964					Year 1965				
Jan.	12300	980	4710	292,010	Jan.	341	114	212	13,162
Feb.	11800	845	3043	176,470	Feb.	141	46	95	5,336
Mar.	2300	650	1186	73,530	Mar.	154	12	67	4,172
Apr.	2120	316	713	42,796	Apr.	76	23	44	2,658
May	2880	785	1635	101,370	May	64	19	34	2,124
June	2020	540	950	57,010	June	15	5	8	478
July	5400	1040	2468	153,030	July	34	4	21	1,276
Aug.	5650	1500	2640	163,680	Aug.	174	5	51	3,170
Sept.	2060	740	1362	81,740	Sept.	85	24	59	3,520
Oct.	5850	1030	3690	228,810	Oct.	380	4	227	14,100
Nov.	4900	1240	2258	135,150	Nov.	250	17	121	7,260
Dec.	1260	316	745	46,192	Dec.	3750	29	1746	108,000
Total	..	..	..	1,551,788	Total	..	..	..	165,256

Appendix 9
Sheet 12

BARWON RIVER AT WALGETT

Year 1966

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	6440	102	2311	143,000
Feb.	350	7	97	5,430
Mar.	163	8	38	2,340
Apr.	110	7	50	3,000
May	33	0.8	9	555
June	109	2.5	33	2,000
July	23	5	13	806
Aug.	285	2	52	3,240
Sept.	3560	186	2544	153,000
Oct.	1900	576	1027	63,700
Nov.	4030	1050	2334	140,000
Dec.	5050	280	1620	100,000
Total	..	..	..	617,071

Year 1967

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	351	130	245	15,000
Feb.	270	10	69	3,800
Mar.	2790	8	1134	70,000
Apr.	1680	208	724	43,000
May	205	116	159	9,900
June	1390	110	230	14,000
July	2300	718	1469	91,000
Aug.	743	425	514	32,000
Sept.	410	70	190	11,000
Oct.	70	4	28	1,720
Nov.	1740	17	583	35,000
Dec.	94	0.5	26	1,630
Total	..	..	..	328,050

Year 1968

Jan.	6640	0.5	2330	145,000
Feb.	3260	356	809	46,900
Mar.	434	160	280	17,400
Apr.	160	29	88	5,260
May	3780	17	1120	69,400
June	561	151	282	16,900
July	1130	110	279	17,300
Aug.	4500	785	2240	139,000
Sept.	6400	666	3610	217,000
Oct.	1160	170	491	30,400
Nov.	178	52	95	5,720
Dec.	310	32	95	5,860
Total	..	..	..	716,140

Year 1969

Jan.	1900	79	817	50,700
Feb.	1440	127	585	32,800
Mar.	265	38	125	7,750
Apr.	659	58	184	11,000
May	617	26	91	5,620
June	752	260	490	29,400
July	1410	240	465	28,800
Aug.	1880	345	782	48,500
Sept.	2730	285	1216	73,000
Oct.	6380	400	2187	136,000
Nov.	12000	1410	3950	237,000
Dec.	13400	380	4540	282,000
Total	..	..	..	942,570

Year 1970

Jan.	1720	380	976	60,500
Feb.	888	265	613	34,300
Mar.	736	160	383	23,700
Apr.	178	102	130	7,830
May	122	57	72	4,440
June	53	25	35	2,120
July	31	7	19	1,190
Aug.	8	1	4	262
Sept.	1280	1	74	4,460
Oct.	7210	800	4360	270,000
Nov.	1750	590	1350	81,000
Dec.	9700	652	3270	203,000
Total	..	..	..	693,002

Year 1971

Jan.	16500	8780	12490	774,000
Feb.	60500	8920	39110	2,190,000
Mar.	50000	1810	22245	1,379,000
Apr.	1810	704	945	56,700
May	704	368	492	30,500
June	380	196	292	17,500
July	2570	196	614	38,100
Aug.	7750	1260	3908	242,000
Sept.	6180	3600	4781	287,000
Oct.	4280	617	2430	151,000
Nov.	610	165	320	19,200
Dec.	446	110	274	17,000
Total	..	..	..	5,202,000

Year 1972

Jan.	2110	330	930	57,600
Feb.	2940	392	1470	85,400
Mar.	416	102	230	14,200
Apr.	170	111	135	8,090
May	111	38	66	4,090
June	50	27	44	2,640
July	47	21	39	2,430
Aug.	47	6	21	1,300
Sept.	102	7	37	2,220
Oct.	362	5	130	8,030
Nov.	6580	280	3767	226,000
Dec.	9000	856	3817	237,000
Total	..	..	..	649,000

BARWON RIVER AT BREWARRINA

LOCATION:	Latitude 29°57' Longitude 146°52'
PERIOD OF ESTABLISHMENT:	1892 to date
COMPLETE YEARS OF COMPUTED RECORDS:	43
ZERO OF GAUGE:	R.L. 349.22 North West Datum
CATCHMENT AREA:	115,000 square miles
CONTROL:	Gravel - variable
EQUIPMENT:	Staff Gauge, range 0 to 35 feet
CURRENT METER OBSERVATIONS:	(a) Number Obtained : 239
	(b) Maximum Observation in Cusecs : 26,270
	(c) Minimum Observation in Cusecs : 8.5
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	52,000 cusecs (August, 1950)
MEAN DAILY DISCHARGE FOR 43 YEARS:	2.120 cusecs
MEAN ANNUAL DISCHARGE FOR 43 YEARS:	1,545,000 acre feet
REMARKS:	Additional readings taken during flood periods.

Appendix 10
Sheet 2

BARWON RIVER AT BREWARRINA

Year 1930					Year 1931				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1030	99	166	10,290	Jan.	180	26	92	5,714
Feb.	1440	384	730	40,918	Feb.	122	10	43	2,396
Mar.	439	36	176	10,908	Mar.	3550	17	903	55,996
Apr.	384	36	166	9,944	Apr.	5230	3050	4037	242,240
May	251	122	128	7,938	May	3800	1025	1710	106,010
June	1030	79	193	11,562	June	5900	3960	5111	306,680
July	4460	1440	3732	231,360	July	16200	6110	11946	740,640
Aug.	3550	1690	2206	136,780	Aug.	15300	3800	9720	602,720
Sept.	3880	1320	2883	172,960	Sept.	3640	1440	2265	135,920
Oct.	3640	710	1395	86,500	Oct.	2550	940	1603	99,390
Nov.	3720	439	1868	112,066	Nov.	1320	335	532	31,950
Dec.	439	214	336	20,836	Dec.	5870	335	2825	175,150
Total	..	..	..	852,062	Total	..	..	..	2,504,806

Year 1932					Year 1933				
Jan.	6460	565	3523	218,400	Jan.	500	99	283	17,514
Feb.	565	99	210	12,160	Feb.	4180	62	2482	138,982
Mar.	99	62	65	4,026	Mar.	2400	180	746	46,262
Apr.	635	36	68	4,100	Apr.	180	79	99	5,960
May	785	149	404	25,022	May	79	48	58	3,590
June	149	149	149	8,940	June	48	48	48	2,880
July	149	149	149	9,238	July	1560	79	493	30,564
Aug.	384	214	336	20,834	Aug.	4040	1440	2658	164,820
Sept.	291	180	203	12,166	Sept.	3460	1120	2030	121,830
Oct.	3550	180	2193	135,970	Oct.	5410	1120	3521	218,300
Nov.	2400	565	1113	66,790	Nov.	5670	2550	4195	251,720
Dec.	785	500	588	36,450	Dec.	6320	2400	4680	290,160
Total	..	..	..	554,096	Total	..	..	..	1,292,582

Year 1934					Year 1935				
Jan.	2930	1030	2048	126,990	Jan.	5340	1030	3395	210,470
Feb.	5230	1030	3288	184,110	Feb.	5930	1210	4243	237,640
Mar.	4580	565	2860	177,320	Mar.	1210	785	951	58,960
Apr.	565	291	384	23,020	Apr.	785	335	721	43,246
May	565	291	469	29,068	May	291	99	132	8,164
June	384	384	384	23,040	June	99	99	99	5,940
July	565	384	436	27,052	July	214	99	107	6,630
Aug.	3370	439	1843	114,254	Aug.	291	251	288	17,882
Sept.	6320	2930	4348	260,860	Sept.	291	291	291	17,460
Oct.	6260	1810	2990	185,380	Oct.	565	291	397	23,832
Nov.	5230	2400	4121	247,240	Nov.	1120	335	754	45,230
Dec.	2250	940	1431	88,700	Dec.	291	26	150	9,298
Total	..	..	..	1,487,034	Total	..	..	..	684,752

Year 1936					Year 1937				
Jan.	251	36	155	9,602	Jan.	940	79	500	30,988
Feb.	180	122	147	8,550	Feb.	2680	635	1731	96,950
Mar.	2930	48	702	43,534	Mar.	5270	251	1500	93,016
Apr.	940	180	297	17,840	Apr.	9550	384	5102	306,134
May	149	122	126	7,834	May	384	149	208	12,880
June	122	122	122	7,320	June	149	122	131	7,860
July	565	122	219	13,578	July	291	122	225	13,940
Aug.	4320	635	2416	149,780	Aug.	500	214	346	21,450
Sept.	3270	940	1512	90,730	Sept.	1560	291	1085	65,112
Oct.	1440	291	728	45,154	Oct.	1120	214	449	27,836
Nov.	291	99	213	12,808	Nov.	1810	251	628	37,706
Dec.	384	36	80	4,940	Dec.	1560	500	826	51,220
Total	..	..	..	411,670	Total	..	..	..	765,092

Appendix 10
Sheet 3

BARWON RIVER AT BREWARRINA

Year 1938					Year 1939				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	439	214	302	18,722	Jan.	214	26	84	5,204
Feb.	2090	291	1009	56,482	Feb.	2250	48	914	51,208
Mar.	860	149	369	22,846	Mar.	5200	214	2420	150,024
Apr.	149	36	73	4,350	Apr.	5080	785	2064	123,850
May	36	17	21	1,290	May	710	122	232	14,412
June	4640	26	1941	116,466	June	122	48	94	5,632
July	384	149	232	14,368	July	710	48	182	11,260
Aug.	3640	122	1358	84,216	Aug.	3640	860	2600	161,180
Sept.	3460	860	2313	138,800	Sept.	1690	384	958	57,476
Oct.	1440	251	517	32,058	Oct.	384	122	203	12,616
Nov.	1560	635	1027	61,610	Nov.	122	122	122	7,320
Dec.	1320	251	736	45,610	Dec.	99	79	85	5,258
Total	..	..	..	596,818	Total	..	..	..	605,440

Year 1940					Year 1941				
Jan.	79	79	79	4,898	Jan.	8780	291	5177	320,922
Feb.	2250	36	367	21,282	Feb.	8780	3460	5321	298,000
Mar.	2250	99	626	38,826	Mar.	4460	785	2669	165,450
Apr.	1690	180	701	42,080	Apr.	5440	500	3262	195,740
May	439	62	174	10,780	May	439	180	254	15,724
June	62	36	43	2,572	June	2400	122	698	41,886
July	36	36	36	2,232	July	2400	565	1305	80,890
Aug.	36	17	27	1,690	Aug.	565	500	550	34,120
Sept.	17	5	8	506	Sept.	439	180	329	19,720
Oct.	2	0	1	52	Oct.	335	99	186	11,538
Nov.	0	0	0	0	Nov.	No Records			10,530*
Dec.	635	0	146	9,026	Dec.	No Records			6,079*
Total	..	..	..	133,944	Total	..	..	..	1,200,599*

Year 1942					Year 1943				
Jan.	36	0	11	670	Jan.	5160	2550	3835	237,800
Feb.	251	0	60	3,340	Feb.	5040	500	2103	117,760
Mar.	1270	99	481	29,820	Mar.	439	99	269	16,656
Apr.	335	99	198	11,886	Apr.	99	26	61	3,686
May	251	36	92	5,680	May	1030	26	227	14,098
June	635	99	221	13,254	June	291	26	117	7,076
July	7850	500	2916	180,780	July	251	149	210	13,012
Aug.	8830	1030	4413	273,590	Aug.	291	180	184	11,382
Sept.	1030	439	688	41,298	Sept.	1120	335	644	38,656
Oct.	3550	251	741	45,966	Oct.	1320	565	864	53,554
Nov.	4790	3800	4207	252,440	Nov.	2550	785	1167	70,040
Dec.	4040	1440	3057	189,540	Dec.	3720	565	2635	163,380
Total	..	..	..	1,048,264	Total	..	..	..	747,100

Year 1944					Year 1945				
Jan.	2930	565	1864	115,590	Jan.	0	0	0	0
Feb.	2930	1320	2255	130,780	Feb.	384	0	106	5,934
Mar.	2550	214	1002	62,096	Mar.	3880	79	2649	164,220
Apr.	214	149	170	10,204	Apr.	1320	99	333	19,976
May	79	48	59	3,658	May	635	79	236	14,620
June	635	36	215	12,914	June	2930	122	733	44,006
July	785	79	197	12,202	July	5230	1810	3276	223,110
Aug.	565	251	366	22,682	Aug.	4180	2930	3670	227,570
Sept.	3880	635	2245	134,700	Sept.	3880	1690	2966	177,960
Oct.	710	180	405	25,106	Oct.	1940	335	1438	89,170
Nov.	180	26	78	4,680	Nov.	335	62	153	9,160
Dec.	26	0	5	304	Dec.	99	31	52	3,204
Total	..	..	..	534,916	Total	..	..	..	978,930

*Estimated.

BARWON RIVER AT BREWARRINA

Year 1946					Year 1947				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1810	99	248	15,396	Jan.	214	36	140	8,688
Feb.	3270	565	2331	130,510	Feb.	6980	10	2542	142,380
Mar.	470	99	249	15,448	Mar.	8200	2550	6296	390,360
Apr.	635	36	284	17,032	Apr.	3720	500	2059	123,530
May	335	89	172	10,654	May	3720	537	1792	111,124
June	79	48	63	3,752	June	439	251	303	18,210
July	48	36	41	2,544	July	291	122	209	12,940
Aug.	36	10	31	1,944	Aug.	180	122	140	8,662
Sept.	36	5	16	982	Sept.	3460	149	1461	87,642
Oct.	1320	17	443	27,446	Oct.	3720	785	1717	106,440
Nov.	384	36	171	10,244	Nov.	1810	710	1084	65,030
Dec.	384	26	174	10,792	Dec.	4790	635	2540	157,470
Total	..	..	..	246,744	Total	..	..	..	1,232,476

Year 1948					Year 1949				
Jan.	5960	4790	5480	339,780	Jan.	860	62	400	24,780
Feb.	4790	384	1637	94,964	Feb.	860	291	469	26,278
Mar.	1690	384	1040	64,458	Mar.	3050	860	2194	136,040
Apr.	900	291	609	36,538	Apr.	1030	180	427	25,616
May	860	291	507	31,430	May	335	149	203	12,168
June	6110	439	2410	144,606	June	635	180	307	18,424
July	6110	4250	5416	335,800	July	1940	500	1077	66,780
Aug.	4250	1120	2657	164,740	Aug.	2810	439	1462	90,668
Sept.	3050	860	1819	109,140	Sept.	5410	710	2893	173,560
Oct.	2090	500	1137	70,520	Oct.	6980	3960	5570	345,320
Nov.	565	180	337	20,190	Nov.	9600	4690	7903	474,170
Dec.	500	62	288	17,834	Dec.	4250	1810	3598	223,106
Total	..	..	..	1,430,000	Total	..	..	..	1,616,910

Year 1950					Year 1951				
Jan.	2930	565	1229	76,220	Jan.	14900	2810	5685	352,490
Feb.	3880	860	2455	137,462	Feb.	6530	2810	4352	243,720
Mar.	4040	1320	3114	193,060	Mar.	8500	2020	5382	333,670
Apr.	11700	1940	7297	437,800	Apr.	3270	940	2181	130,890
May	12400	2680	7619	472,400	May	860	565	777	48,184
June	6170	2530	3250	201,480	June	2930	635	1127	67,650
July	19800	6420	12897	799,650	July	4180	3050	3650	226,300
Aug.	52000	20150	35523	2,202,400	Aug.	5000	3550	4446	275,680
Sept.	25400	6940	14662	879,700	Sept.	5900	2530	4557	273,410
Oct.	15300	5960	8926	553,410	Oct.	2530	1210	1662	103,040
Nov.	22900	15700	19859	1,191,570	Nov.	1120	565	820	49,220
Dec.	34100	16000	26773	1,659,740	Dec.	500	149	321	19,878
Total	..	..	..	8,804,892	Total	..	..	..	2,124,132

Year 1952					Year 1953				
Jan.	149	99	109	6,788	Jan.	565	335	440	27,252
Feb.	99	48	74	4,314	Feb.	860	335	356	19,908
Mar.	1120	48	480	29,758	Mar.	22400	1690	12727	789,100
Apr.	2250	335	1080	64,784	Apr.	11200	2030	2996	179,760
May	860	565	674	41,800	May	3720	940	2092	129,720
June	3960	635	3137	188,240	June	1210	565	844	50,610
July	7140	3550	5227	327,180	July	1030	500	587	36,404
Aug.	11900	4390	8097	502,020	Aug.	1690	565	925	57,350
Sept.	15400	6900	12262	735,720	Sept.	2400	940	1705	102,300
Oct.	6260	2930	3952	245,040	Oct.	1030	335	594	36,840
Nov.	6050	5000	5619	337,160	Nov.	500	335	404	24,248
Dec.	5960	785	2184	135,440	Dec.	384	99	218	13,522
Total	..	..	..	2,618,244	Total	..	..	..	1,467,014

Appendix 10
Sheet 5

BARWON RIVER AT BREWARRINA

Year 1954					Year 1955				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	180	62	104	6,466	Jan.	2950	870	1218	75,520
Feb.	5530	48	875	489,982	Feb.	3710	650	2150	120,410
Mar.	6260	1300	4568	283,200	Mar.	22700	1500	14146	877,060
Apr.	1020	158	371	22,236	Apr.	18300	1700	6111	366,630
May	158	158	158	9,796	May	1820	1300	1644	101,960
June	158	130	147	8,808	June	3100	1200	2167	130,000
July	3960	158	692	42,892	July	3400	1700	2385	147,860
Aug.	5040	350	1811	112,230	Aug.	3100	2500	2892	179,300
Sept.	650	350	454	27,240	Sept.	4460	3100	3924	235,420
Oct.	3100	220	558	34,640	Oct.	5780	1500	2575	159,780
Nov.	10500	3720	7052	423,140	Nov.	10800	5780	8122	487,290
Dec.	11900	1300	7595	470,880	Dec.	5440	1020	2232	138,400
Total	..	..	..	1,931,510	Total	..	..	..	3,019,630

Year 1956					Year 1957				
Jan.	4690	870	1604	99,440	Jan.	1820	940	1266	78,520
Feb.	22400	4920	12398	719,100	Feb.	1700	800	976	54,700
Mar.	34400	22700	29445	1,825,600	Mar.	1150	660	767	47,540
Apr.	25200	9540	17364	1,041,840	Apr.	1300	520	743	44,600
May	13900	7610	9414	583,680	May	460	400	431	26,720
June	16000	14400	15410	924,600	June	400	220	378	22,700
July	36800	15200	25503	581,200	July	220	220	220	13,640
Aug.	33800	15900	24006	1,488,400	Aug.	590	220	406	25,200
Sept.	15300	5840	9116	546,970	Sept.	823	335	622	37,292
Oct.	6080	4760	5221	323,692	Oct.	439	137	322	19,958
Nov.	6320	3640	5480	328,780	Nov.	137	48	87	5,236
Dec.	3520	1100	1700	105,400	Dec.	48	24	34	2,136
Total	..	..	..	8,568,702	Total	..	..	..	378,242

Year 1958					Year 1959				
Jan.	65	10	22	1,380	Jan.	4180	200	2617	162,250
Feb.	1940	37	1001	56,080	Feb.	6110	3800	4492	251,540
Mar.	2530	635	1200	74,388	Mar.	9260	3460	7740	479,910
Apr.	3220	285	1657	99,456	Apr.	10700	3270	7616	456,940
May	285	168	184	11,402	May	6230	1200	2270	140,760
June	3800	168	923	55,350	June	1200	745	959	57,520
July	3800	439	1114	69,044	July	1200	610	663	41,090
Aug.	439	335	384	23,780	Aug.	3540	1200	2421	150,080
Sept.	2400	335	1270	76,200	Sept.	1890	610	1273	76,370
Oct.	4110	1940	3026	187,640	Oct.	895	550	631	39,150
Nov.	4110	710	2221	133,260	Nov.	2440	610	1107	66,390
Dec.	710	200	364	22,556	Dec.	3470	1050	2135	132,390
Total	..	..	..	810,536	Total	..	..	..	2,054,390

Year 1960					Year 1961				
Jan.	4880	2330	3725	230,960	Jan.	2700	250	880	54,540
Feb.	1890	490	758	43,980	Feb.	220	85	130	7,262
Mar.	610	490	515	31,940	Mar.	450	70	173	10,740
Apr.	490	260	381	22,840	Apr.	300	145	235	14,080
May	225	159	162	10,052	May	170	120	133	8,242
June	300	159	271	16,266	June	170	120	145	8,704
July	895	300	361	22,410	July	195	120	144	8,928
Aug.	3920	1120	2435	150,960	Aug.	785	145	232	14,410
Sept.	2960	895	1638	98,280	Sept.	1560	823	1316	78,982
Oct.	1680	970	1323	82,032	Oct.	710	285	450	27,928
Nov.	960	465	576	34,530	Nov.	240	85	110	6,612
Dec.	1860	480	955	59,180	Dec.	4690	93	3082	191,086
Total	..	..	..	803,430	Total	..	..	..	431,514

BARWON RIVER AT BREWARRINA

Year 1962					Year 1963				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	7000	3130	4161	257,980	Jan.	4800	760	1985	123,100
Feb.	13000	4160	9635	539,530	Feb.	5440	830	2107	118,000
Mar.	6700	2320	4461	276,590	Mar.	900	370	597	37,040
Apr.	9650	3450	6816	408,980	Apr.	6070	620	3901	234,060
May	4400	740	1932	119,800	May	4170	620	1906	118,180
June	740	740	740	44,400	June	6540	4250	5580	334,800
July	1480	490	687	42,600	July	7010	2800	4210	261,060
Aug.	2240	1300	1632	101,200	Aug.	3570	2340	2901	179,900
Sept.	3770	1220	2642	158,520	Sept.	5740	2140	3710	222,620
Oct.	1570	1060	1238	76,756	Oct.	3450	2140	3750	160,820
Nov.	2240	1060	1770	106,200	Nov.	2140	1060	1590	95,420
Dec.	1570	1060	1435	88,950	Dec.	3770	1060	2193	136,000
Total	..	..	..	2,221,506	Total	..	..	..	2,021,000

Year 1964					Year 1965				
Jan.	4980	1220	3252	195,100	Jan.	550	150	299	18,590
Feb.	7020	1060	3553	206,060	Feb.	270	150	171	9,580
Mar.	1840	980	1104	68,460	Mar.	150	25	70	4,310
Apr.	2140	490	1041	62,460	Apr.	125	19	56	3,330
May	2560	620	1618	100,260	May	40	19	32	2,010
June	1750	690	957	47,430	June	32	14	26	1,550
July	4600	1480	2908	180,320	July	29	7	12	736
Aug.	5830	2560	4034	250,100	Aug.	18	10	16	1,000
Sept.	2560	1570	2307	138,400	Sept.	86	10	64	3,830
Oct.	6240	1570	3678	228,020	Oct.	185	23	58	3,590
Nov.	6350	2560	3838	230,260	Nov.	145	27	85	5,130
Dec.	2440	620	1449	89,820	Dec.	3450	16	788	48,860
Total	..	..	..	1,796,690	Total	..	..	..	102,516

Year 1966					Year 1967				
Jan.	7050	213	2620	162,400	Jan.	300	98	183	11,370
Feb.	213	0	55	3,100	Feb.	254	12	102	5,720
Mar.	293	22	102	6,310	Mar.	2440	12	1088	67,460
Apr.	27	16	19	1,160	Apr.	1700	214	843	50,580
May	43	16	24	1,480	May	214	120	150	9,330
June	15	0	8	462	June	177	120	153	9,150
July	43	12	22	1,400	July	2660	147	1569	97,300
Aug.	27	0	14	846	Aug.	840	335	508	31,490
Sept.	3130	27	2047	122,800	Sept.	380	95	227	13,620
Oct.	1750	520	1039	64,460	Oct.	95	0	36	2,220
Nov.	3130	840	2154	129,300	Nov.	2030	0	672	40,300
Dec.	4100	300	1921	119,100	Dec.	118	0	33	2,040
Total	..	..	..	612,818	Total	..	..	..	340,580

Year 1968					Year 1969				
Jan.	8900	0	2972	184,258	Jan.	No Records			26,900*
Feb.	8400	550	1969	114,200	Feb.	1540	200	785	44,000
Mar.	1320	610	1005	62,340	Mar.	550	14	156	9,650
Apr.	800	380	499	29,960	Apr.	450	130	208	12,500
May	No Records			66,500*	May	990	200	320	19,800
June	No Records			25,800*	June	990	200	619	37,200
July	No Records			9,000*	July	880	450	590	36,600
Aug.	No Records			124,000*	Aug.	1860	550	1116	69,200
Sept.	No Records			202,000*	Sept.	2700	450	1241	74,400
Oct.	No Records			40,600*	Oct.	4110	770	1887	117,000
Nov.	No Records			6,000*	Nov.	6000	3610	4214	252,800
Dec.	No Records			2,400*	Dec.	8080	770	4871	302,000
Total	..	..	..	867,058*	Total	..	..	..	1,002,050*

* Estimated.

BARWON RIVER AT BREWARRINA

Year 1970

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	2030	550	1140	70,700
Feb.	1230	450	854	47,800
Mar.	660	270	420	26,000
Apr.	550	130	235	14,100
May	550	200	297	18,400
June	270	130	249	14,900
July	130	19	45	2,840
Aug.	19	14	16	968
Sept.	195	14	56	3,340
Oct.	5300	65	3484	216,000
Nov.	3180	1260	2005	120,300
Dec.	4450	990	2387	147,990
Total	..	..	..	683,338

Year 1971

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	9400	4600	7535	467,000
Feb.	46600	6750	19130	1,071,200
Mar.	46600	9830	27794	1,723,000
Apr.	8580	110	2293	138,000
May	1100	760	836	51,900
June	760	550	676	40,600
July	1410	450	574	35,600
Aug.	5370	1490	2968	184,000
Sept.	5370	4000	4673	280,000
Oct.	4200	1410	3154	196,000
Nov.	1360	265	647	38,800
Dec.	450	195	240	14,900
Total	..	..	..	4,241,000

Year 1972

Jan.	1740	350	862	53,500
Feb.	2800	1200	1879	109,000
Mar.	1200	265	584	37,400
Apr.	265	125	186	11,100
May	450	195	250	15,500
June	195	125	137	8,200
July	125	125	125	7,750
Aug.	125	125	125	7,750
Sept.	550	125	330	19,800
Oct.	265	45	95	5,890
Nov.	4610	195	2182	131,000
Dec.	5550	1200	3569	221,000
Total	..	..	..	627,890

Appendix 11
Sheet 1

BOKHARA RIVER AT BOKHARA

LOCATION:	Latitude 29°33' Longitude 147°00'
PERIOD OF ESTABLISHMENT:	September, 1944 to date
COMPLETE YEARS OF COMPUTED RECORDS:	27
ZERO OF GAUGE:	R.L. 91.33 Assumed Datum
CATCHMENT AREA:	33,800 square miles
CONTROL:	Gravel. Subject to Alteration
EQUIPMENT:	Staff Gauge, range 0 to 15 feet
CURRENT METER OBSERVATIONS:	(a) Number Obtained : 70
	(b) Maximum Observation in Cusecs : 857
	(c) Minimum Observation in Cusecs : 0
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	3,980 cusecs
MEAN DAILY DISCHARGE FOR 27 YEARS:	82 cusecs
MEAN ANNUAL DISCHARGE FOR 27 YEARS:	59,600 acre feet
REMARKS:	

Appendix 11
Sheet 2

BOKHARA RIVER AT BOKHARA

Year 1945					Year 1946				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	0	0	0	0	Jan.	0	0	0	0
Feb.	0	0	0	0	Feb.	240	0	87	4,884
Mar.	30	0	1	80	Mar.	262	0	48	2,976
Apr.	36	0	12	706	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	96	0	33	2,028	July	0	0	0	0
Aug.	13	0	2	150	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	2,964	Total	..	..	..	7,860

Year 1947					Year 1948				
Jan.	0	0	0	0	Jan.	348	87	255	15,818
Feb.	277	0	74	4,182	Feb.	87	0	24	1,420
Mar.	614	300	411	25,512	Mar.	0	0	0	0
Apr.	660	87	281	16,886	Apr.	0	0	0	0
May	233	42	83	5,140	May	0	0	0	0
June	63	0	29	1,742	June	0	0	0	0
July	0	0	0	0	July	111	0	28	1,720
Aug.	0	0	0	0	Aug.	17	0	2	134
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	128	0	18	1,092	Dec.	0	0	0	0
Total	..	..	..	54,554	Total	..	..	..	19,092

Year 1949					Year 1950				
Jan.	0	0	0	0	Jan.	226	0	71	4,398
Feb.	0	0	0	0	Feb.	189	4	34	1,894
Mar.	139	0	42	2,624	Mar.	408	13	187	11,570
Apr.	96	2	36	2,154	Apr.	873	402	530	31,798
May	87	15	42	2,628	May	430	4	169	10,566
June	27	0	7	398	June	42	4	19	1,148
July	0	0	0	0	July	505	7	145	9,044
Aug.	0	0	0	0	Aug.	1860	525	1067	66,148
Sept.	0	0	0	0	Sept.	1790	11	905	54,316
Oct.	0	0	0	0	Oct.	312	4	105	6,504
Nov.	288	0	136	8,180	Nov.	370	192	315	18,880
Dec.	73	0	8	474	Dec.	402	172	281	17,404
Total	..	..	..	16,458	Total	..	..	..	233,670

Year 1951					Year 1952				
Jan.	592	4	229	14,228	Jan.	0	0	0	0
Feb.	96	1	18	992	Feb.	0	0	0	0
Mar.	244	42	150	9,304	Mar.	0	0	0	0
Apr.	87	20	38	2,284	Apr.	0	0	0	0
May	114	1	59	3,668	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	30	0	10	590	July	42	0	12	762
Aug.	0	0	0	0	Aug	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	79	0	15	874
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	31,066	Total	..	..	..	1,636

Appendix 11
Sheet 3

BOKHARA RIVER AT BOKHARA

Year 1953

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	0	0	0	0
Feb.	75	0	14	810
Mar.	380	79	187	11,594
Apr.	393	181	290	17,386
May	168	2	69	4,268
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	34,058

Year 1954

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	0	0	0	0
Feb.	212	0	103	5,748
Mar.	1180	233	525	32,566
Apr.	1120	0	258	15,476
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	1230	17	584	36,212
Sept.	777	0	325	19,506
Oct.	0	0	0	0
Nov.	526	0	258	15,498
Dec.	672	0	229	14,194
Total	..	..	..	139,200

Year 1955

Jan.	0	0	0	0
Feb.	63	0	10	568
Mar.	277	42	161	9,952
Apr.	158	30	103	6,176
May	111	11	55	3,438
June	375	56	179	10,752
July	710	71	421	26,076
Aug.	63	0	17	1,030
Sept.	0	0	0	0
Oct.	698	0	155	9,634
Nov.	736	98	368	22,060
Dec.	87	0	7	444
Total	..	..	..	90,130

Year 1956

Jan.	0	0	0	0
Feb.	456	87	260	14,546
Mar.	3980	500	2766	171,502
Apr.	3180	1203	1954	117,224
May	1720	402	997	61,792
June	1080	332	742	44,548
July	1540	340	725	44,968
Aug.	1710	440	959	59,486
Sept.	420	4	187	11,222
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	525,288

Year 1957

Jan.	254	0	92	5,700
Feb.	219	33	101	5,660
Mar.	25	0	1.3	92
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	11,452

Year 1958

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	308	0	107	6,658
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	6,658

Year 1959

Jan.	104	0	17	1,062
Feb.	219	71	128	7,150
Mar.	1080	116	386	23,908
Apr.	2260	960	1628	97,670
May	762	0	92	5,734
June	5	0	0.6	34
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	165	0	41	2,544
Total	..	..	..	138,102

Year 1960

Jan.	33	0	7	436
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	436

Appendix 11
Sheet 4

BOKHARA RIVER AT BOKHARA

Year 1961					Year 1962				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	0	0	0	0	Jan.	473	80	284	17,646
Feb.	0	0	0	0	Feb.	657	200	523	29,282
Mar.	133	0	35	2,200	Mar.	344	3	165	10,208
Apr.	42	0	3	178	Apr.	502	3	260	15,618
May	0	0	0	0	May	170	0	47	2,934
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	116	0	31	1,928	Dec.	0	0	0	0
Total	..	..	..	4,306	Total	..	..	..	75,688

Year 1963					Year 1964				
Jan.	0	0	0	0	Jan.	624	0	314	19,446
Feb.	No Records				Feb.	353	0	24	1,380
Mar.	0	0	0	0	Mar.	0	0	0	0
Apr.	528	0	229	13,738	Apr.	105	0	11	674
May	9530	0	307	19,064	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	..	Total	..	..	..	21,500

Year 1965					Year 1966				
Jan.	0	0	0	0	Jan.	283	0	150	9,314
Feb.	0	0	0	0	Feb.	0	0	0	0
Mar.	0	0	0	0	Mar.	0	0	0	0
Apr.	0	0	0	0	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	0	Total	..	..	..	9,314

Year 1967					Year 1968				
Jan.	0	0	0	0	Jan.	0	0	0	0
Feb.	0	0	0	0	Feb.	149	0	50	2,920
Mar.	202	0	36	2,238	Mar.	3	0	0.1	6
Apr.	0	0	0	0	Apr.	0	0	0	0
May	0	0	0	0	May	80	0	18	1,090
June	0	0	0	0	June	0	0	0	0
July	175	0	50	3,076	July	0	0	0	0
Aug.	85	0	11	696	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	6,010	Total	..	..	..	4,016

BOKHARA RIVER AT BOKHARA

Year 1969					Year 1970				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	0	0	0	0	Jan.	38	0	5	306
Feb.	0	0	0	0	Feb.	36	0	4	238
Mar.	0	0	0	0	Mar.	14	0	2	94
Apr.	0	0	0	0	Apr.	31	0	4	268
May	0	0	0	0	May	7	0	1	60
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	240	0	25	1,470
Oct.	92	0	8	498	Oct.	36	0	5	312
Nov.	104	.7	36	2,170	Nov.	0	0	0	0
Dec.	158	0	45	2,780	Dec.	0	0	0	0
Total	..	..	..	5,448	Total	..	..	..	2,748

Year 1971					Year 1972				
Jan.	930	76	477	29,600	Jan.	537	0	135	8,350
Feb.	920	400	581	32,600	Feb.	750	0	253	14,700
Mar.	1,110	608	919	57,000	Mar.	0	0	0	0
Apr.	1,090	0	273	16,400	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	357	0	124	7,660
Total	..	..	..	135,600	Total	..	..	..	30,710

Appendix 12
Sheet 1

CULGOA RIVER AT DOWNSTREAM COLLERINA

LOCATION:	Latitude 29°46' Longitude 146°31'
PERIOD OF ESTABLISHMENT:	September, 1944 to date
COMPLETE YEARS OF COMPUTED RECORDS:	27
ZERO OF GAUGE:	R.L. 80.73 Assumed Datum -
CATCHMENT AREA:	19,900 square miles - Distributary
CONTROL:	Rock and Timber Weir
EQUIPMENT:	Staff Gauge, range 0 to 30 feet
CURRENT METER OBSERVATIONS:	(a) Number Obtained : 114
	(b) Maximum Observation in Cusecs : 3,860
	(c) Minimum Observation in Cusecs : 0
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	4,950 cusecs (July, 1956)
MEAN DAILY DISCHARGE FOR 27 YEARS:	518 cusecs
MEAN ANNUAL DISCHARGE FOR 27 YEARS:	378,000 acre feet
REMARKS:	No records February, 1956 to June, 1956.

Appendix 12
Sheet 2

CULGOA RIVER AT DOWNSTREAM COLLERINA

Year 1944					Year 1945				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	No Records				Jan.	0	0	0	0
Feb.	No Records				Feb.	0	0	0	0
Mar.	No Records				Mar.	1650	0	722	44,778
Apr.	No Records				Apr.	313	22	109	6,556
May	No Records				May	66	9	26	1,622
June	No Records				June	185	0	43	2,560
July	No Records				July	1580	162	725	44,950
Aug.	No Records				Aug.	463	102	176	17,076
Sept.	No Records				Sept.	102	22	55	3,286
Oct.	123	22	51	3,154	Oct.	90	9	38	2,358
Nov.	23	0	7	444	Nov.	9	0	0.7	42
Dec.	0	0	0	0	Dec.	536	0	100	6,112
Total	..	..	..	..	Total	..	..	..	129,340

Year 1946					Year 1947				
Jan.	463	22	91	5,636	Jan.	738	0	156	9,702
Feb.	2140	711	1649	92,330	Feb.	3220	10	1482	82,996
Mar.	1670	58	281	17,424	Mar.	3100	2690	2844	176,326
Apr.	396	16	128	7,680	Apr.	2880	1370	1919	115,116
May	194	10	90	5,552	May	2410	166	582	36,104
June	10	0	3	156	June	160	34	79	4,752
July	0	0	0	0	July	34	16	34	2,100
Aug.	0	0	0	0	Aug.	24	6	13	790
Sept.	58	0	6	332	Sept.	24	3	8	492
Oct.	6	0	0.4	24	Oct.	34	3	19	1,150
Nov.	0	0	0	0	Nov.	16	0	6	338
Dec.	0	0	0	0	Dec.	2010	0	705	43,714
Total	..	..	..	129,134	Total	..	..	..	473,580

Year 1948					Year 1949				
Jan.	2520	1175	2294	142,244	Jan.	218	0	8	484
Feb.	902	34	219	12,726	Feb.	1300	58	292	16,358
Mar.	1300	82	299	18,520	Mar.	2120	324	1359	84,282
Apr.	124	0	36	2,176	Apr.	1680	306	920	55,204
May	178	3	64	3,976	May	274	24	125	7,756
June	1100	114	342	20,496	June	114	6	40	2,426
July	2030	124	979	60,672	July	6	3	4	240
Aug.	351	114	234	14,490	Aug.	16	3	8	468
Sept.	104	24	50	2,996	Sept.	10	3	5	272
Oct.	260	6	88	5,442	Oct.	1400	0	143	8,882
Nov.	6	0	1	72	Nov.	2300	725	1950	116,994
Dec.	0	0	0	0	Dec.	610	172	336	20,860
Total	..	..	..	283,810	Total	..	..	..	314,226

Year 1950					Year 1951				
Jan.	685	70	235	14,540	Jan.	2710	282	1348	83,568
Feb.	845	24	270	15,118	Feb.	2030	274	927	51,936
Mar.	2970	1000	2077	128,800	Mar.	2320	324	1298	80,468
Apr.	3480	2670	3059	183,512	Apr.	1600	218	737	44,206
May	2670	212	1491	92,468	May	206	104	133	8,224
June	360	172	235	14,100	June	114	58	84	5,064
July	2880	260	1663	103,100	July	140	58	104	6,450
Aug.	3860	2900	3451	213,956	Aug.	94	34	57	3,548
Sept.	3590	778	2740	164,380	Sept.	24	10	15	924
Oct.	2500	465	1327	82,284	Oct.	10	3	6	358
Nov.	2770	2410	2607	156,402	Nov.	0	0	0	0
Dec.	2710	2410	2590	160,576	Dec.	0	0	0	0
Total	..	..	..	1,329,236	Total	..	..	..	284,746

Appendix 12
Sheet 3

CULGOA RIVER AT DOWNSTREAM COLLERINA

Year 1952

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	70	0	5	306
Apr.	1160	0	450	27,020
May	547	16	98	6,114
June	1030	58	411	24,672
July	1400	196	622	38,550
Aug.	190	82	111	6,852
Sept.	82	24	52	3,132
Oct.	1540	6	406	25,146
Nov.	1630	266	1002	60,098
Dec.	560	16	136	8,402
Total	..	..	..	200,292

Year 1953

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	16	0	5	298
Feb.	10	0	1	54
Mar.	2370	10	1793	111,174
Apr.	1650	104	416	24,976
May	585	58	226	13,986
June	46	3	7	452
July	3	0	2	96
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	16	0	9	126
Dec.	16	0	5	328
Total	..	..	..	151,490

Year 1954

Month	Max.	Min.	Mean	Acre Feet
Jan.	16	0	2	128
Feb.	2630	190	1970	110,346
Mar.	4260	2390	2914	180,672
Apr.	4000	110	1137	62,218
May	104	53	65	4,018
June	53	28	39	2,338
July	1770	24	395	24,488
Aug.	4780	1870	3578	221,858
Sept.	3510	284	2502	150,094
Oct.	1280	136	285	17,658
Nov.	3300	1550	2579	154,720
Dec.	3510	206	1866	115,686
Total	..	..	..	1,044,224

Year 1955

Month	Max.	Min.	Mean	Acre Feet
Jan.	195	74	125	7,724
Feb.	1900	86	821	45,966
Mar.	2750	545	2307	143,006
Apr.	2570	284	1214	72,856
May	2480	720	1626	100,838
June	3020	765	2090	125,376
July	3840	450	2207	136,806
Aug.	1010	258	410	25,426
Sept.	258	74	138	8,300
Oct.	3190	48	788	48,832
Nov.	2370	93	443	26,578
Dec.	90	13	49	3,028
Total	..	..	..	744,736

Year 1956

Month	Max.	Min.	Mean	Acre Feet
Jan.	430	10	268	16,626
Feb.	No Records			
Mar.	No Records			
Apr.	No Records			
May	No Records			
June	No Records			
July	4950	3650	4266	264,504
Aug.	4840	1790	3766	233,502
Sept.	1750	357	837	50,248
Oct.	349	180	264	16,340
Nov.	195	115	138	8,266
Dec.	146	68	103	6,382
Total	..	..	..	

Year 1957

Month	Max.	Min.	Mean	Acre Feet
Jan.	2660	68	1494	92,614
Feb.	2690	374	1015	56,846
Mar.	323	44	118	7,336
Apr.	53	35	43	2,622
May	44	21	35	2,170
June	21	10	15	894
July	35	15	25	1,522
Aug.	35	28	29	1,806
Sept.	28	3	13	762
Oct.	10	0	1.2	76
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	166,648

Year 1958

Month	Max.	Min.	Mean	Acre Feet
Jan.	0	0	0	0
Feb.	180	0	25	1,380
Mar.	1300	2	173	10,720
Apr.	1340	74	399	23,964
May	68	6.5	28	1,746
June	1660	5	336	20,130
July	2540	174	1310	81,244
Aug.	155	61	92	5,694
Sept.	141	21	73	4,392
Oct.	Estimated		10	600
Nov.	3	0	0.4	22
Dec.	0	0	0	0
Total	..	..	..	149,892

Year 1959

Month	Max.	Min.	Mean	Acre Feet
Jan.	2320	0	1175	72,874
Feb.	2450	960	1811	101,434
Mar.	4200	2200	2990	185,410
Apr.	4580	2120	3931	235,836
May	1920	110	424	26,312
June	146	68	86	5,180
July	68	35	49	3,068
Aug.	35	21	33	2,072
Sept.	35	3	25	1,501
Oct.	2.5	0	1.2	73
Nov.	1200	0	354	21,260
Dec.	2370	570	1502	93,142
Total	..	..	..	748,162

Appendix 12
Sheet 4

CULGOA RIVER AT DOWNSTREAM COLLERINA

Year 1960

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	1770	249	963	59,728
Feb.	228	6.5	86	4,998
Mar.	206	5	108	6,717
Apr.	195	21	87	5,192
May	15	1.5	7.1	442
June	4	0	0.7	45
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	28	0	2.3	144
Total	..	..	..	77,266

Year 1961

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	695	0	78	4,816
Feb.	0.3	0	0	1
Mar.	2420	0	1498	92,886
Apr.	952	115	408	24,484
May	212	6.5	49	3,056
June	15	5	6.7	402
July	4	0	0.7	43
Aug.	190	0	33	2,050
Sept.	153	13	81	4,874
Oct.	1540	0.1	273	16,942
Nov.	1010	44	190	11,408
Dec.	2370	35	1595	97,620
Total	..	..	..	258,582

Year 1962

Jan.	3260	2400	2807	174,050
Feb.	3490	905	3104	173,810
Mar.	2810	205	1456	90,280
Apr.	3520	1110	2685	161,070
May	2470	161	1028	63,750
June	150	53	99	5,950
July	53	28	43	2,650
Aug.	249	28	103	6,400
Sept.	74	6.5	41	2,470
Oct.	61	2.5	17	1,040
Nov.	15	0	4	232
Dec.	155	0	9	546
Total	..	..	..	682,248

Year 1963

Jan.	2570	270	966	59,920
Feb.	3050	131	1841	103,100
Mar.	810	1.3	127	7,870
Apr.	3470	391	2691	161,450
May	3880	237	1811	112,280
June	1220	261	589	35,320
July	261	64	141	8,750
Aug.	65	18	40	2,500
Sept.	65	8	30	1,790
Oct.	71	1	14	869
Nov.	23	0.3	4.5	280
Dec.	1360	0	388	24,030
Total	..	..	..	518,159

Year 1964

Jan.	4320	440	2195	136,120
Feb.	815	10	137	7,940
Mar.	1550	28	283	17,560
Apr.	2060	74	886	53,190
May	1460	44	448	27,750
June	470	126	259	15,560
July	330	115	182	11,300
Aug.	383	61	169	10,500
Sept.	53	15	30	1,810
Oct.	1090	10	456	28,300
Nov.	450	35	229	13,750
Dec.	35	0.1	8	504
Total	..	..	..	324,284

Year 1965

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	1750	0	473	29,300
Sept.	150	15	67	4,000
Oct.	206	28	85	5,250
Nov.	25	0	3.5	208
Dec.	1950	0	537	33,280
Total	..	..	..	72,038

Year 1966

Jan.	2740	98	1747	108,290
Feb.	1360	10	289	16,200
Mar.	930	15	167	10,380
Apr.	374	2.5	113	6,810
May	74	1	18	1,090
June	5	0	0.8	52
July	53	0.6	13	836
Aug.	155	0.1	13	802
Sept.	1140	99	457	27,400
Oct.	94	6.5	46	2,880
Nov.	44	0	8.3	497
Dec.	0	0	0	0
Total	..	..	..	175,237

Year 1967

Jan.	11	0	2.4	150
Feb.	455	4	129	7,230
Mar.	1510	16	584	36,240
Apr.	990	125	451	27,090
May	119	33	65	4,030
June	40	7	18	1,080
July	2360	16	1470	91,130
Aug.	1130	172	316	19,570
Sept.	328	46	156	9,340
Oct.	46	0	11	687
Nov.	0	0	0	0
Dec.	52	0	18	1,110
Total	..	..	..	197,657

Appendix 12
Sheet 5

CULGOA RIVER AT DOWNSTREAM COLLERINA

Year 1968

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	1550	1	578	35,860
Feb.	1960	457	1349	78,250
Mar.	392	63	142	8,820
Apr.	287	20	92	5,540
May	1130	15	512	31,740
June	223	9	48	2,900
July	9	2	5	299
Aug.	234	0.6	68	4,190
Sept.	643	42	238	14,310
Oct.	75	1	29	1,830
Nov.	1.4	0	0.2	14
Dec.	0	0	0	0
Total	..	..	..	183,753

Year 1969

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0	0	0	0
Feb.	226	0	59	3,278
Mar.	2560	0	878	54,410
Apr.	2120	27	250	15,012
May	27	2	7	404
June	1620	1	427	25,638
July	136	13	50	3,094
Aug.	22	1	7	453
Sept.	1	0	0.1	8
Oct.	1250	0	162	10,020
Nov.	2000	212	1082	64,900
Dec.	2220	90	832	51,600
Total	..	..	..	228,817

Year 1970

Jan.	915	77	373	23,100
Feb.	1820	166	878	49,200
Mar.	1100	67	340	21,000
Apr.	160	22	65	3,880
May	17	0	5	330
June	1	0	0	4
July	0	0	0	0
Aug.	0	0	0	0
Sept.	550	0	76	4,590
Oct.	275	6	77	4,740
Nov.	5	0	1	64
Dec.	2280	0	673	41,800
Total	..	..	..	148,708

Year 1971

Jan.	4180	2390	3518	218,100
Feb.	4180	3850	3966	222,100
Mar.	4850	3960	4463	276,700
Apr.	4350	181	1546	92,700
May	185	80	148	9,150
June	120	35	67	4,000
July	94	22	33	2,040
Aug.	123	22	45	2,790
Sept.	596	22	109	6,550
Oct.	765	18	186	11,500
Nov.	142	0	46	2,770
Dec.	0	0	0	0
Total	..	..	..	848,400

Year 1972

Jan.	2800	0	1505	93,300
Feb.	3360	157	1828	106,000
Mar.	1530	107	539	33,400
Apr.	98	12	46	2,730
May	107	3	56	3,490
June	70	3	17	1,010
July	0.7	0	0.1	4
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	16	0	0.5	33
Nov.	1650	0	442	26,500
Dec.	2340	164	1314	81,400
Total	..	..	..	347,867

DARLING RIVER AT BOURKE

LOCATION:	Latitude 30°05' Longitude 145°57'
PERIOD OF ESTABLISHMENT:	November 1890 to date (See Remarks)
COMPLETE YEARS OF COMPUTED RECORDS:	29
ZERO OF GAUGE:	R.L. 319.62 Water Conservation Datum
CATCHMENT AREA:	149,000 square miles
CONTROL:	Concrete Weir
EQUIPMENT:	Automatic Recorder (Float Type) Staff Gauge, range 10 to 50 feet
CURRENT METER OBSERVATIONS:	(a) Number Obtained : 357 (b) Maximum Observation in Cusecs : 90,100 (c) Minimum Observation in Cusecs : 0
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	**144,000 cusecs (August, 1950)**
MEAN DAILY DISCHARGE FOR 29 YEARS:	4,299 cusecs
MEAN ANNUAL DISCHARGE FOR 29 YEARS:	3,138,000 acre feet
REMARKS:	Bourke Town gauge was established in November, 1890. Bourke Weir gauge was established in November, 1943 and records obtained are from that date.

DARLING RIVER AT BOURKE

Year 1944					Year 1945				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	3060	0	611	37,910	Jan.	0	0	0	0
Feb.	2860	400	3477	201,660	Feb.	245	0	21	1,190
Mar.	3730	245	1854	114,930	Mar.	5200	115	2960	183,530
Apr.	205	145	156	9,360	Apr.	3460	115	728	43,680
May	115	40	80	4,980	May	750	90	279	17,280
June	245	0	106	6,360	June	1780	205	663	39,780
July	145	145	145	8,990	July	7700	2660	4780	206,400
Aug.	515	145	381	23,670	Aug.	5050	3460	4358	270,220
Sept.	4190	245	2452	147,110	Sept.	4400	3060	3832	229,940
Oct.	1120	145	436	27,180	Oct.	2990	750	1398	86,720
Nov.	145	0	77	4,630	Nov.	665	65	243	14,560
Dec.	0	0	0	0	Dec.	340	20	113	6,978
Total	..	..	..	586,780	Total	..	..	..	1,100,278

Year 1946					Year 1947				
Jan.	410	150	278	17,264*	Jan.	925	65	602	37,340
Feb.	4400	205	3680	206,120	Feb.	10100	40	3168	177,394
Mar.	3600	175	1032	64,040	Mar.	12700	10400	11471	711,220
Apr.	1120	115	378	22,700	Apr.	10200	2930	4828	289,690
May	665	175	357	22,120	May	6190	1440	2898	179,704
June	145	0	61	3,770	June	1440	0	185	11,080
July	30	14	22	1,356*	July	1020	205	598	37,060
Aug.	35	14	21	1,318*	Aug.	750	205	289	17,920
Sept.	130	0	49	2,950*	Sept.	3430	245	1308	78,490
Oct.	730	0	316	19,602*	Oct.	3860	290	1949	120,860
Nov.	245	40	145	8,970	Nov.	1630	893	1177	70,638
Dec.	205	20	109	6,750	Dec.	6100	1020	2730	169,270
Total	..	..	..	376,960*	Total	..	..	..	1,900,666

Year 1948					Year 1949				
Jan.	9190	6330	8306	514,960	Jan.	340	65	189	11,710
Feb.	8100	1020	2484	144,098	Feb.	1330	145	798	44,714
Mar.	2860	665	1715	106,326	Mar.	3730	1330	3307	205,030
Apr.	1890	665	1011	60,688	Apr.	3260	835	1817	109,020
May	1230	585	736	45,640	May	750	175	533	33,026
June	7900	665	2916	174,960	June	515	205	278	16,664
July	8950	6480	8455	524,200	July	2230	515	1382	85,700
Aug.	6480	1380	3384	209,806	Aug.	3060	515	1605	99,510
Sept.	3200	205	1806	108,368	Sept.	5150	835	2705	162,300
Oct.	2460	792	1300	80,604	Oct.	8200	4750	6450	399,890
Nov.	750	175	381	22,872	Nov.	13900	7020	11357	681,410
Dec.	515	115	254	15,724	Dec.	10500	3060	5110	316,850
Total	..	..	..	2,008,246	Total	..	..	..	2,165,824

Year 1950					Year 1951				
Jan.	3000	925	1498	92,910	Jan.	47970	3060	17500	1,086,000
Feb.	4700	1230	3110	174,170	Feb.	8050	3060	4687	262,500
Mar.	7450	4500	5985	371,060	Mar.	12300	2860	8459	524,470
Apr.	18300	6600	12998	779,880	Apr.	4190	1600	3145	188,678
May	25900	4190	18359	1,138,260	May	1510	1120	1209	74,984
June	7250	1120	2658	159,504	June	1270	1120	1144	68,624
July	35250	7700	18122	1,124,000	July	4650	1600	3608	223,720
Aug.	144000	34860	85700	5,316,000	Aug.	6560	2400	4957	307,360
Sept.	103500	19900	51200	3,074,000	Sept.	7400	2580	5833	349,974
Oct.	20300	10100	13779	854,324	Oct.	2180	1510	1546	95,840
Nov.	57500	21540	42700	2,560,000	Nov.	1510	565	1277	76,618
Dec.	93000	43500	63200	3,916,000	Dec.	565	565	565	35,030
Total	..	..	..	19,560,108	Total	..	..	..	3,293,798

* Estimated

DARLING RIVER AT BOURKE

Year 1952					Year 1953				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	565	190	408	25,310	Jan.	792	565	654	40,554
Feb.	145	105	122	7,090	Feb.	630	390	486	27,244
Mar.	1120	105	440	27,264	Mar.	30550	390	14100	875,000
Apr.	2180	505	1344	80,620	Apr.	29350	1270	8200	492,300
May	1510	630	880	54,544	May	3730	1270	2213	137,226
June	4950	630	3070	184,220	June	1510	825	1058	63,456
July	9540	3130	6845	424,380	July	825	505	643	39,852
Aug.	15300	5500	9933	615,870	Aug.	1510	630	875	54,262
Sept.	25300	13800	21119	1,267,190	Sept.	1970	1120	1554	93,264
Oct.	16700	2800	6195	384,090	Oct.	1270	445	736	45,604
Nov.	7650	6060	6886	413,160	Nov.	505	390	476	28,588
Dec.	6980	825	3176	196,940	Dec.	390	285	362	22,414
Total	..	..	..	3,680,678	Total	..	..	..	1,919,764

Year 1954					Year 1955				
Jan.	890	145	374	23,188	Jan.	2050	1190	1465	90,850
Feb.	5250	145	2082	116,600	Feb.	5000	1350	2979	166,828
Mar.	9420	5900	8175	506,860	Mar.	39700	1680	19200	1,188,000
Apr.	7150	445	2853	171,192	Apr.	39700	3398	17300	1,036,000
May	445	285	338	20,964	May	3930	2930	3324	206,080
June	335	285	293	17,600	June	4850	2520	3867	232,030
July	2180	285	549	34,046	July	6600	2990	4795	297,310
Aug.	7750	3090	6017	372,676	Aug.	3460	2930	3160	195,930
Sept.	5850	1350	3737	224,220	Sept.	5400	3460	4402	264,128
Oct.	1660	445	633	39,268	Oct.	7450	2180	3262	202,282
Nov.	13900	2280	8227	493,600	Nov.	13600	7950	10471	628,270
Dec.	19200	2180	14179	879,130	Dec.	12200	1430	3889	241,120
Total	..	..	..	2,899,344	Total	..	..	..	4,748,828

Year 1956					Year 1957				
Jan.	3390	1120	1498	92,904	Jan.	3390	1190	2299	142,566
Feb.	29790	4190	11710	679,000	Feb.	3930	1270	2324	130,130
Mar.	114800	33680	81120	5,030,000	Mar.	1270	792	1050	65,078
Apr.	83600	36040	54880	3,923,000	Apr.	1150	695	927	55,644
May	36040	20100	25780	1,599,000	May	695	505	605	37,528
June	32890	22950	30620	1,837,000	June	505	505	505	30,300
July	97820	31350	46670	2,893,000	July	630	505	539	33,430
Aug.	97820	36820	67660	4,195,000	Aug.	698	472	568	35,212
Sept.	36420	10240	21710	1,300,000	Sept.	805	410	574	34,414
Oct.	9830	6520	7206	446,750	Oct.	613	189	364	22,554
Nov.	8550	5000	7020	421,220	Nov.	189	91	133	7,990
Dec.	4600	1510	2196	136,150	Dec.	91	24	49	3,046
Total	..	..	..	22,553,024	Total	..	..	..	597,892

Year 1958					Year 1959				
Jan.	31	6.5	13	788	Jan.	6110	210	2763	171,276
Feb.	1520	6.5	688	38,540	Feb.	7910	5150	6133	343,484
Mar.	2780	699	1008	62,470	Mar.	15200	8200	12790	793,006
Apr.	4420	558	2290	137,160	Apr.	20900	11700	15839	950,352
May	493	231	294	18,218	May	19200	1610	7018	435,124
June	3820	210	682	40,932	June	1610	954	1183	70,970
July	4840	779	2728	169,088	July	1280	719	849	52,650
Aug.	739	379	505	31,334	Aug.	3910	1380	2786	172,734
Sept.	1970	379	1149	68,998	Sept.	2290	739	1389	83,314
Oct.	4200	1890	2625	162,780	Oct.	739	593	655	40,630
Nov.	4500	800	2564	153,858	Nov.	2590	558	1145	68,692
Dec.	779	220	407	25,276	Dec.	4910	2290	3620	224,418
Total	..	..	..	909,442	Total	..	..	..	3,406,650

DARLING RIVER AT BOURKE

Year 1960					Year 1961				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	5840	2680	4599	285,144	Jan.	2590	340	1024	63,478
Feb.	4120	493	1240	71,910	Feb.	301	77	155	8,658
Mar.	627	379	517	32,052	Mar.	2590	68	1373	85,128
Apr.	451	189	328	19,702	Apr.	1990	451	1061	63,674
May	199	155	174	10,798	May	593	102	210	13,008
June	327	199	269	16,174	June	102	102	102	6,120
July	568	231	278	17,238	July	167	85	119	7,370
Aug.	5300	699	2657	164,720	Aug.	436	102	133	8,262
Sept.	4660	1020	2277	136,598	Sept.	1540	464	1128	67,686
Oct.	1640	4000	1350	83,680	Oct.	1260	178	419	25,962
Nov.	1070	407	569	34,142	Nov.	1330	102	358	21,498
Dec.	1610	422	804	49,860	Dec.	8850	102	4354	269,946
Total	..	..	..	922,018	Total	..	..	..	640,790

Year 1962					Year 1963				
Jan.	10200	6470	7804	483,846	Jan.	6830	1050	2827	175,268
Feb.	18800	10600	14820	829,920	Feb.	12200	1330	6065	339,666
Mar.	13700	3650	7485	464,088	Mar.	2670	450	1000	61,980
Apr.	15500	6430	12365	741,910	Apr.	9400	1050	5715	342,902
May	6890	908	3651	226,356	May	9270	1900	4541	281,560
June	954	759	822	49,312	June	8400	4940	7168	430,100
July	779	493	591	36,632	July	9100	3330	5877	364,400
Aug.	2190	863	1733	107,472	Aug.	4100	2720	6941	215,160
Sept.	4410	1610	3014	180,844	Sept.	6600	2640	4426	265,580
Oct.	1660	1050	1362	84,428	Oct.	5470	2400	3301	204,680
Nov.	2240	1050	1801	108,046	Nov.	2300	1140	1632	97,890
Dec.	1890	1090	1475	91,484	Dec.	5030	954	2244	139,124
Total	..	..	..	3,404,338	Total	..	..	..	2,918,310

Year 1964					Year 1965				
Jan.	8800	3140	5709	353,980	Jan.	669	190	352	21,804
Feb.	8380	1240	4973	288,446	Feb.	190	101	135	7,546
Mar.	2000	863	1033	64,040	Mar.	101	29	55	3,394
Apr.	3420	436	1840	110,378	Apr.	115	15	51	3,066
May	2830	379	1786	110,732	May	29	15	22	1,350
June	2000	779	1112	66,706	June	29	15	25	1,516
July	5420	2100	3272	202,890	July	22	7	12	746
Aug.	7390	3140	5557	344,526	Aug.	1380	0	394	24,404
Sept.	3040	2100	2682	160,910	Sept.	190	43	119	7,156
Oct.	7600	2000	4433	274,838	Oct.	145	43	80	4,986
Nov.	7750	2930	5180	310,780	Nov.	101	29	62	3,732
Dec.	2830	779	1691	104,842	Dec.	4680	15	595	36,890
Total	..	..	..	2,393,068	Total	..	..	..	116,590

Year 1966					Year 1967				
Jan.	8780	780	5731	355,400	Jan.	430	99	197	12,250
Feb.	950	38	247	13,860	Feb.	560	26	211	11,820
Mar.	1090	26	309	19,180	Mar.	2670	26	1650	102,200
Apr.	313	0	73	4,380	Apr.	2300	430	1402	84,140
May	157	14	47	2,930	May	400	157	226	14,020
June	11	0	5	288	June	181	116	145	8,700
July	38	0	17	1,060	July	3900	116	2713	168,200
Aug.	83	0	17	1,080	Aug.	3240	555	1189	73,710
Sept.	3850	58	2139	128,300	Sept.	800	136	436	26,160
Oct.	2720	595	1258	78,030	Oct.	136	0	45	2,760
Nov.	2830	595	1791	107,500	Nov.	1220	0	393	23,560
Dec.	4120	439	2230	138,200	Dec.	181	0	47	2,860
Total	..	..	..	850,208	Total	..	..	..	530,380

DARLING RIVER AT BOURKE

Year 1968					Year 1969				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	8540	0	2596	161,000	Jan.	1240	0	143	8,898
Feb.	8940	1310	4351	252,400	Feb.	1520	205	981	54,930
Mar.	1310	285	566	35,116	Mar.	3220	83	1130	70,088
Apr.	495	83	246	14,764	Apr.	1500	370	830	49,816
May	3270	58	1094	67,816	May	1310	313	706	43,766
June	3160	231	861	109,844	June	2830	478	1443	86,600
July	205	83	150	9,338	July	1040	560	721	44,700
Aug.	2740	233	1637	101,510	Aug.	1980	650	1227	76,100
Sept.	5620	1800	3957	237,420	Sept.	2400	686	1127	67,600
Oct.	1500	410	837	51,916	Oct.	6970	780	1527	94,700
Nov.	410	28	151	9,056	Nov.	8620	4180	6963	417,790
Dec.	100	0	32	1,960	Dec.	11000	1195	7897	489,600
Total	..	..	..	1,052,140	Total	..	..	..	1,504,588

Year 1970					Year 1971				
Jan.	2340	605	1448	89,800	Jan.	14200	5900	10800	670,000
Feb.	2420	1080	1665	93,200	Feb.	51700	14200	19172	1,070,000
Mar.	1680	370	575	24,200	Mar.	90100	29400	63632	3,950,000
Apr.	410	196	281	16,900	Apr.	29600	1630	10847	650,000
May	323	116	197	12,200	May	1630	992	1371	85,000
June	125	64	98	5,860	June	992	621	831	49,800
July	80	50	65	3,970	July	893	433	557	34,500
Aug.	61	11	35	2,180	Aug.	5840	1120	2763	171,000
Sept.	780	14	164	9,820	Sept.	6930	3850	5694	342,000
Oct.	7400	504	4240	263,000	Oct.	5080	1720	3912	243,000
Nov.	6750	2060	2844	171,000	Nov.	1630	407	962	59,600
Dec.	5740	1160	2472	153,000	Dec.	407	205	290	18,000
Total	..	..	..	845,130	Total	..	..	..	7,342,900

Year 1972				
Jan.	4170	334	1954	121,000
Feb.	6600	1760	4478	259,700
Mar.	2270	477	1430	88,600
Apr.	477	240	290	17,400
May	948	217	421	26,100
June	387	189	249	14,900
July	218	183	191	11,800
Aug.	191	167	190	11,800
Sept.	545	184	374	22,500
Oct.	386	38	112	6,970
Nov.	6670	74	1959	117,500
Dec.	9210	1460	6098	378,000
Total	..	..	..	1,076,270

WARREGO RIVER AT FORDS BRIDGE BYWASH

LOCATION:	Latitude 29°45' Longitude 145°26'
PERIOD OF ESTABLISHMENT:	November, 1921 to date
COMPLETE YEARS OF COMPUTED RECORDS:	51
ZERO OF GAUGE:	R.L. 43.86 Assumed Datum
CATCHMENT AREA:	23,400 square miles
CONTROL:	Sand and gravel. Subject to alteration
EQUIPMENT:	Automatic Recorder (Float Type) Staff gauge, range 0 to 10 feet
CURRENT METER OBSERVATIONS:	(a) Number Obtained : 80
	(b) Maximum Observation in Cusecs : 690
	(c) Minimum Observation in Cusecs : 0
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	909 cusecs (December, 1933)
MEAN DAILY DISCHARGE FOR 51 YEARS:	60 cusecs
MEAN ANNUAL DISCHARGE FOR 51 YEARS:	44,100 acre feet
REMARKS:	

WARREGO RIVER AT FORDS BRIDGE BYWASH

Year 1922					Year 1923				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	286	0	87	5,400	Jan.	157	0	44	2,750
Feb.	57	0	9	484	Feb.	32	0	5	252
Mar.	0	0	0	0	Mar.	0	0	0	0
Apr.	0	0	0	0	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	138	0	111	6,880
Aug.	0	0	0	0	Aug.	63	0	11	1,690
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	157	0	16	970
Total	..	..	..	5,884	Total	..	..	..	12,542

Year 1924					Year 1925				
Jan.	180	32	93	5,780	Jan.	368	168	255	15,810
Feb.	203	32	91	5,280	Feb.	464	122	293	16,432
Mar.	32	0	3	184	Mar.	98	15	35	2,200
Apr.	0	0	0	0	Apr.	500	0	51	3,050
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	10	0	1	60	Oct.	0	0	0	0
Nov.	244	21	95	5,880	Nov.	0	0	0	0
Dec.	778	405	623	38,640	Dec.	0	0	0	0
Total	..	..	..	55,824	Total	..	..	..	37,492

Year 1926					Year 1927				
Jan.	230	0	132	8,160	Jan.	77	0	17	1,050
Feb.	130	0	52	2,900	Feb.	114	10	53	2,990
Mar.	570	0	85	5,270	Mar.	162	21	69	4,250
Apr.	749	40	377	22,600	Apr.	230	24	123	7,400
May	180	28	111	6,900	May	21	0	5	300
June	138	30	72	4,330	June	0	0	0	0
July	28	0	6	370	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	70	0	13	830	Oct.	0	0	0	0
Nov.	24	0	4	240	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	21	0	3	152
Total	..	..	..	51,600	Total	..	..	..	16,142

Year 1928					Year 1929				
Jan.	707	0	429	26,610	Jan.	0	0	0	0
Feb.	484	91	173	10,700	Feb.	0	0	0	0
Mar.	808	63	350	21,710	Mar.	0	0	0	0
Apr.	464	157	266	15,990	Apr.	0	0	0	0
May	405	147	279	17,290	May	258	0	145	9,000
June	316	106	203	12,180	June	40	0	4	272
July	63	0	4	232	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	104,712	Total	..	..	..	9,272

WARREGO RIVER AT FORDS BRIDGE BYWASH

Year 1930					Year 1931				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	0	0	0	0	Jan.	0	0	0	0
Feb.	778	0	403	22,582	Feb.	0	0	0	0
Mar.	444	28	149	9,236	Mar.	106	0	10	646
Apr.	28	0	3	152	Apr.	840	0	229	13,728
May	0	0	0	0	May	808	63	178	11,038
June	0	0	0	0	June	157	91	118	7,084
July	0	0	0	0	July	91	0	24	1,490
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	258	0	133	7,976	Sept.	0	0	0	0
Oct.	203	0	39	2,396	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	778	0	140	8,686
Total	..	..	..	42,342	Total	..	..	..	42,672

Year 1932					Year 1933				
Jan.	778	230	468	29,036	Jan.	0	0	0	0
Feb.	216	0	40	2,254	Feb.	0	0	0	0
Mar.	0	0	0	0	Mar.	91	0	25	1,590
Apr.	0	0	0	0	Apr.	0	0	0	0
May	32	0	6	362	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	464	12	218	13,562
Sept.	0	0	0	0	Sept.	464	0	166	9,968
Oct.	0	0	0	0	Oct.	505	0	141	8,760
Nov.	0	0	0	0	Nov.	405	63	137	8,228
Dec.	0	0	0	0	Dec.	909	277	571	35,388
Total	..	..	..	31,652	Total	..	..	..	77,496

Year 1934					Year 1935				
Jan.	277	51	151	9,392	Jan.	0	0	0	0
Feb.	45	0	10	578	Feb.	0	0	0	0
Mar.	0	0	0	0	Mar.	0	0	0	0
Apr.	0	0	0	0	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	84	0	14	856	June	0	0	0	0
July	51	0	6	384	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	147	0	45	2,800	Oct.	0	0	0	0
Nov.	258	6	81	4,896	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	18,906	Total	..	..	..	0

Year 1936					Year 1937				
Jan.	667	0	354	21,990	Jan.	No Records			2,700*
Feb.	840	191	561	32,554	Feb.	No Records			4,000*
Mar.	191	28	78	4,926	Mar.	No Records			12,000*
Apr.	694	138	405	24,316	Apr.	No Records			22,000*
May	122	8	31	1,958	May	No Records			1,000*
June	8	0	1	44	June	No Records			400*
July	0	0	0	0	July	No Records			0*
Aug.	0	0	0	0	Aug.	No Records			0*
Sept.	0	0	0	0	Sept.	No Records			0*
Oct.	0	0	0	0	Oct.	No Records			0*
Nov.	0	0	0	0	Nov.	No Records			0*
Dec.	0	0	0	0	Dec.	No Records			0*
Total	..	..	..	85,788	Total	..	..	..	42,100*

* Estimated.

Appendix 14
Sheet 4

WARREGO RIVER AT FORDS BRIDGE BYWASH

Year 1938

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	0	0	0	0
Feb.	368	0	131	7,338
Mar.	368	10	117	7,272
Apr.	10	0	2	128
May	136	0	17	1,060
June	276	16	145	8,706
July	120	0	16	988
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	14	0	0.5	32
Dec.	0	0	0	0
Total	..	..	..	25,524

Year 1939

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	68	0	5	296
Feb.	188	0	36	2,032
Mar.	469	104	233	14,476
Apr.	519	61	296	17,780
May	153	4	56	3,454
June	34	4	18	1,098
July	37	9	23	1,408
Aug.	381	37	175	10,828
Sept.	287	4	56	3,376
Oct.	4	0	0.4	26
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	54,774

Year 1940

Jan.	0	0	0	0
Feb.	207	0	25	1,440
Mar.	226	9	104	6,440
Apr.	145	0	24	1,468
May	4	0	0.2	14
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	9,362

Year 1941

Jan.	706	0	271	16,822
Feb.	706	226	488	27,338
Mar.	245	55	151	9,338
Apr.	444	165	325	19,474
May	394	0	115	7,158
June	31	0	4	212
July	37	0	13	836
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	81,178

Year 1942

Jan.	0	0	0	0
Feb.	40	0	2	146
Mar.	0	0	0	0
Apr.	20	0	1	48
May	96	0	11	652
June	16	0	1	84
July	16	0	1	70
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	136	0	14	832
Dec.	343	0	53	3,290
Total	..	..	..	5,122

Year 1943

Jan.	419	136	247	15,298
Feb.	136	0	19	1,082
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	9	0	0.3	18
Sept.	0	0	0	0
Oct.	10	0	2	116
Nov.	28	0	1	60
Dec.	112	0	16	978
Total	..	..	..	17,552

Year 1944

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	61	0	6	360
Sept.	28	0	5	274
Oct.	16	0	1.5	90
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	724

Year 1945

Jan.	9	0	0.3	18
Feb.	0	0	0	0
Mar.	216	0	59	3,656
Apr.	81	0	13	808
May	40	0	7	410
June	74	0	19	1,122
July	153	7	62	3,864
Aug.	226	0	78	4,850
Sept.	0	0	0	0
Oct.	14	0	1	72
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	14,800

WARREGO RIVER AT FORDS BRIDGE BYWASH

Year 1946

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	22	0	1	76
Feb.	481	0	224	12,528
Mar.	153	18	56	3,460
Apr.	22	0	3	150
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	40	0	3	188
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	16	0	2	98
Total	..	..	..	16,500

Year 1947

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0	0	0	0
Feb.	266	0	88	4,950
Mar.	506	308	427	26,494
Apr.	320	40	153	9,152
May	68	0	17	1,078
June	37	0	15	890
July	12	0	4	244
Aug.	22	0	6	388
Sept.	179	0	54	3,264
Oct.	197	16	70	4,334
Nov.	34	6	16	930
Dec.	171	0	50	3,118
Total	..	..	..	54,842

Year 1948

Jan.	136	31	69	4,306
Feb.	136	6	29	1,706
Mar.	179	9	62	3,872
Apr.	81	0	36	2,180
May	28	0	5	324
June	207	0	66	3,982
July	22	0	7	456
Aug.	0	0	0	0
Sept.	40	0	7	436
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	34	0	3	174
Total	..	..	..	17,436

Year 1949

Jan.	0	0	0	0
Feb.	343	0	92	5,152
Mar.	556	61	345	21,416
Apr.	706	406	564	33,870
May	419	14	113	6,992
June	28	2	12	694
July	0	0	0	0
Aug.	0	0	0	0
Sept.	61	0	10	602
Oct.	74	0	11	696
Nov.	556	104	376	22,578
Dec.	216	10	57	3,594
Total	..	..	..	95,594

Year 1950

Jan.	0	0	0	0
Feb.	431	0	232	13,386
Mar.	469	61	289	17,924
Apr.	675	531	635	38,090
May	706	128	481	29,810
June	235	31	93	5,588
July	331	20	94	5,850
Aug.	769	356	610	37,848
Sept.	581	34	284	17,024
Oct.	394	14	151	9,336
Nov.	531	394	493	29,598
Dec.	569	308	444	27,548
Total	..	..	..	232,002

Year 1951

Jan.	456	34	141	8,746
Feb.	96	20	62	3,498
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	12,244

Year 1952

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	136	0	55	3,294
May	20	0	8	502
June	0	0	0	0
July	31	0	11	704
Aug.	74	0	18	1,120
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	37	0	2	142
Dec.	0	0	0	0
Total	..	..	..	5,762

Year 1953

Jan.	89	0	20	1,236
Feb.	89	0	15	818
Mar.	226	18	103	6,372
Apr.	49	0	11	660
May	74	0	16	994
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	16	0	1	56
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	10,136

WARREGO RIVER AT FORDS BRIDGE BYWASH

Year 1954

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	40	0	4	244
Feb.	381	0	199	11,130
Mar.	531	136	393	24,360
Apr.	120	18	50	3,002
May	18	0	7	428
June	28	0	3	192
July	61	0	13	798
Aug.	61	9	24	1,470
Sept.	81	0	8	474
Oct.	9	0	0.3	18
Nov.	394	0	176	10,910
Dec.	37	0	13	834
Total	..	..	..	53,860

Year 1955

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0	0	0	0
Feb.	297	0	111	6,220
Mar.	469	197	330	20,474
Apr.	494	207	372	22,350
May	506	226	412	25,524
June	563	188	397	23,812
July	469	81	201	12.452
Aug.	153	31	89	5,544
Sept.	28	0	13	806
Oct.	431	0	119	7,378
Nov.	469	8	146	8,786
Dec.	37	0	1	74
Total	..	..	..	133,420

Year 1956

Jan.	81	0	13	806
Feb.	400	0	203	11,774
Mar.	725	419	626	38,832
Apr.	803	644	702	42,124
May	796	569	663	41,094
June	669	419	562	33,712
July	669	325	548	34,002
Aug.	706	235	515	31,924
Sept.	226	40	121	7,238
Oct.	37	9	21	1,292
Nov.	34	0	13	782
Dec.	12	0	4	256
Total	..	..	..	243,836

Year 1957

Jan.	128	0	45	2,762
Feb.	31	1	14	766
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	3,528

Year 1958

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	0

Year 1959

Jan.	70	0	4	232
Feb.	236	76	141	7,872
Mar.	187	96	123	7,642
Apr.	456	110	278	16,654
May	443	14	103	6,384
June	27	6	13	750
July	6	1	5	280
Aug.	4	0	0	8
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	39,822

Year 1960

Jan.	260	0	72	4,556
Feb.	126	3	55	3,188
Mar.	187	0	71	4,400
Apr.	24	0	11	650
May	60	0	16	996
June	82	3	32	1,916
July	42	0	10	646
Aug.	134	0	49	3,080
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	19,432

Year 1961

Jan.	187	0	58	3,622
Feb.	118	0	20	1,120
Mar.	470	0	253	15,680
Apr.	540	21	230	13,798
May	540	34	290	17,966
June	30	0	13	758
July	3	0	1	64
Aug.	1	0	0	6
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	53,014

WARREGO RIVER AT FORDS BRIDGE BYWASH

Year 1962					Year 1963				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	260	0	113	7,024	Jan.	403	38	215	13,310
Feb.	526	216	334	18,688	Feb.	600	187	423	23,700
Mar.	403	65	170	10,510	Mar.	540	10	169	10,450
Apr.	449	46	168	10,092	Apr.	720	272	489	29,310
May	46	4	24	1,516	May	735	115	372	23,050
June	21	0	9	528	June	236	59	130	7,820
July	8	0	2	112	July	64	17	40	2,460
Aug.	3	0	1	50	Aug.	17	13	14	884
Sept.	1	0	0	2	Sept.	11	0	2	100
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	96	0	8	516	Dec.	350	0	135	8,340
Total	..	..	..	49,038	Total	..	..	..	119,424

Year 1964					Year 1965				
Jan.	498	64	188	11,630	Jan.	2	0	0	6
Feb.	498	16	118	6,850	Feb.	0	0	0	0
Mar.	14	0	1.5	94	Mar.	0	0	0	0
Apr.	298	0	66	3,950	Apr.	0	0	0	0
May	298	3	55	3,390	May	0	0	0	0
June	2	0	1	56	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	103	0	27	1,690	Oct.	0	0	0	0
Nov.	55	0	14	848	Nov.	0	0	0	0
Dec.	151	0	55	3,400	Dec.	0	0	0	0
Total	..	..	..	31,908	Total	..	..	..	6

Year 1966					Year 1967				
Jan.	210	0	86	5,356	Jan.	0	0	0	0
Feb.	324	178	246	13,780	Feb.	0	0	0	0
Mar.	311	6	100	6,178	Mar.	510	0	256	15,890
Apr.	6	0	0.5	32	Apr.	495	4	123	7,361
May	0	0	0	0	May	2	0	0.2	13
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	37	0	13	781
Aug.	38	0	1.4	87	Aug.	2	0	0.2	10
Sept.	167	31	85	5,086	Sept.	0	0	0	0
Oct.	46	1	18	1,098	Oct.	0	0	0	0
Nov.	28	0	10	603	Nov.	0	0	0	0
Dec.	3	0	0.3	19	Dec.	0	0	0	0
Total	..	..	..	32,239	Total	..	..	..	24,055

Year 1968					Year 1969				
Jan.	256	0	94	5,840	Jan.	0	0	0	0
Feb.	256	3	113	6,563	Feb.	0	0	0	0
Mar.	205	3	90	5,556	Mar.	158	0	39	2,424
Apr.	120	0	44	2,642	Apr.	195	52	131	7,900
May	555	7	219	13,576	May	52	0	13	800
June	570	52	296	17,760	June	0	0	0	0
July	48	0	20	1,257	July	0	0	0	0
Aug.	135	0	3.4	209	Aug.	0	0	0	0
Sept.	6	0	1.3	78	Sept.	0	0	0	0
Oct.	8.5	0	1.1	66	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	53,547	Total	..	..	..	11,124

WARREGO RIVER AT FORDS BRIDGE BYWASH

Year 1970

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	120	0	36	2,200
Feb.	205	13	67	3,760
Mar.	167	19	77	4,750
Apr.	245	28	114	6,850
May	38	2	24	1,480
June	1	0	0	5
July	0	0	0	0
Aug.	0	0	0	0
Sept.	185	3	14	870
Oct.	158	3	76	4,720
Nov.	0	0	0	2
Dec.	52	0	2	142
Total	..	..	..	24,779

Year 1971

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	202	76	139	8,630
Feb.	248	57	141	7,880
Mar.	442	221	342	21,200
Apr.	231	0	50	2,990
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	19	0	4	280
Nov.	0	0	0	0
Dec.	36	0	0.3	15
Total	..	..	..	40,995

Year 1972

Jan.	573	0	255	15,800
Feb.	500	21	122	7,090
Mar.	10	0.2	0.3	20
Apr.	0	0	0	0
May	30	0	7	461
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	295	0	100	6,210
Total	..	..	..	29,581

WARREGO RIVER AT FORDS BRIDGE

LOCATION:	Latitude 29°45' Longitude 145°27'
PERIOD OF ESTABLISHMENT:	November, 1921 to date
COMPLETE YEARS OF COMPUTED RECORDS:	51
ZERO OF GAUGE:	R.L. 45.10 Assumed Datum
CATCHMENT AREA:	23,400 square miles
CONTROL:	Sand and Gravel. Subject to alteration
EQUIPMENT:	Automatic Recorder (Float Type) Staff Gauge, range 0 to 10 feet
CURRENT METER OBSERVATIONS:	(a) Number Obtained : 50
	(b) Maximum Observation in Cusecs : 1,970
	(c) Minimum Observation in Cusecs : 0
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	2,960 cusecs (August, 1950)
MEAN DAILY DISCHARGE FOR 51 YEARS:	25 cusecs
MEAN ANNUAL DISCHARGE FOR 51 YEARS:	18,200 acre feet
REMARKS:	

WARREGO RIVER AT FORDS BRIDGE

Year 1922					Year 1923				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	8	0	2	110	Jan.	3	0	0.3	15
Feb.	0	0	0	0	Feb.	0	0	0	0
Mar.	0	0	0	0	Mar.	0	0	0	0
Apr.	0	0	0	0	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	1	0	0.1	5
July	0	0	0	0	July	1	0	0.4	23
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	110	Total	..	..	..	43
Year 1924					Year 1925				
Jan.	0	0	0	0	Jan.	103	2	16	1,000
Feb.	0	0	0	0	Feb.	24	1	7	394
Mar.	0	0	0	0	Mar.	0	0	0	0
Apr.	0	0	0	0	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	5	0	0.2	14	Nov.	0	0	0	0
Dec.	195	18	115	7,110	Dec.	0	0	0	0
Total	..	..	..	7,124	Total	..	..	..	1,394
Year 1926					Year 1927				
Jan.	7	0	3	170	Jan.	0	0	0	0
Feb.	2	0	0.3	17	Feb.	1	0	0.2	14
Mar.	86	0	9	572	Mar.	4	0	0.6	39
Apr.	18	0	46	2,780	Apr.	7	0	3	168
May	5	0	1	86	May	0	0	0	0
June	2	0	0.4	25	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	2	0	0.2	12
Total	..	..	..	3,650	Total	..	..	..	233
Year 1928					Year 1929				
Jan.	146	0	66	4,090	Jan.	0	0	0	0
Feb.	52	0	6	366	Feb.	0	0	0	0
Mar.	64	0	17	1,080	Mar.	0	0	0	0
Apr.	36	0	3	168	Apr.	0	0	0	0
May	7	0	2	154	May	10	0	3	210
June	3	0	1	52	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	5,910	Total	..	..	..	210

WARREGO RIVER AT FORDS BRIDGE

Year 1930					Year 1931				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	0	0	0	0	Jan.	0	0	0	0
Feb.	215	0	88	4,920	Feb.	0	0	0	0
Mar.	58	0	8	466	Mar.	8	0	0.5	30
Apr.	0	0	0	0	Apr.	64	0	19	1,130
May	0	0	0	0	May	58	0	7	426
June	0	0	0	0	June	5	1	2	126
July	0	0	0	0	July	0.3	0	0	2
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	13	0	4	240	Sept.	0	0	0	0
Oct.	1	0	0	3	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	195	0	22	1,390
Total	..	..	..	5,629	Total	..	..	..	3,104

Year 1932					Year 1933				
Jan.	195	8	67	4,140	Jan.	0	0	0	0
Feb.	5	0	0.4	23	Feb.	0	0	0	0
Mar.	0	0	0	0	Mar.	0	0	0	0
Apr.	0	0	0	0	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	8	0	3	154
Sept.	0	0	0	0	Sept.	8	0	1	68
Oct.	0	0	0	0	Oct.	28	0	4	266
Nov.	0	0	0	0	Nov.	28	0	1	64
Dec.	0	0	0	0	Dec.	340	21	132	8,210
Total	..	..	..	4,163	Total	..	..	..	8,762

Year 1934					Year 1935				
Jan.	21	1	7	426	Jan.	0	0	0	0
Feb.	0	0	0	0	Feb.	0	0	0	0
Mar.	0	0	0	0	Mar.	0	0	0	0
Apr.	0	0	0	0	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	8	0	1	86	Oct.	0	0	0	0
Nov.	13	0	2	124	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	636	Total	..	..	..	0

Year 1936					Year 1937				
Jan.	146	0	61	3,760	Jan.	8	0	2	128
Feb.	175	4	72	4,160	Feb.	18	0	5	302
Mar.	5	0	2	100	Mar.	175	0	41	2,550
Apr.	135	7	57	3,430	Apr.	195	8	63	3,760
May	5	0	0.5	31	May	6	0	1	68
June	0	0	0	0	June	1	0	0.1	7
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	11,481	Total	..	..	..	6,815

WARREGO RIVER AT FORDS BRIDGE

Year 1938

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	0	0	0	0
Feb.	49	0	14	784
Mar.	55	0	10	618
Apr.	0.3	0	0	1
May	58	0	4	240
June	135	0	17	1,010
July	15	0	1	66
Aug.	0.3	0	0	1
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	5	0	0.2	11
Dec.	0	0	0	0
Total	..	..	..	2,731

Year 1939

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	64	0	4	252
Feb.	18	0	1.5	86
Mar.	146	4	50	3,110
Apr.	175	3	72	4,310
May	13	0	3.5	214
June	3	0	1	55
July	2	0	1	43
Aug.	78	4	28	1,760
Sept.	32	0	3	168
Oct.	1	0	0	2
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	10,000

Year 1940

Jan.	0	0	0	0
Feb.	5	0	0.7	42
Mar.	14	0	5	304
Apr.	7	0	0.8	48
May	1	0	0.1	6
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	400

Year 1941

Jan.	2600	0	454	28,160
Feb.	1620	28	694	38,880
Mar.	28	1	10	590
Apr.	124	11	47	2,810
May	46	0	9	588
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	71,028

Year 1942

Jan.	0	0	0	0
Feb.	10	0	0.6	34
Mar.	0	0	0	0
Apr.	6	0	0.2	14
May	46	0	4	238
June	1	0	0.1	7
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	18	0	1	60
Dec.	41	0	4.5	278
Total	..	..	..	631

Year 1943

Jan.	146	4	50	3,140
Feb.	8	0	1	43
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	3,183

Year 1944

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	15	0	1.3	81
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	81

Year 1945

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	15	0	2	110
Apr.	0	0	0	0
May	9	0	0.3	19
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	129

WARREGO RIVER AT FORDS BRIDGE

Year 1946					Year 1947				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	0	0	0	0	Jan.	0	0	0	0
Feb.	72	0	12	690	Feb.	13	0	3	142
Mar.	0	0	0	0	Mar.	305	11	130	8,080
Apr.	0	0	0	0	Apr.	13	0	1	70
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	6	0	0.3	17	Sept.	6	0	0.2	12
Oct.	0	0	0	0	Oct.	8	0	1	47
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	3	0	0.1	6	Dec.	0	0	0	0
Total	..	..	..	713	Total	..	..	..	8,351

Year 1948					Year 1949				
Jan.	0	0	0	0	Jan.	0	0	0	0
Feb.	34	0	1	79	Feb.	22	0	4	210
Mar.	0	0	0	0	Mar.	525	0	117	7,010
Apr.	0	0	0	0	Apr.	1850	165	722	43,350
May	0	0	0	0	May	190	0	15	934
June	34	0	3	174	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	15	0	1	72
Oct.	0	0	0	0	Oct.	10	0	1	46
Nov.	0	0	0	0	Nov.	525	4	135	8,100
Dec.	2	0	0.1	6	Dec.	0	0	0	0
Total	..	..	..	259	Total	..	..	..	59,722

Year 1950					Year 1951				
Jan.	0	0	0	0	Jan.	120	0	11	694
Feb.	58	0	12	674	Feb.	0	0	0	0
Mar.	165	0	21	1,320	Mar.	0	0	0	0
Apr.	1060	240	864	51,810	Apr.	0	0	0	0
May	1420	2	591	36,620	May	0	0	0	0
June	11	0	1	82	June	0	0	0	0
July	22	0	3	214	July	0	0	0	0
Aug.	2960	26	1049	65,060	Aug.	0	0	0	0
Sept.	640	0	103	6,190	Sept.	0	0	0	0
Oct.	34	0	9	580	Oct.	0	0	0	0
Nov.	580	30	312	18,700	Nov.	0	0	0	0
Dec.	340	19	129	7,980	Dec.	0	0	0	0
Total	..	..	..	189,230	Total	..	..	..	694

Year 1952					Year 1953				
Jan.	0	0	0	0	Jan.	17	0	2	106
Feb.	0	0	0	0	Feb.	0	0	0	0
Mar.	0	0	0	0	Mar.	0	0	0	0
Apr.	6	0	0.4	22	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	15	0	0.8	52	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	74	Total	..	..	..	106

WARREGO RIVER AT FORDS BRIDGE

Year 1954					Year 1955				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4	0	0	8	Jan.	0	0	0	0
Feb.	0	0	0	0	Feb.	0	0	0	0
Mar.	340	0	74	4,580	Mar.	305	0	59	3,650
Apr.	0	0	0	0	Apr.	240	3	100	6,030
May	0	0	0	0	May	340	7	128	7,960
June	0	0	0	0	June	640	3	178	10,690
July	0	0	0	0	July	240	0	21	1,280
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	240	0	35	2,170
Nov.	140	0	19	1,120	Nov.	120	0	35	2,134
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	5,708	Total	..	..	..	33,914

Year 1956					Year 1957				
Jan.	0	0	0	0	Jan.	0	0	0	0
Feb.	30	0	13	740	Feb.	0	0	0	0
Mar.	2080	34	1104	68,460	Mar.	0	0	0	0
Apr.	2850	1060	1780	106,800	Apr.	0	0	0	0
May	2825	580	1190	73,770	May	0	0	0	0
June	770	24	316	18,990	June	0	0	0	0
July	840	13	373	23,140	July	0	0	0	0
Aug.	1520	0	488	30,270	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	322,170	Total	..	..	..	0

Year 1958					Year 1959				
Jan.	0	0	0	0	Jan.	0	0	0	0
Feb.	0	0	0	0	Feb.	0	0	0	0
Mar.	0	0	0	0	Mar.	No Records			600*
Apr.	0	0	0	0	Apr.	305	13	96	5,750
May	0	0	0	0	May	270	0	31	1,920
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	0	Total	..	..	..	8,270*

Year 1960					Year 1961				
Jan.	0	0	0	0	Jan.	0	0	0	0
Feb.	0	0	0	0	Feb.	0	0	0	0
Mar.	0	0	0	0	Mar.	190	0	58	3,610
Apr.	0	0	0	0	Apr.	340	0	70	4,210
May	0	0	0	0	May	340	0	74	4,570
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	0	Total	..	..	..	12,390

* Estimated.

WARREGO RIVER AT FORDS BRIDGE

Year 1962					Year 1963				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	11	0	2	114	Jan.	88	0	20	1,220
Feb.	340	6	67	3,720	Feb.	700	4	273	15,300
Mar.	72	0	7	416	Mar.	380	0	34	2,110
Apr.	140	0	23	1,360	Apr.	1970	15	415	24,880
May	0	0	0	0	May	1080	0	439	27,240
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	305	0	25	1,560	Dec.	55	0	7	446
Total	..	..	..	7,190	Total	..	..	..	71,196

Year 1964					Year 1965				
Jan.	240	2	34	2,090	Jan.	0	0	0	0
Feb.	215	0	22	1,290	Feb.	0	0	0	0
Mar.	0	0	0	0	Mar.	0	0	0	0
Apr.	0	0	0	0	Apr.	0	0	0	0
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	3,380	Total	..	..	..	0

Year 1966					Year 1967				
Jan.	6	0	0.4	26	Jan.	0	0	0	0
Feb.	25	2	11	626	Feb.	0	0	0	0
Mar.	22	0	4	255	Mar.	425	0	141	8,724
Apr.	0	0	0	0	Apr.	380	0	48	2,878
May	0	0	0	0	May	0	0	0	0
June	0	0	0	0	June	0	0	0	0
July	0	0	0	0	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	5	0	0.6	33	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	940	Total	..	..	..	11,602

Year 1968					Year 1969				
Jan.	42	0	11	692	Jan.	0	0	0	0
Feb.	42	0	12	714	Feb.	0	0	0	0
Mar.	27	0	5	314	Mar.	14	0	1.5	92
Apr.	7	0	0.3	20	Apr.	24	0.3	11	642
May	510	0	99	6,160	May	0.3	0	0.1	3
June	600	0.3	176	10,572	June	0	0	0	0
July	0.3	0	0	2	July	0	0	0	0
Aug.	0	0	0	0	Aug.	0	0	0	0
Sept.	0	0	0	0	Sept.	0	0	0	0
Oct.	0	0	0	0	Oct.	0	0	0	0
Nov.	0	0	0	0	Nov.	0	0	0	0
Dec.	0	0	0	0	Dec.	0	0	0	0
Total	..	..	..	18,474	Total	..	..	..	737

WARREGO RIVER AT FORDS BRIDGE

Year 1970

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	6	0	1	59
Feb.	27	0	5	280
Mar.	17	0	3	214
Apr.	39	0	12	694
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	82	0	8	476
Oct.	24	0	5	336
Nov.	2	0	0	4
Dec.	1	0	0	2
Total	..	..	..	2,065

Year 1971

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	60	0	19	1,140
Feb.	57	0	19	1,080
Mar.	165	43	100	6,190
Apr.	47	0	5	274
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	16	0	0.5	28
Total	..	..	..	8,712

Year 1972

Jan.	472	0	158	9,820
Feb.	317	0	25	1,450
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	69	0	18	1,090
Total	..	..	..	12,360

DARLING RIVER AT WILCANNIA

LOCATION:	Latitude 31°30' Longitude 143°26'
PERIOD OF ESTABLISHMENT:	1886 to date
COMPLETE YEARS OF COMPUTED RECORDS:	86
ZERO OF GAUGE:	R.L. 211.70 Water Conservation Datum
CATCHMENT AREA:	220,000 square miles
CONTROL:	Weir
EQUIPMENT:	Automatic Recorder (Float Type) Staff Gauge, range 0 to 30 feet
CURRENT METER OBSERVATIONS:	(a) Number Obtained : 328 (b) Maximum Observation in Cusecs : 19,800 (c) Minimum Observation in Cusecs : 3
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	70,000 cusecs (August, 1956) 97,000 cusecs (May, 1890) See Remarks
MEAN DAILY DISCHARGE FOR 86 YEARS:	3,567 cusecs
MEAN ANNUAL DISCHARGE FOR 86 YEARS:	2,604,000 acre feet
REMARKS:	The monthly discharges shown for period 1886-1910 are estimates based on current meter measurements and gauge readings taken during this period. Station at Wilcannia Weir was established in April, 1944 about 12 chains above old station at Wilcannia Bridge.

DARLING RIVER AT WILCANNIA

Year	1886	1887	1888	1889	1890
January	6,000*	496,000*	180,000*	0*	184,000
February	17,000*	289,000*	136,000*	5,000*	328,000
March	22,000*	1,053,000*	545,000*	3,000*	648,000
April	2,000*	1,154,000*	422,000*	5,000*	934,000
May	0*	744,000*	42,000*	48,000*	4,305,000
June	167,000*	116,000*	0*	242,000*	3,865,000
July	975,000*	174,000*	0*	917,000*	2,650,000
August	1,173,000*	786,000*	0*	1,024,000*	2,791,000
September	1,204,000*	830,000*	0*	894,000*	2,168,000
October	1,262,000*	1,067,000*	0*	182,000*	678,000
November	1,087,000*	185,000*	0*	181,000*	387,000
December	1,176,000*	80,000*	0*	136,000*	273,000
Totals	7,091,000*	6,974,000*	1,325,000*	3,637,000*	19,211,000

Year	1891	1892	1893	1894	1895
January	280,000*	385,000*	542,000*	93,000*	68,000*
February	895,000*	105,000*	225,000*	174,000*	284,000*
March	1,177,000*	65,000*	931,000*	107,000*	625,000*
April	857,000*	58,000*	1,147,000*	753,000*	88,000*
May	291,000*	247,000*	569,000*	1,192,000*	37,000*
June	282,000*	199,000*	436,000*	1,145,000*	26,000*
July	784,000*	394,000*	1,044,000*	648,000*	31,000*
August	1,132,000*	355,000*	1,264,000*	646,000*	31,000*
September	1,160,000*	147,000*	1,191,000*	346,000*	27,000*
October	1,148,000*	402,000*	1,016,000*	336,000*	24,000*
November	719,000*	929,000*	288,000*	323,000*	52,000*
December	172,000*	1,147,000*	207,000*	221,000*	68,000*
Totals	8,897,000*	4,433,000*	8,860,000*	5,984,000*	1,361,000*

Year	1896	1897	1898	1899	1900
January	134,000*	127,000*	213,000*	26,000*	10,000*
February	408,000*	99,000*	389,000*	0*	4,000*
March	637,000*	47,000*	768,000*	229,000*	18,000*
April	278,000*	123,000*	114,000*	42,000*	99,000*
May	78,000*	23,000*	40,000*	21,000*	126,000*
June	49,000*	14,000*	29,000*	17,000*	52,000*
July	48,000*	17,000*	25,000*	14,000*	241,000*
August	97,000*	328,000*	38,000*	96,000*	564,000*
September	102,000*	420,000*	33,000*	100,000*	308,000*
October	84,000*	126,000*	68,000*	76,000*	103,000*
November	35,000*	319,000*	22,000*	30,000*	47,000*
December	36,000*	59,000*	13,000*	20,000*	10,000*
Totals	1,986,000*	1,702,000*	1,752,000*	671,000*	1,582,000*

* Estimated

DARLING RIVER AT WILCANNIA

Year	1901	1902	1903	1904	1905
January	14,000*	5,000*	53,000*	182,000*	20,000*
February	14,000*	0*	28,000*	276,000*	23,000*
March	5,000*	0*	7,000*	155,000*	29,000*
April	5,000*	0*	30,000*	63,000*	108,000*
May	3,000*	0*	57,000*	162,000*	416,000*
June	0*	0*	161,000*	47,000*	165,000*
July	50,000*	0*	257,000*	344,000*	117,000*
August	203,000*	0*	350,000*	65,000*	116,000*
September	188,000*	0*	725,000*	172,000*	63,000*
October	228,000*	0*	569,000*	194,000*	39,000*
November	39,000*	0*	1,037,000*	318,000*	15,000*
December	24,000*	0*	571,000*	102,000*	16,000*
Totals	773,000*	5,000*	3,845,000*	2,080,000*	1,127,000*

Year	1906	1907	1908	1909	1910
January	6,000*	217,000*	92,000*	78,000*	72,000*
February	107,000*	432,000*	25,000*	68,000*	615,000*
March	303,000*	162,000*	220,000*	86,000*	718,000*
April	366,000*	191,000*	697,000*	69,000*	468,000*
May	99,000*	121,000*	472,000*	19,000*	266,000*
June	49,000*	28,000*	48,000*	12,000*	42,000*
July	49,000*	56,000*	39,000*	37,000*	138,000*
August	22,000*	45,000*	39,000*	85,000*	283,000*
September	16,000*	86,000*	135,000*	242,000*	104,000*
October	357,000*	28,000*	198,000*	324,000*	41,000*
November	434,000*	9,000*	44,000*	56,000*	32,000*
December	115,000*	10,000*	39,000*	34,000*	61,000*
Totals	1,923,000*	1,385,000*	2,048,000*	1,110,000*	2,840,000*

* Estimated

DARLING RIVER AT WILCANNIA

Year 1911					Year 1912				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	3200	795	2245	139,164	Jan.	2600	453	1455	90,210
Feb.	11900	2420	9068	507,788	Feb.	437	195	282	16,382
Mar.	18100	12200	15917	986,840	Mar.	187	109	144	8,952
Apr.	18600	1920	12465	747,920	Apr.	109	32	75	4,502
May	1770	635	1027	63,658	May	24	0	2	112
June	724	506	630	37,820	June	225	0	82	4,906
July	635	580	608	37,712	July	7300	123	1886	123,160
Aug.	1422	580	977	60,600	Aug.	12300	3090	8321	515,906
Sept.	891	562	690	41,402	Sept.	3040	1380	2270	136,196
Oct.	Incomplete Records				Oct.	1530	616	1173	72,708
Nov.	"		"		Nov.	589	403	515	30,914
Dec.	"		"		Dec.	671	286	434	26,898
Total	..	..	..	..	Total	..	..	..	1,030,846

Year 1913					Year 1914				
Jan.	..	..	..	5,682*	Jan.	..	..	..	1,028*
Feb.	..	..	..	1,022*	Feb.	..	..	..	24*
Mar.	..	..	..	516*	Mar.	..	..	..	0*
Apr.	..	..	..	984*	Apr.	2920	1060	1881	112,852
May	..	..	..	5,920*	May	2370	960	1603	99,412
June	4820	706	2147	128,824	June	1770	813	1257	75,404
July	12100	4150	6963	431,676	July	1680	883	1229	76,210
Aug.	14300	1840	8843	548,316	Aug.	1490	635	1154	71,558
Sept.	1770	661	1181	70,880	Sept.	724	437	589	35,314
Oct.	776	420	563	34,934	Oct.	..	..	..	3,630*
Nov.	..	..	..	5,122*	Nov.	..	..	..	304*
Dec.	..	..	..	490*	Dec.	..	..	..	3,546*
Total	..	..	..	1,234,366*	Total	..	..	..	479,282*

Year 1915					Year 1916				
Jan.	..	..	..	16,594*	Jan.	..	..	..	826*
Feb.	..	..	..	1,348*	Feb.	..	..	..	0*
Mar.	..	..	..	3,752	Mar.	0	0	0	0
Apr.	..	..	..	194*	Apr.	2240	0	1147	68,848
May	..	..	..	0*	May	2420	1100	1701	105,458
June	..	..	..	0*	June	1310	580	850	50,998
July	..	..	..	6*	July	4010	437	1313	81,436
Aug.	1810	180	535	33,174	Aug.	13300	4330	8437	523,094
Sept.	1270	795	1295	77,812	Sept.	15800	13300	15205	912,320
Oct.	1000	420	674	41,806	Oct.	15300	2370	6742	417,996
Nov.	1040	453	754	45,262	Nov.	9260	4610	7252	435,110
Dec.	..	..	..	9,734*	Dec.	7100	4330	5115	317,118
Total	..	..	..	229,682*	Total	..	..	..	2,913,204*

Year 1917					Year 1918				
Jan.	15300	7240	11954	741,154	Jan.	18700	15400	17378	1,077,458
Feb.	14900	3710	7583	424,674	Feb.	18200	4960	11635	651,582
Mar.	18100	10900	15323	950,040	Mar.	5000	1630	3886	240,960
Apr.	18500	1530	9790	587,442	Apr.	1530	830	1000	59,986
May	1490	653	860	53,346	May	813	598	662	41,042
June	653	543	585	35,082	June	..	..	..	3,968*
July	580	543	556	34,490	July	..	..	..	3,472*
Aug.	980	580	639	39,626	Aug.	..	..	..	3,072*
Sept.	2100	1000	1364	81,848	Sept.	1360	506	1020	61,214
Oct.	10000	1840	4086	253,342	Oct.	1460	830	161	71,978
Nov.	12500	2850	8517	511,048	Nov.	830	437	622	37,326
Dec.	15100	2540	9161	567,970	Dec.	..	..	..	420*
Total	..	..	..	4,280,062	Total	..	..	..	2,252,478*

* Estimated

DARLING RIVER AT WILCANNIA

Year 1919					Year 1920				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	..	..	..	0*	Jan.	0	0	0	0
Feb.	..	..	..	0*	Feb.	0	0	0	0
Mar.	..	..	..	0*	Mar.	..	..	..	0*
Apr.	..	..	..	5,670*	Apr.	..	..	..	1,350*
May	..	..	..	11,166*	May	..	..	..	6*
June	..	..	..	738*	June	..	..	..	0*
July	..	..	..	372*	July	17590	524	8298	514,466
Aug.	..	..	..	114*	Aug.	27900	18200	24293	1,506,160
Sept.	..	..	..	0*	Sept.	17720	10000	12600	756,024
Oct.	..	..	..	0*	Oct.	16700	12500	15135	938,360
Nov.	..	..	..	0*	Nov.	12100	1920	3636	218,142
Dec.	..	..	..	0*	Dec.	2270	960	1493	92,574
Total	..	..	..	18,060*	Total	..	..	..	4,027,082

Year 1921					Year 1922				
Jan.	2370	940	1655	102,598	Jan.	6990	1180	3191	197,860
Feb.	960	453	596	33,412	Feb.	9250	4580	7819	437,840
Mar.	724	320	472	29,260	Mar.	4310	880	1910	118,440
Apr.	1600	580	1081	64,856	Apr.	880	563	716	42,978
May	2240	543	1359	84,254	May	563	288	417	25,836
June	5830	543	1460	87,614	June	285	198	241	14,490
July	18110	6610	14110	874,818	July	248	194	225	13,946
Aug.	34200	18200	23205	1,438,740	Aug.	990	194	340	21,098
Sept.	38020	33780	36108	2,166,460	Sept.	1560	840	1217	73,000
Oct.	28720	7220	12420	770,044	Oct.	840	669	729	45,222
Nov.	8250	3250	6828	409,680	Nov.	940	248	627	37,622
Dec.	3020	1590	2175	134,840	Dec.	243	76	160	9,928
Total	..	..	..	6,196,576	Total	..	..	..	1,038,260

Year 1923					Year 1924				
Jan.	1860	62	998	61,868	Jan.	2770	248	952	58,998
Feb.	820	163	346	19,388	Feb.	3460	2120	2721	157,816
Mar.	178	130	147	9,114	Mar.	5440	3600	4890	303,160
Apr.	130	12	66	3,972	Apr.	5060	1560	3902	234,130
May	12	0	1	96	May	1470	534	727	45,052
June	59	0	16	944	June	534	238	352	21,092
July	12	0	9	594	July	238	178	198	12,274
Aug.	468	12	63	3,912	Aug.	1340	238	1004	62,224
Sept.	1010	452	675	40,136	Sept.	2640	552	1251	75,066
Oct.	2510	1030	1758	109,020	Oct.	2430	703	1466	90,918
Nov.	1180	99	488	29,312	Nov.	6480	2240	3704	222,230
Dec.	330	10	68	4,194	Dec.	10000	6560	8394	520,440
Total	..	..	..	282,550	Total	..	..	..	1,803,400

Year 1925					Year 1926				
Jan.	10400	5940	7952	493,010	Jan.	4940	489	2060	127,736
Feb.	6070	2520	4437	248,506	Feb.	4980	1010	3220	180,300
Mar.	1920	642	1392	86,330	Mar.	910	79	274	17,006
Apr.	1240	538	826	51,220	Apr.	4940	1500	4004	240,260
May	513	288	386	23,914	May	5010	3110	3978	246,640
June	268	99	158	9,482	June	6180	4090	5291	317,480
July	2990	89	1681	104,232	July	4310	2200	3141	194,720
Aug.	3020	1210	1832	113,580	Aug.	2480	2170	2298	142,480
Sept.	1560	820	1241	74,400	Sept.	2230	1340	1873	112,380
Oct.	1660	248	972	60,290	Oct.	1310	750	966	59,888
Nov.	513	110	170	10,192	Nov.	723	163	415	24,876
Dec.	1750	194	898	55,704	Dec.	149	35	80	4,986
Total	..	..	..	1,330,860	Total	..	..	..	1,668,752

* Estimated

DARLING RIVER AT WILCANNIA

Year 1927

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	1470	0	62	3,822
Feb.	3960	1750	2606	145,920
Mar.	5100	2260	4054	251,360
Apr.	2260	669	1461	87,638
May	1770	268	1163	72,114
June	288	89	114	6,794
July	89	62	81	5,040
Aug.	62	6	39	2,416
Sept.	6	6	6	360
Oct.	6	6	6	372
Nov.	1	0	0.6	34
Dec.	2370	0	215	13,310
Total	..	..	..	589,180

Year 1928

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	3360	1030	2444	151,500
Feb.	3500	725	2371	137,520
Mar.	7640	3360	5921	367,130
Apr.	7300	2540	4497	269,790
May	4900	2850	3683	228,340
June	3390	940	2027	121,620
July	4870	820	2695	167,080
Aug.	7060	3900	5303	328,760
Sept.	7140	940	3473	208,360
Oct.	750	513	536	33,218
Nov.	513	35	256	15,384
Dec.	35	0	5	324
Total	..	..	..	2,029,026

Year 1929

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	2600	0	608	37,700
Apr.	3720	373	1281	76,840
May	6480	2230	4922	305,160
June	2060	330	774	46,438
July	330	135	204	12,638
Aug.	135	110	124	7,672
Sept.	880	99	464	27,864
Oct.	990	309	623	38,598
Nov.	2030	99	839	50,330
Dec.	1120	99	378	23,440
Total	..	..	..	626,680

Year 1930

Jan.	178	48	97	6,012
Feb.	1610	35	794	44,484
Mar.	1180	178	717	44,468
Apr.	268	55	138	8,252
May	48	18	21	1,310
June	778	110	373	22,352
July	4190	229	2289	141,916
Aug.	4980	2090	3608	223,720
Sept.	3570	2030	2559	153,520
Oct.	3570	860	1777	110,160
Nov.	3280	820	2153	129,180
Dec.	1430	373	777	48,202
Total	..	..	..	933,576

Year 1931

Jan.	723	14	253	15,706
Feb.	10	0	1	54
Mar.	1430	0	549	34,040
Apr.	4870	1180	3480	208,820
May	5010	1590	2974	184,360
June	6480	1590	4255	255,300
July	11000	6660	8639	535,600
Aug.	15600	11300	13468	835,010
Sept.	16700	2570	9800	587,972
Oct.	2510	1160	1644	101,920
Nov.	2090	723	1351	81,062
Dec.	4190	465	1463	90,718
Total	..	..	..	2,930,562

Year 1932

Jan.	8620	4610	7034	436,080
Feb.	4310	778	1752	101,596
Mar.	754	58	404	25,070
Apr.	35	35	35	2,100
May	1270	35	426	26,436
June	840	55	320	19,182
July	194	35	51	3,156
Aug.	465	194	228	14,150
Sept.	465	211	332	19,934
Oct.	3330	149	1008	62,494
Nov.	2990	970	1923	115,380
Dec.	910	373	471	29,198
Total	..	..	..	854,776

Year 1933

Jan.	563	248	402	24,932
Feb.	3690	194	483	27,022
Mar.	5380	1150	3382	209,700
Apr.	1090	194	448	26,902
May	194	110	143	8,874
June	110	110	110	6,600
July	110	70	84	5,196
Aug.	4150	62	1818	112,712
Sept.	4150	2000	2885	173,080
Oct.	5010	1560	2472	153,280
Nov.	6270	3660	5105	306,300
Dec.	10100	6210	8793	545,160
Total	..	..	..	1,599,758

Year 1934

Jan.	9350	1920	4269	264,680
Feb.	4280	2090	2949	165,140
Mar.	5300	3050	4756	294,860
Apr.	2880	418	1242	74,516
May	563	288	403	24,992
June	696	351	482	28,946
July	373	194	330	20,454
Aug.	2280	178	630	39,064
Sept.	4440	2430	3069	184,120
Oct.	6390	2490	4703	291,610
Nov.	5900	2230	4066	243,980
Dec.	5380	2340	3108	192,720
Total	..	..	..	1,825,082

DARLING RIVER AT WILCANNIA

Year 1935

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	4900	1860	2864	177,560
Feb.	7870	5100	6889	385,760
Mar.	7100	940	2663	165,120
Apr.	910	330	562	33,748
May	309	149	202	12,540
June	268	248	261	15,680
July	248	149	184	11,396
Aug.	268	89	162	10,054
Sept.	194	122	164	9,852
Oct.	211	149	163	10,108
Nov.	1160	149	457	27,422
Dec.	1450	330	803	49,758
Total	..	..	..	908,998

Year 1936

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	1970	135	900	55,772
Feb.	778	178	440	25,494
Mar.	669	79	237	14,684
Apr.	2230	229	1235	74,102
May	589	135	355	22,010
June	248	122	149	8,918
July	149	79	104	6,450
Aug.	2310	89	724	44,876
Sept.	3690	1030	2487	149,200
Oct.	1400	563	1045	64,772
Nov.	513	122	207	12,442
Dec.	2110	55	919	57,002
Total	..	..	..	535,722

Year 1937

Jan.	1890	110	715	44,328
Feb.	1890	62	972	54,432
Mar.	2310	696	1784	110,618
Apr.	9100	723	5854	351,226
May	8160	441	2603	161,408
June	418	135	236	14,176
July	135	79	108	6,680
Aug.	178	89	133	8,270
Sept.	910	163	341	20,470
Oct.	1290	563	1027	63,680
Nov.	513	79	224	13,434
Dec.	1940	79	1237	76,704
Total	..	..	..	925,426

Year 1938

Jan.	1210	135	506	31,362
Feb.	1940	89	573	32,086
Mar.	2110	330	1226	76,042
Apr.	248	70	129	7,754
May	70	23	33	2,078
June	4440	23	1137	68,200
July	4220	615	2000	123,964
Aug.	563	149	303	18,784
Sept.	2960	309	2429	145,758
Oct.	2600	373	1143	70,870
Nov.	1090	211	671	40,240
Dec.	2310	990	1533	95,060
Total	..	..	..	712,198

Year 1939

Jan.	1090	79	455	28,208
Feb.	2620	18	453	25,356
Mar.	3780	2430	2927	181,460
Apr.	6070	3960	5019	301,120
May	4090	1160	2194	136,500
June	1030	373	615	36,924
July	351	149	225	13,920
Aug.	3810	149	2456	152,262
Sept.	3360	1310	2284	137,040
Oct.	1180	211	589	36,496
Nov.	194	79	109	6,520
Dec.	79	3	33	2,030
Total	..	..	..	1,057,336

Year 1940

Jan.	2	0	0	8
Feb.	0	0	0	0
Mar.	2990	0	1686	104,558
Apr.	3450	2090	2896	173,740
May	2880	288	1217	75,458
June	234	64	138	8,306
July	79	18	21	1,902
Aug.	14	6	11	676
Sept.	6	0	1	62
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	364,710

Year 1941

Jan.	8370	0	4134	256,300
Feb.	12000	8500	10615	594,440
Mar.	11900	2340	6670	413,520
Apr.	7580	4000	6348	380,900
May	5610	1120	3402	210,920
June	1060	340	568	34,104
July	2370	309	1669	103,482
Aug.	1340	696	940	58,294
Sept.	696	178	393	23,560
Oct.	178	62	136	8,434
Nov.	70	23	46	2,758
Dec.	23	0	4	220
Total	..	..	..	2,086,932

Year 1942

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	3050	0	1299	80,526
Apr.	3020	669	1778	106,698
May	696	211	462	28,628
June	840	194	551	33,042
July	3250	418	1171	72,574
Aug.	9200	3690	6911	428,460
Sept.	3300	910	1582	94,900
Oct.	880	248	483	29,930
Nov.	4640	373	2823	169,388
Dec.	4740	2600	3773	233,920
Total	..	..	..	1,278,066

Appendix 16
Sheet 8

DARLING RIVER AT WILCANNIA

Year 1943					Year 1944				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	5700	3570	4590	284,560	Jan.	3480	820	1868	115,820
Feb.	7180	3600	6180	346,080	Feb.	3540	2200	2925	169,640
Mar.	3390	351	1288	79,866	Mar.	3420	990	2423	150,200
Apr.	330	55	145	8,680	Apr.	910	122	417	25,048
May	55	35	45	2,780	May	110	35	63	3,904
June	35	24	25	1,482	June	23	0	2.4	142
July	194	24	100	6,172	July	211	0	111	6,876
Aug.	170	122	148	9,150	Aug.	778	55	3821	23,712
Sept.	696	122	308	18,454	Sept.	3330	248	1439	86,360
Oct.	940	538	736	45,654	Oct.	3080	373	1281	79,422
Nov.	1180	696	1018	61,072	Nov.	373	99	197	11,818
Dec.	5050	4000	1915	118,700	Dec.	99	0	43	2,658
Total	..	..	..	982,650	Total	..	..	..	675,600

Year 1945					Year 1946				
Jan.	0	0	0	0	Jan.	373	0	100	6,184
Feb.	0	0	0	0	Feb.	4250	229	1924	107,726
Mar.	4340	0	905	56,100	Mar.	4250	840	2413	149,580
Apr.	4540	395	2209	132,568	Apr.	750	110	299	17,934
May	373	110	208	12,902	May	840	99	471	29,178
June	800	99	429	25,742	June	330	110	167	10,000
July	6310	178	3685	228,450	July	110	35	55	3,400
Aug.	4640	2620	3928	243,560	Aug.	48	0	28	1,714
Sept.	4030	2990	3422	205,300	Sept.	0	0	0	0
Oct.	3660	1210	2211	137,060	Oct.	163	0	5	326
Nov.	1210	149	479	28,742	Nov.	669	149	385	23,122
Dec.	135	0	45	2,810	Dec.	135	0	38	2,340
Total	..	..	..	1,073,234	Total	..	..	..	351,504

Year 1947					Year 1948				
Jan.	489	149	285	17,668	Jan.	8330	3510	6606	409,600
Feb.	4580	48	746	41,796	Feb.	8330	2000	5582	323,760
Mar.	10500	5100	8780	544,360	Mar.	1940	1060	1503	93,200
Apr.	11000	3390	7553	453,160	Apr.	2030	1750	1914	114,820
May	5380	2220	3958	245,400	May	1720	538	1066	66,104
June	2030	149	969	58,116	June	3220	615	955	57,274
July	149	55	115	7,112	July	8330	4190	7317	453,640
Aug.	122	35	75	4,662	Aug.	8370	2600	5422	336,200
Sept.	1210	35	94	5,624	Sept.	3020	205	1726	103,580
Oct.	3950	1120	2752	170,620	Oct.	2800	835	1618	100,320
Nov.	1630	290	930	55,818	Nov.	1530	441	1039	62,326
Dec.	2580	893	1288	79,850	Dec.	395	70	192	11,888
Total	..	..	..	1,684,186	Total	..	..	..	2,132,712

Year 1949					Year 1950				
Jan.	62	3	20	1,208	Jan.	5000	1020	3476	215,510
Feb.	489	1	295	16,500	Feb.	3960	925	2004	112,234
Mar.	4190	563	1888	117,072	Mar.	7660	1550	4324	268,070
Apr.	3780	1120	2529	151,730	Apr.	10100	4880	7214	432,840
May	2460	515	995	61,716	May	14100	11100	12802	793,740
June	515	175	308	18,490	June	14600	1188	16652	499,570
July	1120	615	851	53,032	July	12700	1164	5702	353,532
Aug.	1400	489	865	53,694	Aug.	23600	12800	15995	991,700
Sept.	4090	1180	1671	100,240	Sept.	54600	24300	44323	265,400
Oct.	7260	4190	5844	362,320	Oct.	40600	22200	32060	1,987,800
Nov.	10100	5180	7620	457,220	Nov.	22900	17300	18884	1,133,050
Dec.	10900	4670	7759	481,080	Dec.	37300	22900	31300	1,940,600
Total	..	..	..	1,874,302	Total	..	..	..	8,994,046

DARLING RIVER AT WILCANNIA

Year 1951					Year 1952				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	46700	22900	37676	2,335,900	Jan.	565	445	548	33,950
Feb.	21600	3120	6933	388,264	Feb.	445	105	284	16,490
Mar.	11500	3430	6973	432,348	Mar.	145	105	113	6,990
Apr.	12300	2860	6176	370,580	Apr.	1120	105	646	38,732
May	4190	1270	2395	148,518	May	2300	977	1536	95,218
June	1190	1120	1119	67,124	June	2400	630	872	52,322
July	3790	1120	1815	112,524	July	6770	2990	4300	266,690
Aug.	5810	2400	3945	244,580	Aug.	9560	5500	7529	466,784
Sept.	6600	4500	5810	348,630	Sept.	14000	8800	11896	713,790
Oct.	7400	1510	4147	257,084	Oct.	18900	5500	13565	841,000
Nov.	1510	1510	1510	90,600	Nov.	7650	2800	4932	295,910
Dec.	1510	565	949	58,848	Dec.	7550	4044	6657	412,730
Total	..	..	..	4,855,000	Total	..	..	..	3,240,606

Year 1953					Year 1954				
Jan.	3300	706	1188	73,680	Jan.	150	101	129	8,024
Feb.	704	565	622	34,858	Feb.	2500	101	683	38,270
Mar.	9660	445	3821	236,884	Mar.	8900	2690	6860	425,300
Apr.	14600	9940	12737	764,220	Apr.	8640	1490	5790	347,410
May	9760	1210	3288	203,870	May	1310	334	528	32,782
June	1970	890	1316	78,942	June	330	242	279	16,778
July	1040	630	829	51,426	July	365	225	262	16,262
Aug.	1040	630	675	41,868	Aug.	6840	347	3856	239,108
Sept.	1970	695	1474	88,438	Sept.	7170	3720	5296	317,710
Oct.	1770	854	1102	68,362	Oct.	3650	441	1436	89,056
Nov.	778	329	405	24,246	Nov.	8500	441	4115	246,920
Dec.	225	150	177	11,006	Dec.	13300	8640	11305	700,890
Total	..	..	..	1,677,800	Total	..	..	..	2,478,510

Year 1955					Year 1956				
Jan.	13300	1360	5659	350,850	Jan.	2280	1190	1571	97,404
Feb.	4520	1120	2762	154,644	Feb.	9440	1120	5304	297,026
Mar.	11200	2450	5849	362,654	Mar.	19800	9660	14245	883,210
Apr.	18800	11300	14907	894,440	Apr.	57400	22900	47680	2,860,800
May	18800	3650	8675	537,850	May	61400	53700	57648	3,574,200
June	4860	3420	4193	251,570	June	57400	41800	51077	3,064,600
July	6360	4970	5624	348,706	July	52000	43000	48481	3,005,800
Aug.	5160	3320	3770	233,730	Aug.	70000	47700	57926	3,591,400
Sept.	5230	3250	4162	249,710	Sept.	67800	49900	59367	3,562,000
Oct.	5010	2340	3269	202,700	Oct.	47700	11300	28277	1,753,180
Nov.	9860	3450	7243	434,554	Nov.	11100	7700	9386	563,160
Dec.	11200	2510	7509	465,536	Dec.	7400	2000	4101	254,280
Total	..	..	..	4,486,944	Total	..	..	..	23,507,060

Year 1957					Year 1958				
Jan.	2930	1510	2034	126,140	Jan.	75	26	44	2,712
Feb.	3820	1740	3034	169,900	Feb.	422	25	47	2,610
Mar.	1690	1070	1417	87,842	Mar.	1510	788	1169	72,490
Apr.	1260	810	1011	60,668	Apr.	3450	942	2283	136,976
May	810	682	733	45,478	May	1590	370	730	45,240
June	682	530	568	34,112	June	370	280	344	20,620
July	520	480	502	31,120	July	4160	320	2720	168,650
Aug.	682	540	613	38,010	Aug.	1860	540	934	57,904
Sept.	580	460	530	31,826	Sept.	1050	412	664	39,822
Oct.	724	347	538	33,384	Oct.	2700	1200	2023	125,450
Nov.	329	125	218	13,106	Nov.	4090	1830	3258	195,460
Dec.	137	80	103	6,388	Dec.	1650	234	726	45,004
Total	..	..	..	677,974	Total	..	..	..	912,938

DARLING RIVER AT WILCANNIA

Year 1959					Year 1960				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4050	200	968	60,034	Jan.	5340	2430	3588	222,444
Feb.	5820	4260	5388	301,720	Feb.	5610	831	3099	179,740
Mar.	10800	5930	8360	518,330	Mar.	774	520	583	36,134
Apr.	12700	11000	12026	721,540	Apr.	562	320	415	24,908
May	13900	4830	12024	745,480	May	320	168	240	14,870
June	4150	1240	1918	115,054	June	350	168	209	12,542
July	1220	799	998	61,858	July	360	252	302	18,736
Aug.	3480	832	1957	121,367	Aug.	2340	182	863	53,490
Sept.	3320	1140	2037	122,222	Sept.	3970	1620	2934	176,054
Oct.	1100	610	780	48,346	Oct.	1546	830	1034	64,080
Nov.	819	500	619	36,152	Nov.	1190	427	822	49,298
Dec.	4550	877	3128	193,920	Dec.	1010	340	586	36,332
Total	..	..	..	3,046,023	Total	..	..	..	888,628

Year 1961					Year 1962				
Jan.	1570	382	891	55,212	Jan.	6920	5670	6465	400,800
Feb.	652	123	306	17,112	Feb.	11200	6420	8732	488,990
Mar.	1230	48	292	18,112	Mar.	12670	6550	9972	618,250
Apr.	2580	695	1511	90,636	Apr.	11400	6540	9072	544,310
May	2040	333	957	59,364	May	11400	2130	6673	413,700
June	316	148	241	14,484	June	1950	830	1154	69,260
July	148	118	129	7,986	July	830	670	735	45,540
Aug.	170	99	129	7,994	Aug.	2110	530	1447	89,720
Sept.	1410	90	577	34,610	Sept.	3930	1820	2808	168,480
Oct.	1440	292	753	46,712	Oct.	3130	1450	1913	118,590
Nov.	850	170	495	29,684	Nov.	2280	1050	1774	106,420
Dec.	5460	128	1562	96,854	Dec.	2280	930	1567	97,140
Total	..	..	..	478,760	Total	..	..	..	3,161,200

Year 1963					Year 1964				
Jan.	5600	1820	3194	198,030	Jan.	5270	2550	4024	249,500
Feb.	8090	3610	6043	338,390	Feb.	7330	3290	6391	370,660
Mar.	3650	750	1508	93,480	Mar.	2900	890	1349	83,630
Apr.	7650	1600	3634	218,020	Apr.	3060	1060	2108	126,480
May	8770	3200	7015	434,920	May	2590	560	1418	87,870
June	7680	3100	5822	349,330	June	2490	940	1599	95,920
July	8300	3950	6797	421,430	July	3330	860	2195	136,070
Aug.	3830	3170	3587	222,400	Aug.	6460	3460	5138	318,540
Sept.	4730	2630	3131	187,830	Sept.	4290	2610	2964	183,810
Oct.	5270	2700	3984	247,010	Oct.	5200	2050	2984	185,020
Nov.	2750	1330	2075	124,480	Nov.	6830	3440	5644	338,630
Dec.	2330	640	1353	83,880	Dec.	3320	1500	2316	143,600
Total	..	..	..	2,919,200	Total	..	..	..	2,319,730

Year 1965					Year 1966				
Jan.	1450	270	671	41,590	Jan.	6900	0	3897	241,620
Feb.	330	73	233	13,040	Feb.	4390	168	1210	67,750
Mar.	73	36	57	3,530	Mar.	860	74	385	23,900
Apr.	36	9	19	1,130	Apr.	168	11	76	4,590
May	12	7	9	552	May	200	5	87	5,400
June	16	12	14	820	June	66	21	40	2,410
July	24	16	20	1,260	July	25	14	15	932
Aug.	37	21	27	1,670	Aug.	60	11	16	1,020
Sept.	825	35	325	19,470	Sept.	3130	50	833	49,950
Oct.	140	15	60	3,690	Oct.	2930	710	1935	120,000
Nov.	14	0	2	114	Nov.	2110	520	1232	73,890
Dec.	4	0	1	38	Dec.	3400	1500	2512	155,700
Total	..	..	..	86,904	Total	..	..	..	747,162

DARLING RIVER AT WILCANNIA

Year 1967					Year 1968				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1500	96	423	26,230	Jan.	3050	93	1098	68,090
Feb.	355	60	154	8,650	Feb.	7420	2810	5498	318,900
Mar.	2010	125	801	49,640	Mar.	2160	445	1026	63,640
Apr.	2550	1160	1699	102,000	Apr.	500	260	353	21,200
May	1160	226	499	31,000	May	1150	150	361	21,672
June	226	156	204	12,260	June	2240	395	1393	83,588
July	3500	147	1441	89,350	July	545	240	386	23,936
Aug.	3250	745	1796	111,400	Aug.	1960	190	913	56,606
Sept.	720	316	570	34,200	Sept.	4750	1600	3350	201,320
Oct.	306	46	151	9,360	Oct.	3920	615	1549	96,038
Nov.	1110	12	83	4,970	Nov.	760	94	342	2,054
Dec.	1110	120	488	30,270	Dec.	87	3	36	2,226
Total	..	..	..	509,330	Total	..	..	..	959,270

Year 1969					Year 1970				
Jan.	2	0	0.3	10	Jan.	7000	685	2048	127,000
Feb.	1180	0	546	30,552	Feb.	1920	1150	1528	88,640
Mar.	3500	258	1028	63,750	Mar.	1860	500	1222	75,800
Apr.	3550	320	1609	96,548	Apr.	990	206	432	25,900
May	1220	320	719	44,592	May	445	160	252	15,650
June	2270	320	1034	62,068	June	160	120	138	8,280
July	1790	730	1048	64,944	July	120	50	79	4,900
Aug.	1880	730	1115	69,150	Aug.	50	12	30	1,870
Sept.	1290	719	981	58,856	Sept.	12	0	2	128
Oct.	2200	775	1416	87,856	Oct.	5430	0	1662	103,000
Nov.	6230	828	4654	279,264	Nov.	6160	1860	3791	227,000
Dec.	9300	6160	8320	515,846	Dec.	1860	1220	1585	98,300
Total	..	..	..	1,373,436	Total	..	..	..	776,468

Year 1971					Year 1972				
Jan.	9370	1970	6382	395,700	Jan.	2400	260	827	51,290
Feb.	12410	9550	11248	629,860	Feb.	5340	2510	4167	258,360
Mar.	41240	12550	22766	1,411,520	Mar.	4090	1180	1981	118,900
Apr.	41090	15130	27680	1,660,800	Apr.	1090	260	497	29,850
May	13050	2910	5595	346,900	May	675	230	337	20,910
June	2800	1720	2216	132,940	June	473	193	307	18,400
July	1630	1150	1337	82,920	July	199	181	189	11,700
Aug.	2850	1170	2025	125,540	Aug.	209	122	179	11,100
Sept.	6500	3210	5551	333,040	Sept.	312	122	184	11,030
Oct.	4880	3460	4308	267,080	Oct.	352	79	222	13,780
Nov.	3260	810	1640	98,400	Nov.	1740	6	137	8,210
Dec.	740	260	400	24,800	Dec.	7680	1740	6084	377,000
Total	..	..	..	5,509,500	Total	..	..	..	930,530

DARLING RIVER AT MENINDEE WEIR 32

LOCATION:	Latitude 32°26' Longitude 142°22'
PERIOD OF ESTABLISHMENT:	May, 1958 (see Remarks)
COMPLETE YEARS OF COMPUTED RECORDS:	92
ZERO OF GAUGE:	R.L. 169.00 Water Conservation Datum
CATCHMENT AREA:	222,000 square miles
CONTROL:	Weir
EQUIPMENT:	Automatic Recorder (Float Type) Staff Gauge, range 0 to 30 feet
CURRENT METER OBSERVATIONS:	(a) Number Obtained : 313
	(b) Maximum Observation in Cusecs : 24,350
	(c) Minimum Observation in Cusecs : 24
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	100,000 cusecs
MEAN DAILY DISCHARGE FOR 92 YEARS:	3,588 cusecs
MEAN ANNUAL DISCHARGE FOR 92 YEARS:	2,619,000 acre feet
REMARKS:	Records obtained from Menindee Town gauge until February, 1958. Menindee Weir 32 became operational in February, 1958.

DARLING RIVER AT MENINDEE

Year 1881

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	620	283	478	29,596
Feb.	2920	176	1422	79,846
Mar.	2850	680	2300	142,602
Apr.	640	140	313	18,770
May	640	123	325	20,148
June	115	0	27	1,618
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	1710	0	301	18,046
Dec.	1680	210	795	49,270
Total	..	..	..	359,896

Year 1882

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	270	0	108	6,710
Feb.	6060	0	1547	86,628
Mar.	10100	6530	8369	518,656
Apr.	8700	1510	4167	250,024
May	1290	230	565	35,032
June	200	20	85	5,128
July	340	13	151	9,344
Aug.	974	310	564	34,994
Sept.	925	200	443	26,580
Oct.	200	0	73	4,556
Nov.	1340	140	280	16,796
Dec.	2580	1560	2004	124,244
Total	..	..	..	1,118,692

Year 1883

Jan.	5690	1540	3331	206,520
Feb.	4440	2200	2874	160,952
Mar.	6060	1560	3732	231,370
Apr.	6350	1410	4304	258,260
May	1340	10	524	32,460
June	1720	0	849	50,968
July	1680	300	906	56,160
Aug.	270	0	80	4,976
Sept.	0	0	0	0
Oct.	56	0	11	676
Nov.	400	0	169	10,122
Dec.	560	50	380	23,566
Total	..	..	..	1,036,030

Year 1884

Jan.	355	0	111	6,864
Feb.	0	0	0	0
Mar.	827	0	334	20,744
Apr.	355	0	111	6,642
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	3080	0	667	41,348
Sept.	2850	270	1189	71,346
Oct.	230	0	56	3,474
Nov.	753	140	326	19,560
Dec.	183	0	14	858
Total	..	..	..	170,836

Year 1885

Jan.	5580	0	494	26,485
Feb.	7820	1780	4823	270,084
Mar.	1640	220	772	47,457
Apr.	1680	256	1210	59,996
May	680	83	328	20,191
June	77	0	15	886
July	0	0	0	0
Aug.	83	0	42	2,564
Sept.	17	0	1	59
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	427,722

Year 1886

Jan.	0	0	0	0
Feb.	165	0	23	1,272
Mar.	270	0	55	3,387
Apr.	243	0	85	5,076
May	0	0	0	0
June	6000	0	1050	62,476
July	12000	6260	8842	548,250
Aug.	16700	12200	14862	921,480
Sept.	22300	16700	18932	1,135,920
Oct.	37900	22300	30983	1,920,980
Nov.	39000	29700	34687	2,081,240
Dec.	32500	19100	29422	1,824,200
Total	..	..	..	8,504,281

Year 1887

Jan.	32500	16200	26646	1,652,050
Feb.	15800	5450	10659	596,920
Mar.	24200	13000	18772	1,163,880
Apr.	25800	19100	23304	1,398,270
May	28600	23000	27050	1,677,100
June	22300	6730	13276	796,600
July	6530	3670	4727	290,609
Aug.	14900	4540	9108	564,720
Sept.	18500	13700	15725	943,540
Oct.	22300	18700	20084	1,245,220
Nov.	22300	6660	14422	865,320
Dec.	6460	1560	3422	210,390
Total	..	..	..	11,404,619

Year 1888

Jan.	2920	1560	2251	138,402
Feb.	3340	1020	2442	140,458
Mar.	9230	974	5408	335,280
Apr.	12000	5030	9397	563,840
May	4780	802	2273	139,734
June	753	43	281	16,736
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	1,334,450

DARLING RIVER AT MENINDEE

Year 1889					Year 1890				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	0	0	0	0	Jan.	5410	1240	2382	146,440
Feb.	0	0	0	0	Feb.	7410	4540	5610	311,529
Mar.	0	0	0	0	Mar.	16900	7660	11656	722,700
Apr.	0	0	0	0	Apr.	23100	17200	20865	1,251,920
May	753	330	403	24,803	May	94000	23100	49744	3,084,140
June	7210	974	2729	162,338	June	100000	62000	79775	4,786,500
July	18100	7480	11497	712,800	July	61300	47100	53538	3,319,400
Aug.	24200	18400	22174	1,374,820	Aug.	49100	44000	47613	2,952,044
Sept.	24200	23400	24126	1,447,600	Sept.	48500	39600	44665	2,679,938
Oct.	23000	5810	11394	706,480	Oct.	39000	28100	33770	2,093,770
Nov.	5750	2640	4772	283,906	Nov.	27900	19200	23253	1,395,150
Dec.	3080	1860	2539	156,102	Dec.	18900	9630	14519	900,182
Total	..	..	..	4,868,849	Total	..	..	..	23,643,713

Year 1891					Year 1892				
Jan.	9100	4280	6545	405,770	Jan.	8880	7940	8332	516,580
Feb.	16200	8220	14351	803,680	Feb.	7900	2850	4634	268,780
Mar.	20400	16500	18304	1,134,860	Mar.	2880	1290	2038	125,312
Apr.	28600	20800	25175	1,510,496	Apr.	1270	741	969	57,683
May	26800	15100	19972	1,238,246	May	3740	747	2350	144,491
June	15000	8330	11311	678,680	June	3800	2040	2795	166,300
July	15600	8220	11685	724,460	July	6200	2160	4141	254,575
Aug.	21300	15800	18536	1,149,246	Aug.	6630	4920	5576	342,781
Sept.	28100	21300	24907	1,494.428	Sept.	4830	2520	3842	228,558
Oct.	30900	28400	30125	1,867,726	Oct.	7000	2550	4986	306,546
Nov.	30600	25000	29078	1,744,666	Nov.	13000	7180	9967	598,040
Dec.	24600	8220	15087	935,374	Dec.	16000	13200	14803	917,780
Total	..	..	..	13,687,632	Total	..	..	..	3,927,426

Year 1893					Year 1894				
Jan.	16900	8880	13913	862,586	Jan.	7680	2680	4531	278,566
Feb.	8650	5840	6917	387,380	Feb.	4150	2200	3118	173,169
Mar.	12200	6000	8894	551,440	Mar.	3420	1290	2141	131,622
Apr.	16800	12400	14936	896,174	Apr.	9460	1620	6442	386,546
May	18700	16000	17244	1,069,172	May	16000	9630	12983	804,960
June	16200	13900	15480	928,800	June	21000	16150	18750	1,125,052
July	18500	13900	15640	969,654	July	21800	19900	21000	1,301,928
Aug.	33000	18700	24198	1,500,298	Aug.	20800	18700	20172	1,250,692
Sept.	36700	33700	35489	2,129,360	Sept.	18600	12000	15952	957,114
Oct.	33700	30500	32043	1,986,714	Oct.	11900	8880	10221	633,720
Nov.	29700	15100	22381	1,342,872	Nov.	8680	6800	7401	444,060
Dec.	14500	7050	9865	611,660	Dec.	7700	4220	6426	398,420
Total	..	..	..	13,236,110	Total	..	..	..	7,885,849

Year 1895					Year 1896				
Jan.	4020	1460	2449	150,535	Jan.	2850	270	1596	98,154
Feb.	6530	1220	3145	174,655	Feb.	8060	998	3132	181,646
Mar.	8770	6700	8116	503,170	Mar.	9100	7780	8276	513,140
Apr.	8130	1930	4173	250,386	Apr.	9280	4630	7482	448,920
May	1860	680	1042	64,061	May	4440	1380	2547	156,622
June	680	416	529	31,482	June	1270	630	865	51,451
July	412	340	370	22,794	July	675	404	556	34,223
Aug.	340	256	304	18,702	Aug.	1780	483	986	6,630
Sept.	256	170	210	12,525	Sept.	1980	1060	1465	87,169
Oct.	310	83	130	7,985	Oct.	1880	540	1247	76,653
Nov.	925	81	237	14,117	Nov.	530	165	357	21,254
Dec.	1500	450	1082	66,514	Dec.	424	137	252	15,503
Total	..	..	..	1,316,926	Total	..	..	..	1,745,365

DARLING RIVER AT MENINDEE

Year 1897

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	3400	121	1067	65,639
Feb.	3300	1510	2028	112,624
Mar.	1450	252	686	42,180
Apr.	3040	225	1759	104,675
May	692	80	238	14,652
June	86	43	55	3,106
July	100	37	58	3,583
Aug.	9790	40	2948	182,754
Sept.	10600	3490	6930	415,770
Oct.	3300	1330	2184	134,303
Nov.	5850	2520	4355	259,096
Dec.	4200	243	1644	101,071
Total	..	..	..	1,439,453

Year 1898

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	3590	148	1687	103,727
Feb.	7740	3300	5089	284,960
Mar.	10400	6600	8815	546,520
Apr.	9460	2320	5294	317,652
May	2170	428	1049	64,497
June	412	227	289	17,240
July	225	123	169	10,428
Aug.	328	121	273	16,792
Sept.	256	194	215	12,802
Oct.	925	156	538	33,074
Nov.	1240	37	267	15,880
Dec.	32	0	17	1,043
Total	..	..	..	1,424,615

Year 1899

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	5170	0	2635	161,975
Apr.	2680	165	874	52,000
May	156	37	85	5,265
June	102	24	64	3,832
July	23	19	21	1,313
Aug.	2060	20	927	56,996
Sept.	1980	692	1177	70,043
Oct.	2220	450	1247	76,700
Nov.	424	66	252	14,985
Dec.	152	43	83	5,098
Total	..	..	..	448,207

Year 1900

Jan.	156	10	64	3,976
Feb.	30	0	4	208
Mar.	37	0	7	426
Apr.	863	8	452	26,932
May	2220	540	1368	84,083
June	949	200	396	23,564
July	4780	580	2505	153,988
Aug.	8060	4870	6791	421,050
Sept.	8500	4630	7208	432,490
Oct.	4440	1560	2486	152,866
Nov.	2250	210	973	57,917
Dec.	188	0	55	3,369
Total	..	..	..	1,360,869

Year 1901

Jan.	86	20	7	448
Feb.	123	10	49	2,715
Mar.	10	0	2	139
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	370	0	17	1,043
Aug.	2960	580	2148	132,030
Sept.	4580	1050	1906	113,404
Oct.	5810	1640	4040	248,394
Nov.	1510	243	549	32,670
Dec.	270	63	174	10,692
Total	..	..	..	541,535

Year 1902

Jan.	56	1	18	1,154
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	1,154

Year 1903

Jan.	1490	0	261	16,054
Feb.	1490	50	496	27,566
Mar.	77	0	21	1,273
Apr.	876	0	49	2,907
May	1440	220	762	46,904
June	2680	700	1645	97,855
July	5140	1830	3836	235,832
Aug.	6600	925	3593	220,853
Sept.	10100	6730	8585	515,120
Oct.	10100	8020	8810	546,220
Nov.	14000	9680	12018	721,080
Dec.	14500	10300	11886	736,920
Total	..	..	..	3,168,584

Year 1904

Jan.	10400	6680	8391	520,240
Feb.	5810	974	2953	169,862
Mar.	5080	270	1457	89,580
Apr.	5470	1390	3525	209,750
May	5360	2050	4415	271,432
June	3340	802	1729	102,864
July	3670	1460	2691	165,463
Aug.	4580	1270	3085	189,660
Sept.	4270	1440	2877	171,149
Oct.	1380	400	797	49,016
Nov.	2780	433	1768	105,184
Dec.	2300	156	821	50,459
Total	..	..	..	2,094,659

DARLING RIVER AT MENINDEE

Year 1905					Year 1906				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	210	21	92	5,689	Jan.	10	0	1	79
Feb.	170	20	54	2,994	Feb.	2730	0	935	51,949
Mar.	283	56	157	9,655	Mar.	5220	2350	3837	235,898
Apr.	3380	20	567	33,770	Apr.	6190	5030	5640	335,563
May	6030	3630	5071	311,767	May	4850	2100	2573	158,174
June	5940	1660	3939	234,345	June	2050	230	741	44,102
July	2260	1160	1685	103,582	July	540	296	448	27,558
Aug.	1810	1150	1569	96,483	Aug.	276	40	131	8,080
Sept.	1100	416	829	49,309	Sept.	43	10	23	1,390
Oct.	450	140	316	19,456	Oct.	6190	20	3594	220,964
Nov.	140	3	63	3,736	Nov.	7300	5970	6819	409,140
Dec.	21	0	9	542	Dec.	5670	1510	3023	185,853
Total	..	..	..	871,328	Total	..	..	..	1,678,750

Year 1907					Year 1908				
Jan.	5670	156	1928	118,556	Jan.	1710	0	828	50,890
Feb.	6940	5670	6557	364,089	Feb.	974	10	272	15,634
Mar.	6730	1710	4044	248,613	Mar.	4020	0	1917	117,877
Apr.	3550	1100	2131	126,805	Apr.	9000	4020	6411	384,660
May	3700	483	2168	133,291	May	10700	4730	8606	533,560
June	441	106	207	12,360	June	4490	802	2210	131,522
July	1170	50	342	21,022	July	753	317	441	27,094
Aug.	1108	176	509	31,280	Aug.	580	243	374	22,979
Sept.	1620	148	925	55,056	Sept.	2490	243	1630	96,994
Oct.	474	30	209	12,883	Oct.	3720	1020	2463	151,422
Nov.	28	0	6	345	Nov.	1560	140	570	33,914
Dec.	0	0	0	0	Dec.	355	80	130	8,020
Total	..	..	..	1,124,300	Total	..	..	..	1,574,566

Year 1909					Year 1910				
Jan.	1440	270	919	56,523	Jan.	1320	43	652	40,075
Feb.	1390	66	602	33,429	Feb.	8550	270	4961	277,804
Mar.	1710	165	727	44,728	Mar.	12100	6630	9924	615,320
Apr.	2000	156	1080	64,262	Apr.	8220	4630	6189	371,320
May	140	10	60	3,728	May	9050	3150	6640	411,680
June	10	0	2	141	June	2960	450	1461	86,787
July	610	0	57	3,498	July	2370	385	1578	96,889
Aug.	1110	704	910	55,966	Aug.	4540	1710	3670	225,274
Sept.	4810	802	2433	144,779	Sept.	3300	660	1898	112,753
Oct.	5440	3300	4918	302,318	Oct.	620	156	353	21,691
Nov.	3040	220	1227	73,042	Nov.	243	106	146	8,698
Dec.	296	56	181	11,121	Dec.	753	77	468	28,751
Total	..	..	..	793,535	Total	..	..	..	2,297,042

Year 1911					Year 1912				
Jan.	2750	340	1698	105,257	Jan.	2050	230	1157	71,110
Feb.	7300	1860	5574	312,126	Feb.	243	0	59	3,389
Mar.	13000	7390	9909	614,340	Mar.	0	0	0	0
Apr.	15500	9460	13958	837,480	Apr.	0	0	0	0
May	9000	2080	4811	298,318	May	0	0	0	0
June	2000	483	1077	63,863	June	0	0	0	0
July	474	283	393	24,149	July	3080	20	379	23,312
Aug.	1100	256	571	35,111	Aug.	7040	3890	6136	377,206
Sept.	704	182	367	21,827	Sept.	5470	1810	3628	215,802
Oct.	250	90	165	10,155	Oct.	1710	296	996	61,247
Nov.	176	50	123	7,339	Nov.	256	115	152	9,028
Dec.	500	115	222	13,639	Dec.	115	115	115	7,069
Total	..	..	..	2,343,604	Total	..	..	..	768,163

DARLING RIVER AT MENINDEE

Year 1913					Year 1914				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	140	17	92	5,682	Jan.	37	0	17	1,028
Feb.	37	3	18	1,022	Feb.	6	0	0.4	24
Mar.	37	0	8	516	Mar.	0	0	0	0
Apr.	50	0	16	984	Apr.	2460	0	1423	85,392
May	296	63	96	5,920	May	2270	949	1636	101,452
June	3630	220	933	56,014	June	1640	450	888	53,302
July	7650	3890	5022	311,340	July	1680	580	1090	67,574
Aug.	9460	6000	8180	507,130	Aug.	1340	540	1108	68,702
Sept.	5750	1340	3094	185,664	Sept.	500	156	271	16,282
Oct.	1270	176	465	28,842	Oct.	148	10	59	3,630
Nov.	270	17	85	5,122	Nov.	20	0	5	304
Dec.	17	3	8	490	Dec.	620	0	56	3,456
Total	..	..	..	1,108,726	Total	..	..	..	401,146

Year 1915					Year 1916				
Jan.	680	37	267	16,594	Jan.	50	0	13	826
Feb.	106	3	24	1,348	Feb.	0	0	0	0
Mar.	115	17	60	3,752	Mar.	0	0	0	0
Apr.	13	0	3	194	Apr.	1660	0	525	31,518
May	0	0	0	0	May	2130	778	1432	88,804
June	0	0	0	0	June	1730	270	784	47,010
July	3	0	0.1	6	July	2200	140	486	30,160
Aug.	0	0	0	0	Aug.	7070	2490	5120	317,434
Sept.	1320	0	1008	60,482	Sept.	12600	7210	9761	585,660
Oct.	925	165	451	27,946	Oct.	13500	6800	10624	658,680
Nov.	500	140	367	22,002	Nov.	7740	6800	7234	434,040
Dec.	270	50	157	9,734	Dec.	7000	5750	6116	379,220
Total	..	..	..	142,058	Total	..	..	..	2,573,352

Year 1917					Year 1918				
Jan.	10300	5880	7790	483,000	Jan.	14900	9000	11659	722,900
Feb.	10800	7480	9040	506,240	Feb.	15800	10600	14423	807,700
Mar.	13500	8330	10574	655,580	Mar.	10200	4630	7490	464,350
Apr.	15400	8060	13050	783,000	Apr.	4500	729	2193	131,554
May	7660	1610	3825	237,134	May	600	90	266	16,514
June	1560	483	925	55,512	June	83	50	66	3,968
July	450	310	376	23,340	July	70	50	56	3,472
Aug.	324	243	304	18,850	Aug.	50	43	50	3,072
Sept.	1390	270	710	42,572	Sept.	483	30	195	11,718
Oct.	5880	1270	2506	155,404	Oct.	778	283	541	33,536
Nov.	7900	5640	7065	423,900	Nov.	270	30	131	7,874
Dec.	8770	4540	6358	394,190	Dec.	26	3	7	420
Total	..	..	..	3,778,722	Total	..	..	..	2,207,078

Year 1919					Year 1920				
Jan.	0	0	0	0	Jan.	0	0	0	0
Feb.	0	0	0	0	Feb.	0	0	0	0
Mar.	0	0	0	0	Mar.	0	0	0	0
Apr.	620	0	94	5,670	Apr.	50	0	23	1,350
May	500	30	180	11,166	May	3	0	0	6
June	36	6	12	738	June	0	0	0	0
July	6	6	6	372	July	8390	0	3281	203,394
Aug.	6	0	2	114	Aug.	20150	8550	12829	795,420
Sept.	0	0	0	0	Sept.	21000	14500	17753	1,065,200
Oct.	0	0	0	0	Oct.	15000	13900	14345	889,400
Nov.	0	0	0	0	Nov.	15600	7480	11852	711,140
Dec.	0	0	0	0	Dec.	7570	2520	4811	298,300
Total	..	..	..	18,060	Total	..	..	..	3,964,210

DARLING RIVER AT MENINDEE

Year 1921					Year 1922				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	2850	1910	2316	143,590	Jan.	7140	3840	5282	327,520
Feb.	1910	450	1075	60,216	Feb.	8830	6730	8011	448,660
Mar.	416	131	201	12,482	Mar.	8550	2300	5261	326,180
Apr.	296	140	191	11,452	Apr.	2200	340	1208	72,450
May	2000	270	1089	67,546	May	340	296	342	21,230
June	1980	200	386	23,152	June	296	243	289	17,340
July	10000	2850	7443	461,480	July	230	165	192	11,904
Aug.	17000	10100	13782	854,470	Aug.	165	123	137	9,102
Sept.	32200	17200	24768	1,486,100	Sept.	998	123	687	41,196
Oct.	36900	30200	34306	2,126,950	Oct.	600	140	315	19,516
Nov.	29700	20800	25040	1,502,400	Nov.	148	123	131	7,890
Dec.	20400	7480	12674	785,760	Dec.	106	56	93	5,770
Total	..	..	..	7,535,598	Total	..	..	..	1,308,758

Year 1923					Year 1924				
Jan.	1560	47	589	36,538	Jan.	1240	12	134	8,318
Feb.	1150	178	501	28,048	Feb.	3080	1860	2564	148,746
Mar.	178	130	147	9,114	Mar.	5440	2120	4095	253,900
Apr.	130	12	66	3,972	Apr.	5380	3360	4850	291,020
May	12	0	1	96	May	3180	607	2615	81,066
June	59	0	16	944	June	588	238	454	27,228
July	12	0	9	594	July	238	178	212	13,164
Aug.	468	12	63	3,902	Aug.	1300	190	651	41,374
Sept.	1010	452	675	40,136	Sept.	1350	552	938	56,286
Oct.	1680	484	1065	66,048	Oct.	2640	703	1731	107,342
Nov.	1120	166	502	30,156	Nov.	4340	745	2323	139,374
Dec.	155	0	36	2,226	Dec.	9430	4750	7261	450,190
Total	..	..	..	221,774	Total	..	..	..	1,618,008

Year 1925					Year 1926				
Jan.	11700	6170	9868	611,820	Jan.	3850	348	1138	70,584
Feb.	6070	3900	5469	306,292	Feb.	4230	1770	3482	195,010
Mar.	3680	745	2099	130,194	Mar.	1590	95	426	26,418
Apr.	930	402	677	40,634	Apr.	4170	106	2674	160,422
May	392	178	214	13,272	May	4450	3460	4048	250,950
June	170	160	168	10,060	June	5580	3600	4826	289,548
July	2300	155	848	52,550	July	5250	3030	4259	264,070
Aug.	2570	1120	1749	108,420	Aug.	2940	1890	2152	133,430
Sept.	1090	588	891	53,474	Sept.	1920	1450	1790	107,400
Oct.	7180	420	835	51,774	Oct.	1350	685	957	59,300
Nov.	406	225	271	16,252	Nov.	725	315	542	32,536
Dec.	1150	225	415	25,710	Dec.	315	143	227	14,068
Total	..	..	..	1,420,452	Total	..	..	..	1,603,736

Year 1927					Year 1928				
Jan.	135	50	77	4,754	Jan.	2760	0	1847	114,550
Feb.	2640	36	1604	89,832	Feb.	3500	725	1621	94,040
Mar.	4510	3130	3887	241,020	Mar.	6970	3080	4600	285,200
Apr.	3180	635	1471	88,290	Apr.	9020	2540	6002	360,120
May	1550	565	1244	77,100	May	5120	3260	4028	249,750
June	525	117	253	15,164	June	3700	1140	2565	153,950
July	128	52	74	4,608	July	4060	725	2031	125,940
Aug.	52	38	43	2,692	Aug.	5940	4060	4724	292,900
Sept.	38	18	28	1,682	Sept.	6560	2460	5006	300,410
Oct.	18	11	14	904	Oct.	2420	520	1129	70,020
Nov.	14	1	3	220	Nov.	505	173	318	19,104
Dec.	1	0	.5	32	Dec.	158	31	90	5,594
Total	..	..	..	526,298	Total	..	..	..	2,071,578

DARLING RIVER AT MENINDEE

Year 1929					Year 1930				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	31	5	17	1,064	Jan.	598	58	189	11,710
Feb.	3	0	1	70	Feb.	1400	144	632	35,396
Mar.	384	0	39	2,434	Mar.	1370	481	972	60,290
Apr.	2180	580	1381	82,860	Apr.	458	132	287	17,212
May	5720	640	4719	292,550	May	132	99	113	7,058
June	4210	490	1829	109,770	June	598	51	258	15,514
July	465	182	238	14,738	July	3900	383	1600	99,202
Aug.	182	150	166	10,292	Aug.	4650	3200	4118	247,100
Sept.	710	108	267	16,054	Sept.	3120	2210	2500	150,020
Oct.	775	386	594	36,820	Oct.	3480	1060	2331	144,520
Nov.	1720	260	635	38,118	Nov.	3160	805	2016	120,970
Dec.	1720	298	800	49,644	Dec.	2090	514	999	61,946
Total	..	..	..	654,414	Total	..	..	..	970,938

Year 1931					Year 1932				
Jan.	730	99	392	24,326	Jan.	7470	2880	5786	358,730
Feb.	90	19	46	2,628	Feb.	6890	1650	4254	246,760
Mar.	1030	6	239	14,828	Mar.	1540	215	621	38,504
Apr.	4100	1120	2784	167,060	Apr.	200	109	134	8,026
May	4600	1910	3573	221,540	May	247	99	119	7,410
June	5360	1670	3457	207,440	June	582	200	384	23,030
July	9580	5480	7366	456,690	July	156	72	99	6,144
Aug.	14700	9730	12555	778,420	Aug.	156	72	138	8,544
Sept.	16600	10600	15062	903,720	Sept.	298	144	258	15,508
Oct.	10100	2880	5794	359,230	Oct.	1970	132	272	16,886
Nov.	2720	1000	1921	115,260	Nov.	2960	1570	2154	129,260
Dec.	2650	565	981	60,830	Dec.	1450	217	730	45,274
Total	..	..	..	3,311,972	Total	..	..	..	904,076

Year 1933					Year 1934				
Jan.	403	114	260	16,144	Jan.	10600	4600	7920	491,010
Feb.	298	52	139	7,818	Feb.	4450	3390	3725	208,580
Mar.	4330	80	2682	166,260	Mar.	4940	3600	4680	290,120
Apr.	1630	201	619	37,138	Apr.	4650	743	2368	142,054
May	185	69	123	7,632	May	677	298	418	25,930
June	69	52	61	3,658	June	529	332	423	25,406
July	52	34	46	2,826	July	385	315	326	20,216
Aug.	2760	34	741	45,924	Aug.	385	201	319	19,786
Sept.	3520	1770	2652	159,120	Sept.	3240	427	2260	135,610
Oct.	3340	1320	1918	119,040	Oct.	5600	3440	4804	297,840
Nov.	5360	3650	4801	288,040	Nov.	5300	2620	3702	222,100
Dec.	9580	5180	7405	459,090	Dec.	5300	2620	3840	238,080
Total	..	..	..	1,312,690	Total	..	..	..	2,116,732

Year 1935					Year 1936				
Jan.	3600	1670	2368	146,800	Jan.	1430	236	715	44,334
Feb.	6890	3800	5667	317,380	Feb.	730	219	453	26,306
Mar.	6970	1830	4658	288,810	Mar.	355	73	134	8,346
Apr.	1700	332	831	49,838	Apr.	1700	236	986	59,158
May	315	114	216	13,390	May	670	202	403	24,996
June	155	102	129	7,726	June	202	73	129	7,742
July	185	80	118	7,334	July	308	84	141	8,720
Aug.	170	60	119	7,380	Aug.	1160	106	348	21,598
Sept.	170	91	138	8,266	Sept.	3290	1270	2344	140,660
Oct.	143	83	107	6,658	Oct.	1240	740	1020	63,240
Nov.	321	73	178	10,688	Nov.	702	161	369	22,140
Dec.	900	270	610	37,844	Dec.	1000	95	364	22,558
Total	..	..	..	902,114	Total	..	..	..	449,798

DARLING RIVER AT MENINDEE

Year 1937					Year 1938				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1470	260	852	52,818	Jan.	1440	252	675	41,828
Feb.	1440	66	479	26,810	Feb.	747	71	179	10,052
Mar.	1900	1120	1611	99,860	Mar.	1700	541	1218	75,528
Apr.	7060	684	3971	238,288	Apr.	509	71	216	12,946
May	7250	1440	4443	275,470	May	71	15	34	2,114
June	1340	276	651	39,048	June	3600	12	403	24,192
July	260	106	166	10,314	July	3850	717	2250	139,512
Aug.	192	95	143	8,864	Aug.	677	224	383	23,758
Sept.	260	131	206	12,368	Sept.	2580	194	1779	106,714
Oct.	920	243	745	46,208	Oct.	2160	702	1519	94,152
Nov.	573	95	306	18,384	Nov.	902	237	537	32,238
Dec.	1520	47	710	44,048	Dec.	1990	630	1291	80,056
Total	..	..	..	872,480	Total	..	..	..	643,090

Year 1939					Year 1940				
Jan.	954	194	642	39,816	Jan.	8	0	1	92
Feb.	156	38	62	3,448	Feb.	0	0	0	0
Mar.	3640	834	2809	174,142	Mar.	3000	0	1043	64,644
Apr.	5720	3680	4865	291,898	Apr.	3560	1740	2702	162,150
May	4610	1480	2880	178,536	May	2770	446	1458	90,388
June	1480	377	735	44,088	June	420	109	220	13,172
July	405	179	298	18,526	July	99	22	53	3,280
Aug.	3630	155	1952	121,024	Aug.	22	11	14	842
Sept.	3630	1490	2564	153,820	Sept.	8	0	3	216
Oct.	1440	330	739	45,820	Oct.	0	0	0	0
Nov.	530	72	198	11,864	Nov.	0	0	0	0
Dec.	72	6	38	2,380	Dec.	0	0	0	0
Total	..	..	..	1,085,362	Total	..	..	..	334,784

Year 1941					Year 1942				
Jan.	6480	0	239	148,320*	Jan.	0	0	0	0
Feb.	10400	6560	8197	459,040*	Feb.	0	0	0	0
Mar.	12600	6100	10538	653,340*	Mar.	2240	0	367	22,724
Apr.	7730	6040	6823	409,390*	Apr.	2540	791	1831	109,858
May	8040	3450	6205	384,710*	May	747	373	550	34,122
June	3080	583	1304	78,242*	June	725	237	438	26,284
July	2500	504	1527	94,662*	July	1670	381	710	43,998
Aug.	1510	650	954	59,148*	Aug.	7600	1770	5785	358,724
Sept.	646	273	445	26,706*	Sept.	6480	1380	3379	202,730
Oct.	260	99	192	11,936*	Oct.	1350	348	679	42,084
Nov.	99	32	59	3,566*	Nov.	4270	332	1879	112,738
Dec.	32	0	11	680*	Dec.	4550	2840	3990	247,360
Total	..	..	..	2,329,740*	Total	..	..	..	1,200,622

Year 1943					Year 1944				
Jan.	4790	3480	4320	267,860	Jan.	3960	740	1959	121,484
Feb.	6280	4730	5795	324,500	Feb.	3390	1990	2795	162,084
Mar.	5740	850	2795	173,338	Mar.	3240	1960	2648	164,202
Apr.	790	131	325	19,490	Apr.	1860	266	604	36,242
May	131	55	82	5,094	May	237	46	116	7,210
June	55	32	37	2,194	June	46	11	31	1,870
July	209	32	71	4,372	July	160	3	81	4,992
Aug.	209	120	159	9,840	Aug.	530	55	213	13,230
Sept.	299	0	89	5,316	Sept.	3090	266	926	55,534
Oct.	536	363	437	27,078	Oct.	2930	512	1574	97,564
Nov.	1030	417	769	46,136	Nov.	464	99	279	16,758
Dec.	4110	830	2035	126,184	Dec.	99	0	35	2,190
Total	..	..	..	1,011,402	Total	..	..	..	683,360

* 1941 figures compiled from daily telegraphic reports.

DARLING RIVER AT MENINDEE

Year 1945					Year 1946				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	5	0	1	70	Jan.	697	0	104	6,472
Feb.	0	0	0	0	Feb.	3350	10	934	52,318
Mar.	1860	0	88	5,445	Mar.	3800	660	2475	153,432
Apr.	3900	697	2411	144,684	Apr.	635	265	439	26,320
May	673	165	376	23,296	May	605	180	390	24,186
June	684	95	464	27,844	June	295	10	134	8,066
July	5250	310	2527	156,654	July	10	1	4	230
Aug.	5000	3500	4068	252,200	Aug.	1	0	.1	6
Sept.	4400	3160	3648	218,860	Sept.	0	0	0	0
Oct.	3450	1270	2280	141,360	Oct.	0	0	0	0
Nov.	1650	275	707	42,412	Nov.	328	0	176	10,536
Dec.	255	0	51	3,138	Dec.	265	85	117	7,282
Total	..	..	..	1,015,963	Total	..	..	..	288,848

Year 1947					Year 1948				
Jan.	350	7	155	9,616	Jan.	6870	1650	4986	309,110
Feb.	1180	77	335	18,814	Feb.	7350	4030	6584	381,850
Mar.	8510	1840	6266	388,520	Mar.	4000	1090	1919	119,010
Apr.	10800	7210	9184	551,030	Apr.	1320	713	1002	60,120
May	6540	4300	5710	353,990	May	705	420	564	34,970
June	4150	760	2082	124,904	June	1960	605	786	47,150
July	740	577	644	39,958	July	7570	2320	5840	362,050
Aug.	563	350	426	26,440	Aug.	8130	5370	7335	454,740
Sept.	420	245	340	20,428	Sept.	5000	2000	3141	188,490
Oct.	2880	285	1948	120,758	Oct.	2680	940	1497	92,804
Nov.	1220	760	966	57,942	Nov.	1260	328	722	43,314
Dec.	1320	713	858	53,218	Dec.	328	104	207	12,804
Total	..	..	..	1,765,618	Total	..	..	..	2,106,412

Year 1949					Year 1950				
Jan.	265	3	64	3,944	Jan.	7080	1380	4323	268,044
Feb.	414	0	159	8,950	Feb.	2790	673	1951	109,282
Mar.	3310	416	1408	87,320	Mar.	5430	1600	3952	244,996
Apr.	3320	1080	2116	126,980	Apr.	7980	5290	6324	379,420
May	1280	487	834	51,540	May	11700	8110	9919	614,956
June	479	161	354	21,254	June	13000	8920	11743	704,592
July	646	161	347	21,476	July	9900	8160	8680	538,150
Aug.	960	386	510	31,666	Aug.	14000	10100	12165	754,200
Sept.	1490	490	761	25,656	Sept.	50500	14200	30130	1,807,958
Oct.	6320	1710	4550	282,130	Oct.	48000	32500	40028	2,481,742
Nov.	8060	5510	6531	391,860	Nov.	32100	22300	26593	1,595,560
Dec.	10700	7940	9566	593,100	Dec.	34300	21700	26770	1,659,748
Total	..	..	..	1,645,876	Total	..	..	..	11,158,648

Year 1951					Year 1952				
Jan.	46200	34200	38395	2,380,500	Jan.	439	210	331	20,520
Feb.	33300	13400	21307	1,193,200	Feb.	220	116	147	8,554
Mar.	13300	11700	12173	754,730	Mar.	402	90	149	9,236
Apr.	11800	9400	10904	654,220	Apr.	770	90	415	24,892
May	9320	5050	7190	445,782	May	1020	528	735	45,570
June	4900	2090	3311	198,666	June	3140	433	914	54,832
July	4850	1720	3028	187,760	July	7550	3320	4687	290,600
Aug.	5880	4560	5061	318,800	Aug.	9370	7350	7910	490,400
Sept.	7800	5880	6767	406,000	Sept.	14800	9530	12213	732,800
Oct.	7860	2800	5726	355,000	Oct.	17600	14900	16352	1,013,800
Nov.	2740	547	1293	77,590	Nov.	17300	11800	13371	802,280
Dec.	542	445	488	30,272	Dec.	12000	9050	11222	695,760
Total	..	..	..	7,002,520	Total	..	..	..	4,189,244

DARLING RIVER AT MENINDEE

Year 1953

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	8650	2000	4920	305,000
Feb.	1890	564	966	54,122
Mar.	7010	505	2371	146,980
Apr.	12400	7210	9697	581,800
May	13400	6440	2970	574,800
June	6320	1830	3936	236,140
July	1670	590	961	55,850
Aug.	673	564	603	37,378
Sept.	1280	539	771	46,232
Oct.	1350	502	846	52,468
Nov.	496	394	435	26,104
Dec.	386	240	301	18,634
Total	..	..	..	2,135,508

Year 1954

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	210	95	179	11,074
Feb.	1170	80	223	12,492
Mar.	6560	514	3968	246,012
Apr.	7670	5150	6882	412,940
May	4940	956	2511	155,710
June	900	290	492	29,548
July	273	205	224	13,868
Aug.	4450	255	2241	138,932
Sept.	5400	4600	5108	306,510
Oct.	4630	1030	2892	179,276
Nov.	5700	668	2497	149,844
Dec.	11300	5850	8421	552,100
Total	..	..	..	2,208,306

Year 1955

Jan.	13400	5200	10326	640,190
Feb.	5000	3370	4009	224,510
Mar.	7200	3250	4468	277,030
Apr.	14100	7380	10473	628,380
May	16800	10100	14667	909,370
June	9960	6570	8003	480,170
July	7160	6480	6657	412,740
Aug.	7160	5200	6191	383,816
Sept.	5250	4680	4896	293,750
Oct.	5350	3440	4602	285,320
Nov.	7610	3440	5512	330,756
Dec.	10600	6930	9149	567,222
Total	..	..	..	5,433,254

Year 1956

Jan.	6120	2600	3953	245,086
Feb.	5820	2020	3852	223,400
Mar.	10800	5940	8182	507,290
Apr.	39600	11100	21169	1,270,160
May	54800	41200	49819	3,088,764
June	48200	44200	46192	2,771,494
July	45200	43900	44477	2,757,556
Aug.	63200	45200	49289	3,055,940
Sept.	65100	40500	53890	3,233,360
Oct.	39800	21400	30065	1,864,110
Nov.	20800	9900	14695	881,780
Dec.	15000	10600	13042	808,600
Total	..	..	..	20,707,540

Year 1957

Jan.	6580	3760	4893	303,390
Feb.	3730	2820	3792	212,350
Mar.	2690	1130	1759	109,044
Apr.	1090	832	923	55,374
May	873	687	732	45,400
June	687	630	651	39,030
July	628	571	590	36,604
Aug.	729	598	679	42,126
Sept.	658	510	578	34,694
Oct.	830	477	673	41,752
Nov.	457	168	273	16,406
Dec.	175	84	122	7,576
Total	..	..	..	943,746

Year 1958

Jan.	94	0	11	702
Feb.	62	1	20	1,124
Mar.	1530	0	670	42,754*
Apr.	3280	945	2056	123,348
May	2240	406	1020	63,226
June	390	308	344	20,666
July	3630	360	2127	131,876
Aug.	2520	550	1160	71,890
Sept.	820	436	556	33,342
Oct.	2320	820	1562	96,814
Nov.	3800	2180	3008	180,454
Dec.	2370	343	994	61,600
Total	..	..	..	827,796

Year 1959

Jan.	2790	218	504	31,276
Feb.	4740	2980	4340	243,018
Mar.	6780	4730	5684	352,426
Apr.	7920	6840	7496	449,738
May	7910	7080	7726	479,010
June	7000	1400	3103	186,184
July	1410	897	1143	70,896
Aug.	3470	855	1582	98,088
Sept.	3540	1380	2459	147,538
Oct.	1380	700	960	59,530
Nov.	830	612	736	44,188
Dec.	4110	644	2347	145,508
Total	..	..	..	2,307,400

Year 1960

Jan.	4500	2560	3337	206,882
Feb.	5120	1320	3721	215,792
Mar.	1240	581	748	46,402
Apr.	645	398	498	29,900
May	399	231	314	19,472
June	235	81	204	12,234
July	420	239	318	19,692
Aug.	635	215	394	24,426
Sept.	789	244	422	25,318
Oct.	287	239	267	16,550
Nov.	377	148	270	16,218
Dec.	358	150	176	10,914
Total	..	..	..	643,800

* Weir 32 figures adopted from March 1958.

DARLING RIVER AT MENINDEE

Year 1961					Year 1962				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	187	38	145	8,972	Jan.	390	60	245	15,174
Feb.	70	43	59	3,328	Feb.	372	332	351	19,640
Mar.	84	59	74	4,566	Mar.	332	114	230	14,268
Apr.	114	64	83	4,972	Apr.	770	108	592	35,502
May	112	72	86	5,352	May	5950	763	4203	260,594
June	125	77	106	6,364	June	5920	550	3404	211,074
July	123	72	96	5,970	July	1160	230	799	49,526
Aug.	230	50	69	4,296	Aug.	1580	230	913	56,610
Sept.	76	60	68	4,074	Sept.	2980	1020	1608	96,452
Oct.	142	43	81	5,018	Oct.	3040	185	1638	101,552
Nov.	142	53	70	4,172	Nov.	200	45	161	9,656
Dec.	78	52	61	3,768	Dec.	157	59	91	5,460
Total	..	..	..	60,852	Total	..	..	..	875,508

Year 1963					Year 1964				
Jan.	3310	59	1726	107,036	Jan.	5910	952	3189	197,734
Feb.	6460	1530	4274	239,332	Feb.	7120	2240	5539	321,246
Mar.	4390	102	1269	78,706	Mar.	2240	194	471	29,180
Apr.	6590	545	3577	214,650	Apr.	1980	221	769	46,128
May	6570	5390	5886	364,930	May	1250	920	1090	67,602
June	6320	5500	6190	371,560	June	1240	1100	1178	70,658
July	7200	5530	6516	403,974	July	2470	1060	1506	93,390
Aug.	5470	2480	3662	227,062	Aug.	5530	2250	4416	273,812
Sept.	4140	2310	2866	171,950	Sept.	5200	1940	3077	184,606
Oct.	4410	2540	3688	228,642	Oct.	4000	1920	2605	161,526
Nov.	2540	356	1368	82,096	Nov.	4980	2340	3860	231,584
Dec.	952	84	255	15,780	Dec.	2340	304	1235	76,584
Total	..	..	..	2,505,718	Total	..	..	..	1,754,050

Year 1965					Year 1966				
Jan.	2000	170	801	49,672	Jan.	791	60	363	22,490
Feb.	1340	495	867	48,574	Feb.	2250	100	1403	78,550
Mar.	1250	500	957	59,308	Mar.	364	85	163	10,110
Apr.	1420	100	784	47,010	Apr.	114	97	105	6,280
May	120	72	88	5,436	May	112	33	71	4,380
June	90	68	80	4,804	June	66	48	56	3,380
July	90	65	80	4,990	July	48	24	32	1,990
Aug.	120	41	68	4,220	Aug.	44	24	34	2,100
Sept.	78	46	57	3,440	Sept.	47	28	38	2,290
Oct.	70	24	53	3,280	Oct.	70	23	46	2,860
Nov.	1200	58	514	30,810	Nov.	106	33	66	3,950
Dec.	470	260	345	21,370	Dec.	155	62	75	2,660
Total	..	..	..	282,914	Total	..	..	..	141,040

Year 1967					Year 1968				
Jan.	203	55	96	5,960	Jan.	295	85	148	9,200
Feb.	195	84	129	7,200	Feb.	715	295	472	27,390
Mar.	288	180	263	16,290	Mar.	1590	564	646	40,070
Apr.	284	90	135	8,130	Apr.	1590	683	1132	67,910
May	114	69	97	5,990	May	1020	57	356	22,070
June	65	53	60	3,600	June	60	48	54	3,240
July	179	59	79	4,930	July	60	54	58	3,622
Aug.	815	71	372	23,030	Aug.	66	58	61	3,794
Sept.	690	555	659	39,560	Sept.	77	61	69	4,158
Oct.	848	635	802	49,730	Oct.	134	74	94	5,836
Nov.	815	31	340	20,430	Nov.	114	81	100	5,980
Dec.	73	63	66	4,090	Dec.	132	101	112	6,924
Total	..	..	..	188,940	Total	..	..	..	200,194

DARLING RIVER AT MENINDEE

Year 1969					Year 1970				
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	134	103	112	6,974	Jan.	531	114	240	14,860
Feb.	1870	101	1377	77,134	Feb.	137	114	126	7,080
Mar.	782	66	151	9,348	Mar.	139	78	120	7,470
Apr.	106	82	97	5,810	Apr.	379	87	162	9,740
May	100	57	67	4,162	May	379	50	80	4,970
June	67	47	53	3,206	June	73	44	53	3,240
July	71	53	61	3,802	July	65	51	57	3,540
Aug.	54	44	47	2,932	Aug.	695	49	178	11,100
Sept.	61	45	55	3,320	Sept.	67	49	56	3,380
Oct.	220	61	97	6,040	Oct.	96	48	73	4,500
Nov.	208	107	123	7,378	Nov.	96	76	87	5,190
Dec.	492	103	286	17,730	Dec.	137	82	115	7,130
Total	..	..	..	147,836	Total	..	..	..	82,200

Year 1971					Year 1972				
Jan.	6850	129	4126	256,000	Jan.	159	135	150	9,280
Feb.	8490	6850	7506	420,300	Feb.	3600	129	1147	66,500
Mar.	18490	8470	11106	691,900	Mar.	3230	439	1219	75,600
Apr.	30300	18490	24777	1,486,600	Apr.	457	88	203	12,200
May	22080	2130	10151	629,000	May	99	54	81	5,030
June	2000	1130	1506	90,400	June	88	56	74	4,460
July	1140	558	845	52,400	July	72	57	65	4,000
Aug.	2140	617	1583	98,200	Aug.	94	64	83	5,120
Sept.	5550	2130	4161	258,000	Sept.	525	22	142	8,500
Oct.	4820	2630	3793	235,000	Oct.	135	79	101	6,300
Nov.	2610	130	1125	67,500	Nov.	89	74	80	4,800
Dec.	161	103	130	8,090	Dec.	2070	76	858	53,000
Total	..	..	..	4,293,390	Total	..	..	..	254,790

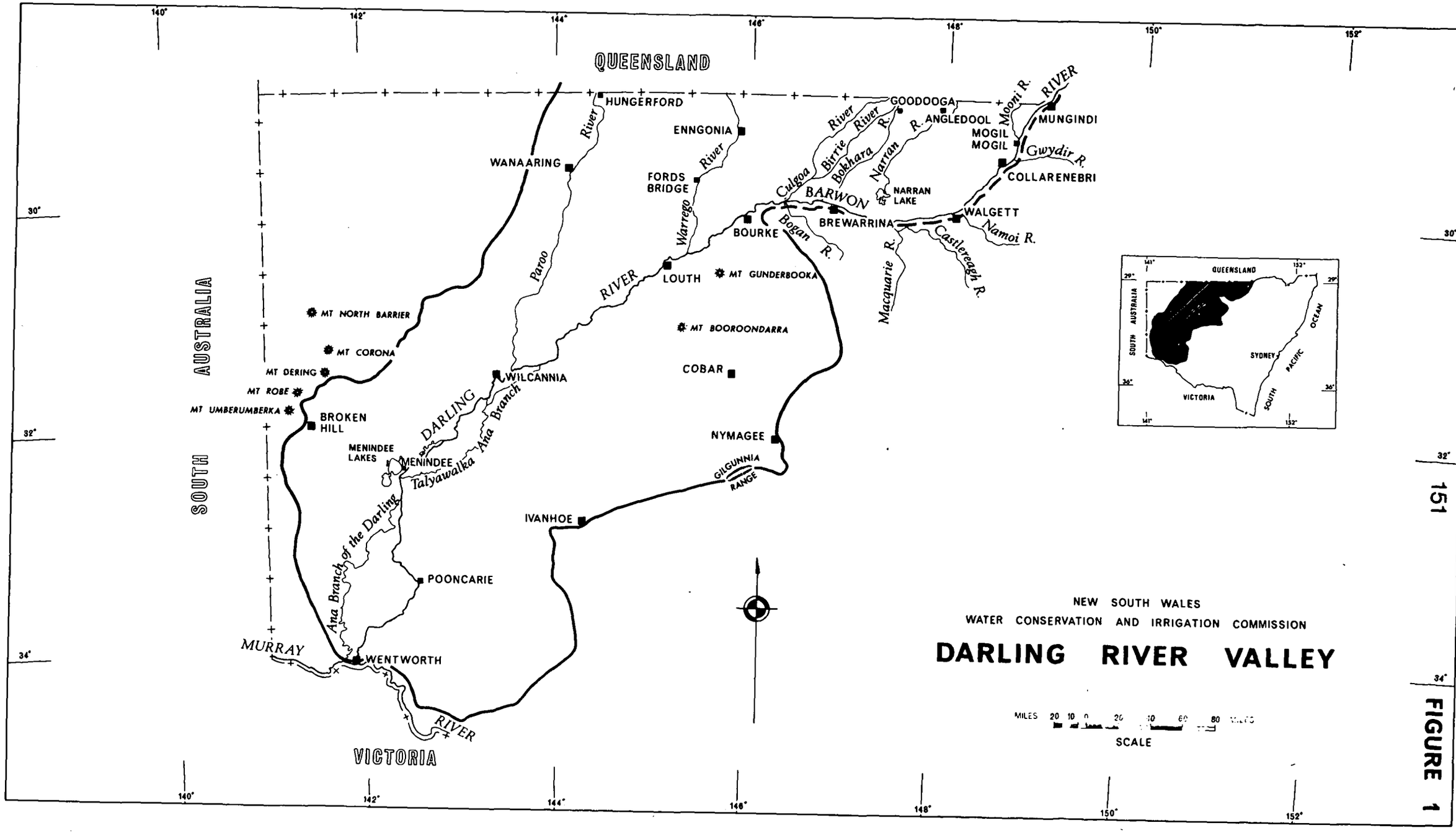

QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
HUNGERFORD
ENNGONIA
WANAARING
FORDS BRIDGE
GOODOOGA
ANGLEDOOL
MOGIL MOGIL
MUNGINDI
COLLARENEBRI
WALGETT
NARRAN LAKE
BREWARRINA
BOURKE
LOUTH
MT GUNDERBOOKA
MT BOOROONDARRA
COBAR
WILCANNIA
NYMAGEE
IVANHOE
POONCARIE
WENTWORTH
BROKEN HILL
MENINDEE LAKES
MENINDEE
MT NORTH BARRIER
MT CORONA
MT DERING
MT ROBE
MT UMBERUMBERKA
DARLING RIVER
Paroo River
Warrego River
Culgoa River
Birrie River
Bokhara R.
Narran R.
Moonie R.
Gwydir R.
Namoi R.
Castlereagh R.
Macquarie R.
Bogan R.
BARWON
Ana Branch
Talyawalka
Ana Branch of the Darling
MURRAY RIVER
GILGUNNIA RANGE
QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
SYDNEY
SOUTH PACIFIC OCEAN
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
MILES 20 10 0 20 40 60 80
SCALE

FIGURE 1

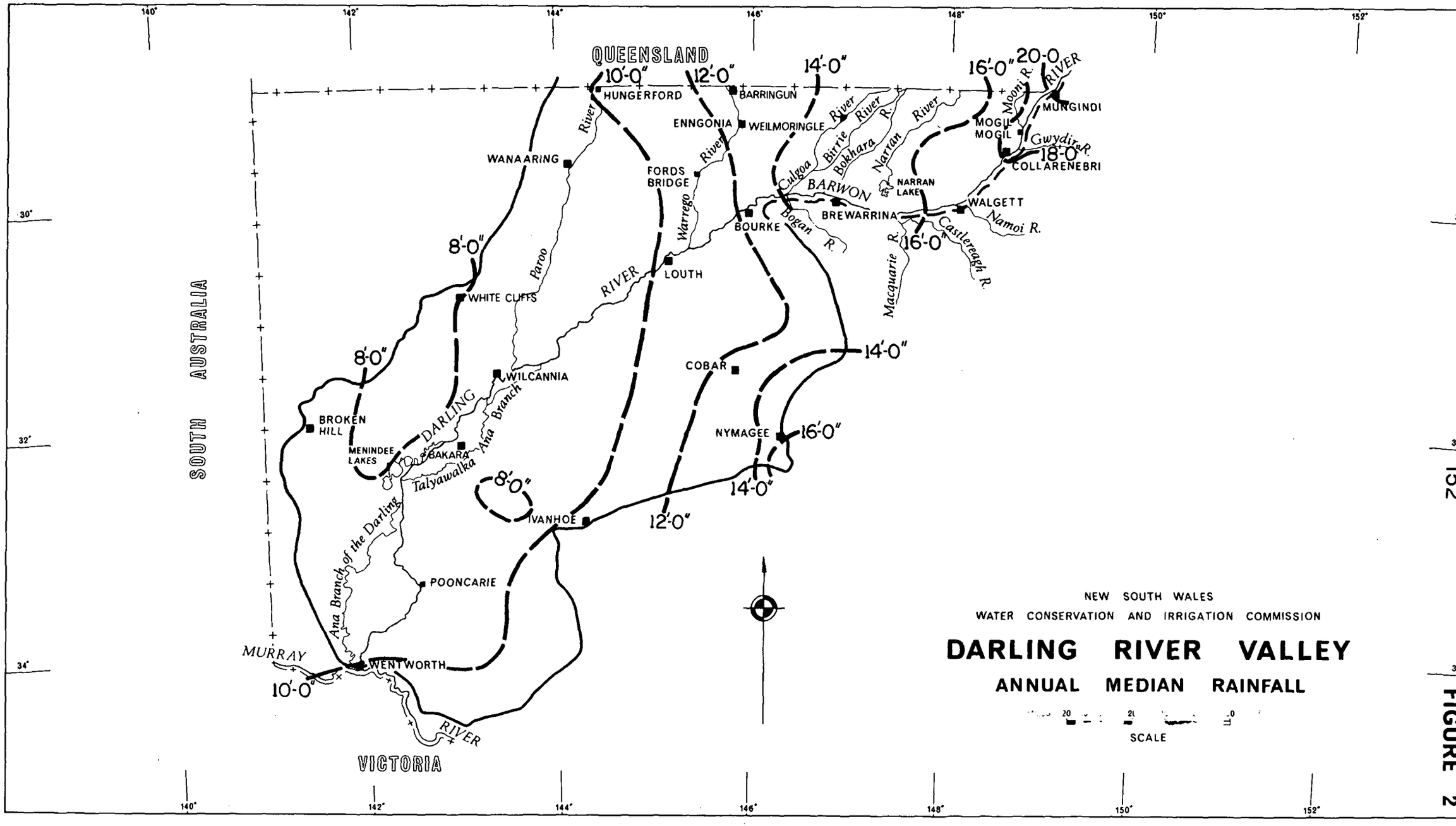

QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
HUNGERFORD
BARRINGUN
ENNGONIA
WEILMORINGLE
WANAARING
FORDS BRIDGE
BOURKE
BREWARRINA
NARRAN LAKE
WALGETT
COLLARENEBRI
MOGIL MOGIL
MUNGINDI
WHITE CLIFFS
LOUTH
WILCANNIA
COBAR
NYMAGEE
BROKEN HILL
MENINDEE LAKES
BAKARA
IVANHOE
POONCARIE
WENTWORTH
MURRAY
RIVER
DARLING
Paroo
Warrego
Culgoa
Birrie
Bokhara
Narran
Bogan R.
Macquarie R.
Castlereagh R.
Namoi R.
Moonie R.
Gwydir R.
Talyawalka Ana Branch
Ana Branch of the Darling
BARWON
10'-0"
12'-0"
14'-0"
16'-0"
20-0
18-0
8'-0"
140°
142°
144°
146°
148°
150°
152°
30°
32°
34°
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
ANNUAL MEDIAN RAINFALL
SCALE

FIGURE 2

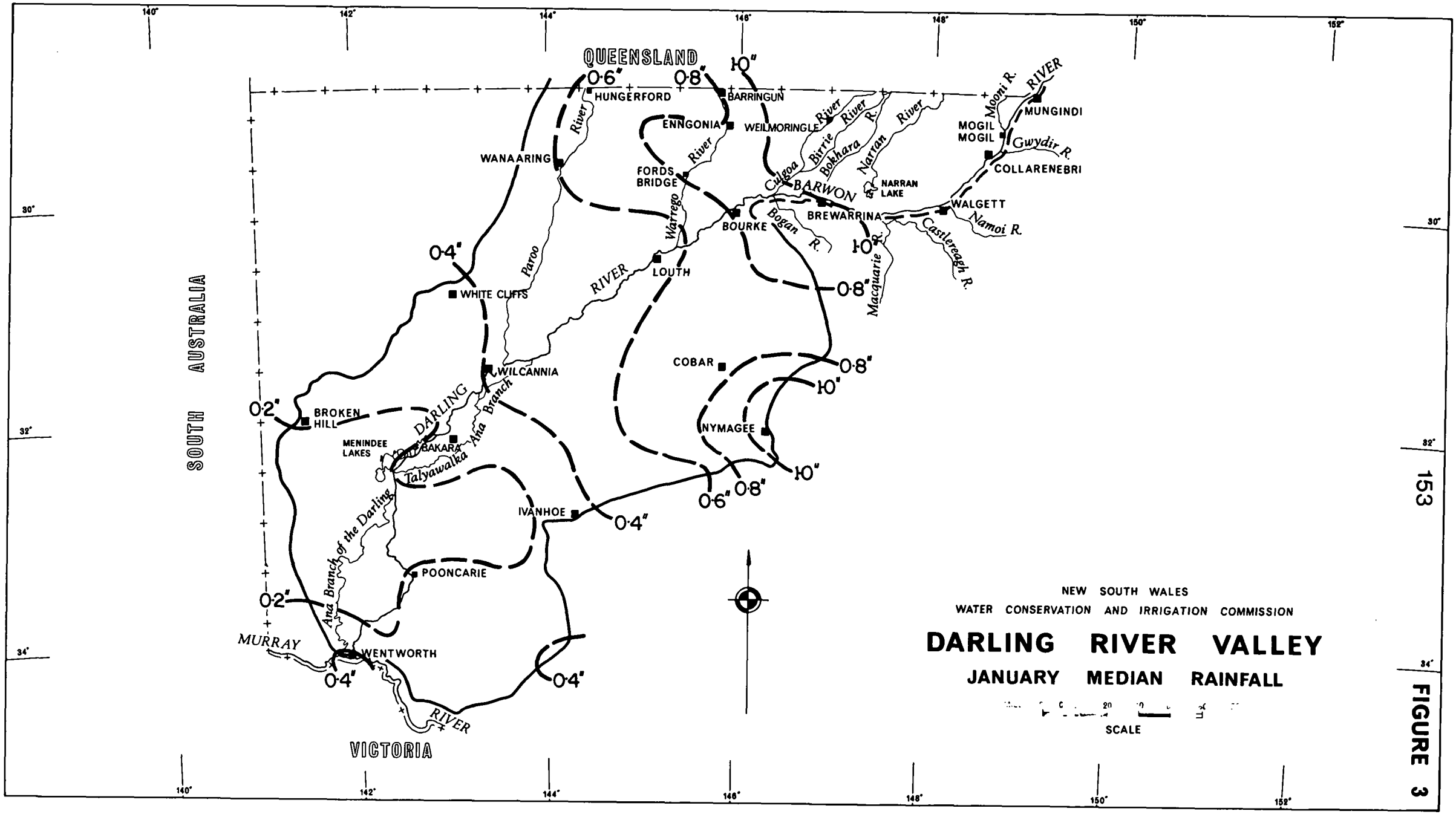

QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
HUNGERFORD
BARRINGUN
ENNGONIA
WEILMORINGLE
WANAARING
FORDS BRIDGE
BOURKE
BREWARRINA
WALGETT
MOGIL MOGIL
MUNGINDI
COLLARENEBRI
NARRAN LAKE
WHITE CLIFFS
LOUTH
WILCANNIA
COBAR
NYMAGEE
BROKEN HILL
MENINDEE LAKES
BAKARA
IVANHOE
POONCARIE
WENTWORTH
DARLING
RIVER
MURRAY
RIVER
Paroo
Warrego
Culgoa
Birrie
Bokhara
Narran
Bogan R.
Macquarie
Castlereagh R.
Namoi R.
Gwydir R.
Mooni R.
Talyawalka
Ana Branch
Ana Branch of the Darling
0·6"
0·8"
1·0"
0·4"
0·2"
140°
142°
144°
146°
148°
150°
152°
30°
32°
34°
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
JANUARY MEDIAN RAINFALL
SCALE

FIGURE 3

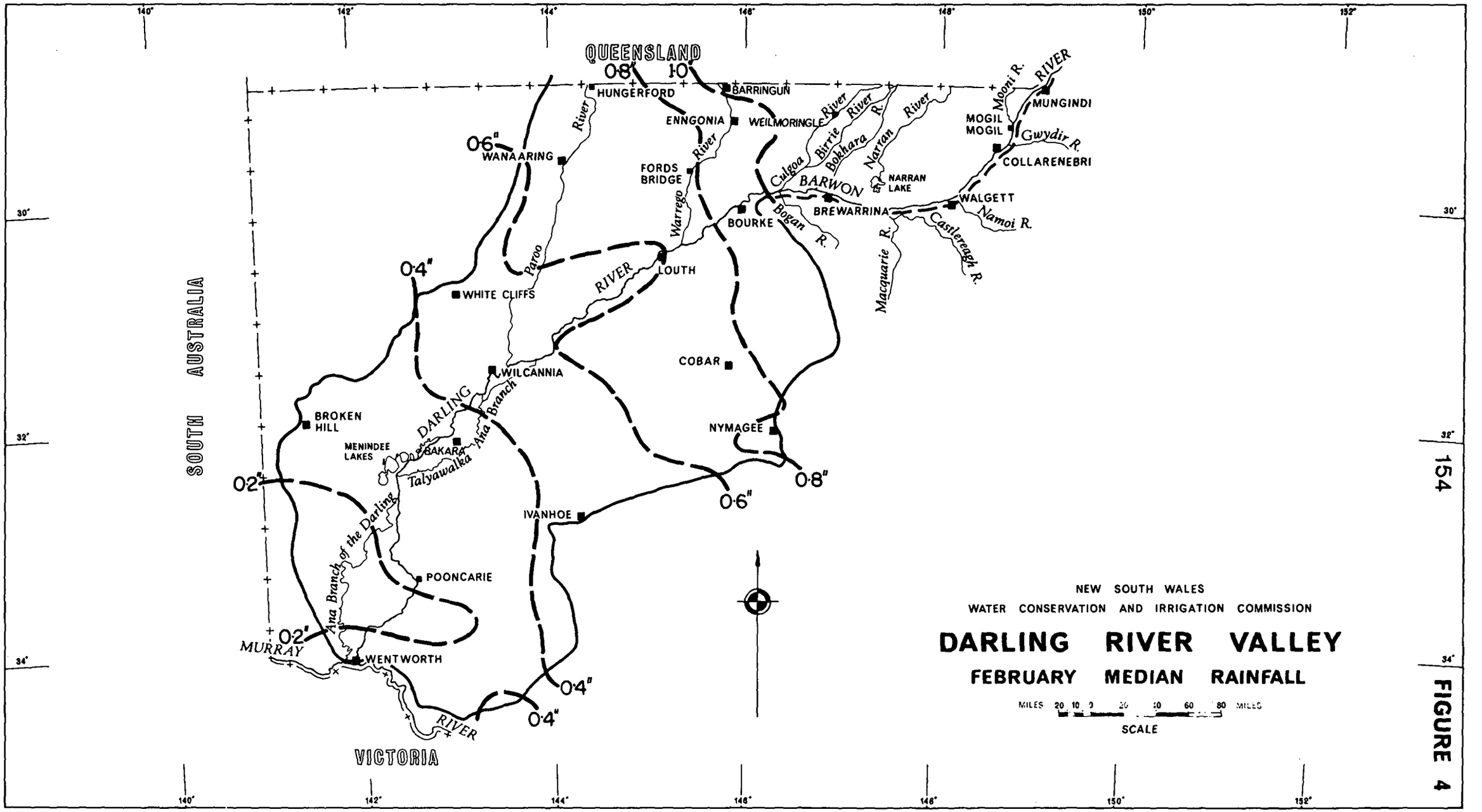
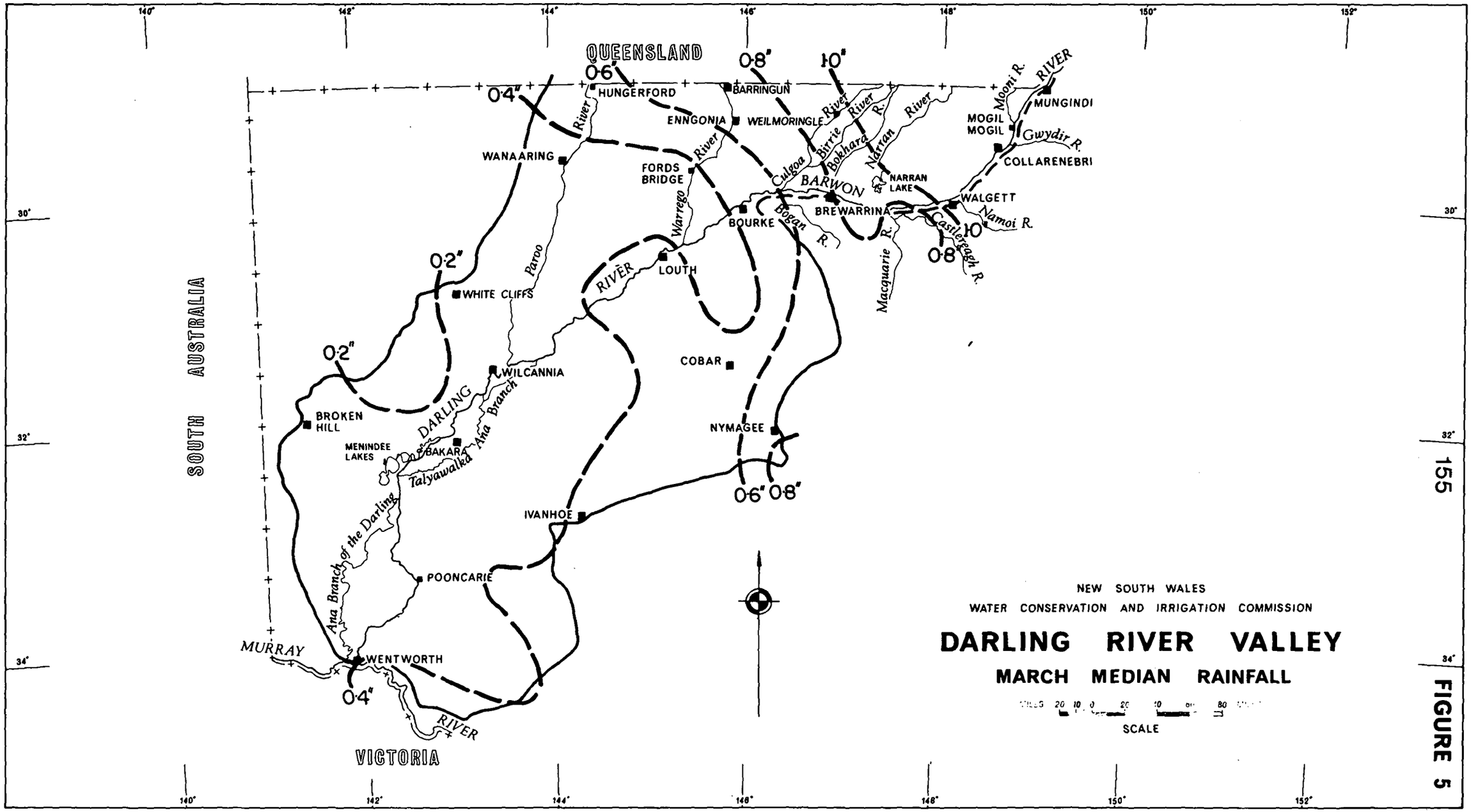
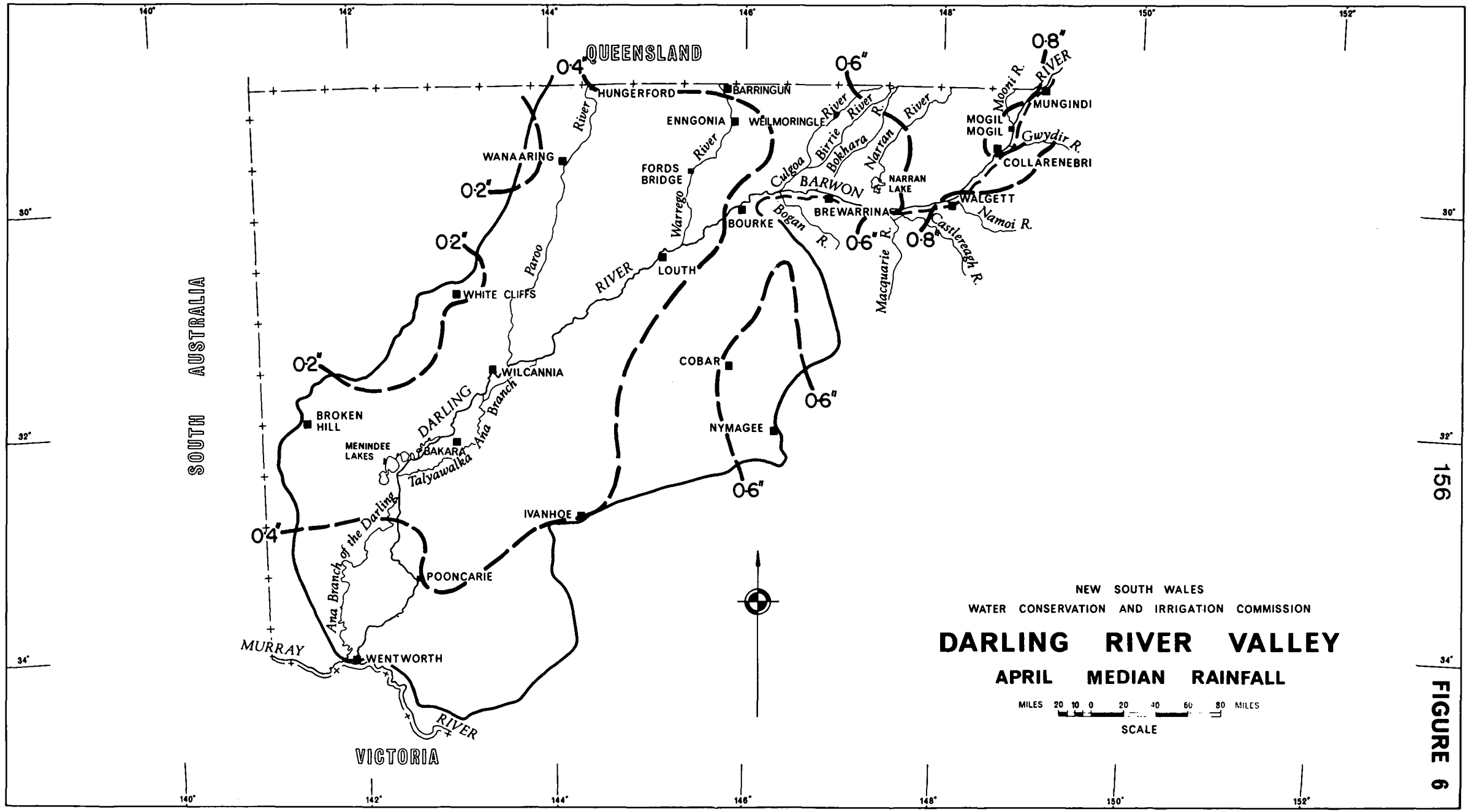

QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
0·8"
1·0"
0·6"
0·4"
0·2"
HUNGERFORD
BARRINGUN
ENNGONIA
WEILMORINGLE
WANAARING
FORDS BRIDGE
BOURKE
LOUTH
WHITE CLIFFS
COBAR
WILCANNIA
NYMAGEE
BROKEN HILL
MENINDEE LAKES
BAKARA
IVANHOE
POONCARIE
WENTWORTH
MUNGINDI
MOGIL MOGIL
COLLARENEBRI
WALGETT
BREWARRINA
NARRAN LAKE
BARWON
DARLING
RIVER
MURRAY
Paroo
Warrego
Bogan R.
Culgoa
Birrie
Bokhara
Narran
Moonie R.
Gwydir R.
Namoi R.
Castlereagh R.
Macquarie R.
Ana Branch
Talyawalka
Ana Branch of the Darling
140°
142°
144°
146°
148°
150°
152°
30°
32°
34°
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
FEBRUARY MEDIAN RAINFALL
MILES 20 10 0 20 40 60 80 MILES
SCALE

FIGURE 4


QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
0·4"
0·6"
0·8"
1·0"
0·2"
HUNGERFORD
BARRINGUN
ENNGONIA
WEILMORINGLE
WANAARING
FORDS BRIDGE
BOURKE
LOUTH
WHITE CLIFFS
WILCANNIA
COBAR
NYMAGEE
BROKEN HILL
MENINDEE LAKES
BAKARA
IVANHOE
POONCARIE
WENTWORTH
MUNGINDI
MOGIL MOGIL
COLLARENEBRI
NARRAN LAKE
BREWARRINA
WALGETT
BARWON
DARLING RIVER
MURRAY RIVER
Paroo River
Warrego River
Culgoa River
Birrie River
Bokhara River
Narran River
Bogan R.
Macquarie R.
Castlereagh R.
Namoi R.
Gwydir R.
Mooni R.
Ana Branch
Talyawalka Ana Branch
Ana Branch of the Darling
140°
142°
144°
146°
148°
150°
152°
30°
32°
34°
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
MARCH MEDIAN RAINFALL
SCALE

155

FIGURE 5


QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
APRIL MEDIAN RAINFALL
MILES 20 10 0 20 40 60 80 MILES
SCALE
HUNGERFORD
BARRINGUN
ENNGONIA
WEILMORINGLE
WANAARING
FORDS BRIDGE
WHITE CLIFFS
LOUTH
BOURKE
BREWARRINA
NARRAN LAKE
WALGETT
COLLARENEBRI
MOGIL MOGIL
MUNGINDI
COBAR
NYMAGEE
WILCANNIA
BROKEN HILL
MENINDEE LAKES
BAKARA
IVANHOE
POONCARIE
WENTWORTH
DARLING RIVER
Paroo River
Warrego River
Culgoa River
Birrie River
Bokhara River
Narran River
Mooni R.
Gwydir R.
Namoi R.
Castlereagh R.
Macquarie R.
Bogan R.
Talyawalka Ana Branch
Ana Branch of the Darling
MURRAY RIVER
BARWON
0·4"
0·2"
0·2"
0·2"
0·4"
0·6"
0·6"
0·6"
0·6"
0·6"
0·8"
0·8"
140°
142°
144°
146°
148°
150°
152°
30°
32°
34°

156

FIGURE 6

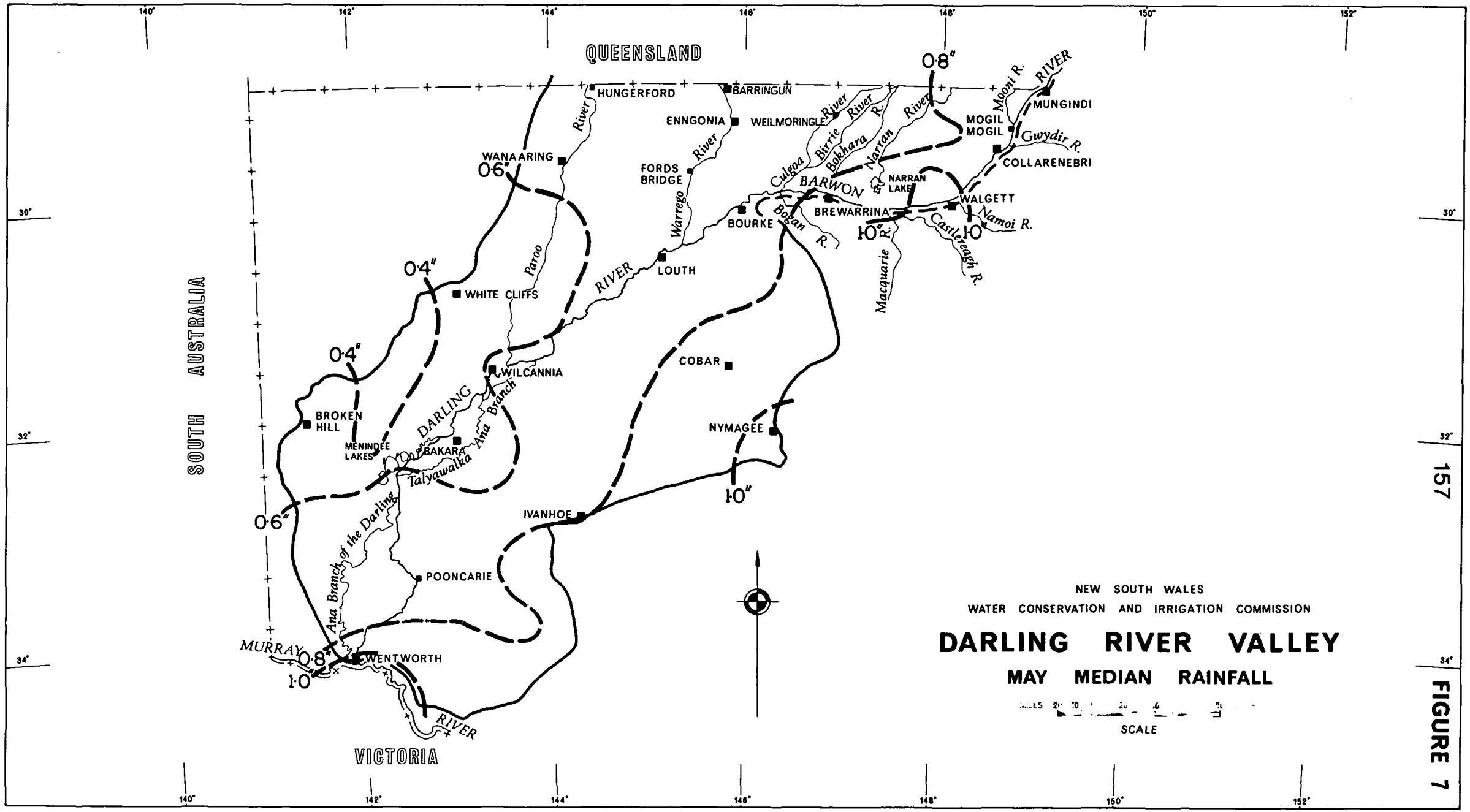
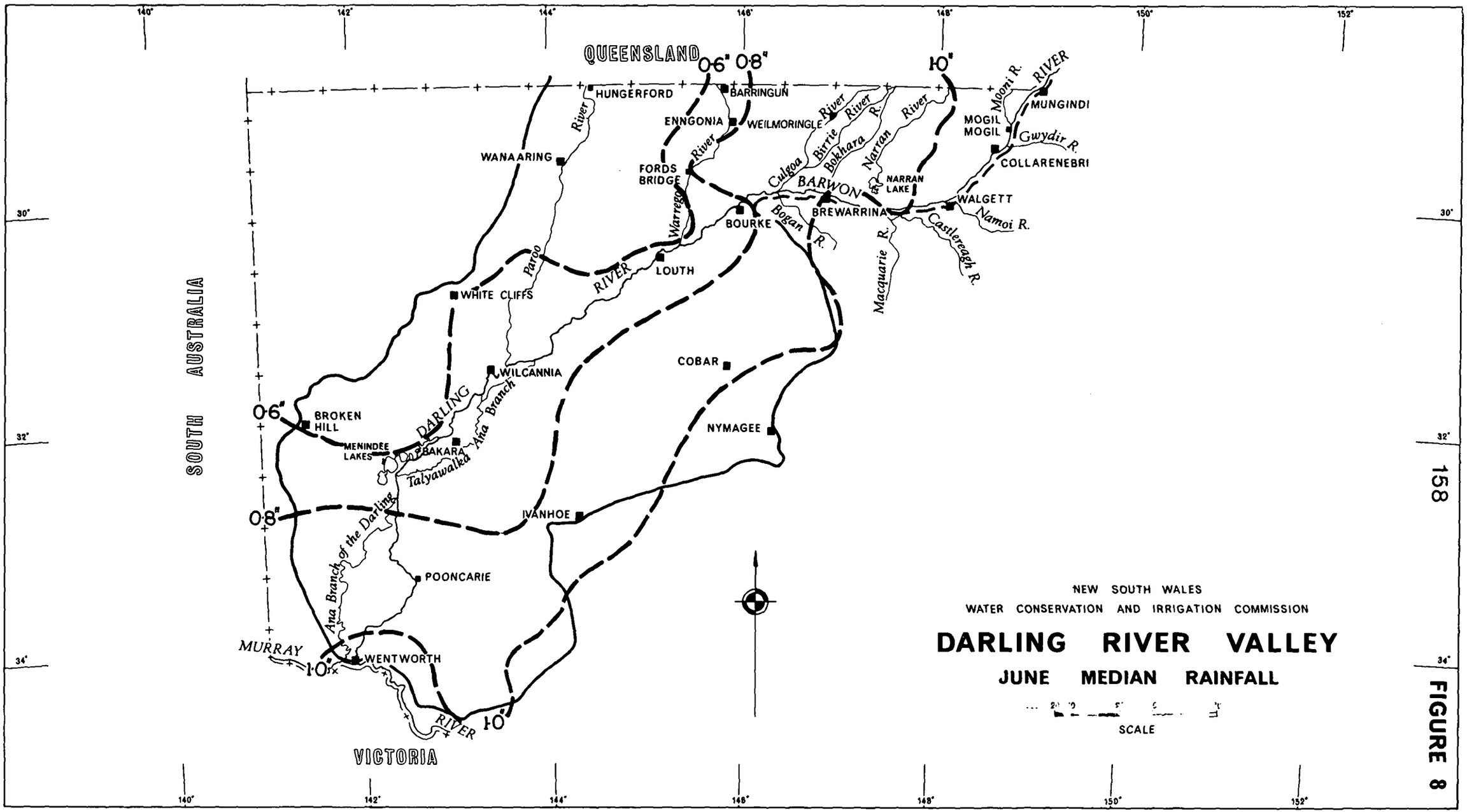

QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
HUNGERFORD
BARRINGUN
ENNGONIA
WEILMORINGLE
MOGIL MOGIL
MUNGINDI
COLLARENEBRI
WANAARING
FORDS BRIDGE
NARRAN LAKE
BARWON
WALGETT
BREWARRINA
BOURKE
LOUTH
WHITE CLIFFS
WILCANNIA
COBAR
NYMAGEE
BROKEN HILL
MENINDEE LAKES
BAKARA
IVANHOE
POONCARIE
WENTWORTH
MURRAY
RIVER
DARLING
Paroo
Warrego
Culgoa
Birrie
Bokhara
Narran
Moomi R.
Gwydir R.
Namoi R.
Castlereagh R.
Macquarie R.
Bogan R.
Ana Branch
Talyawalka
0·6"
0·4"
0·8"
1·0"
140°
142°
144°
146°
148°
150°
152°
30°
32°
34°
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
MAY MEDIAN RAINFALL
SCALE

FIGURE 7



NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

DARLING RIVER VALLEY

JUNE MEDIAN RAINFALL

SCALE

FIGURE 8

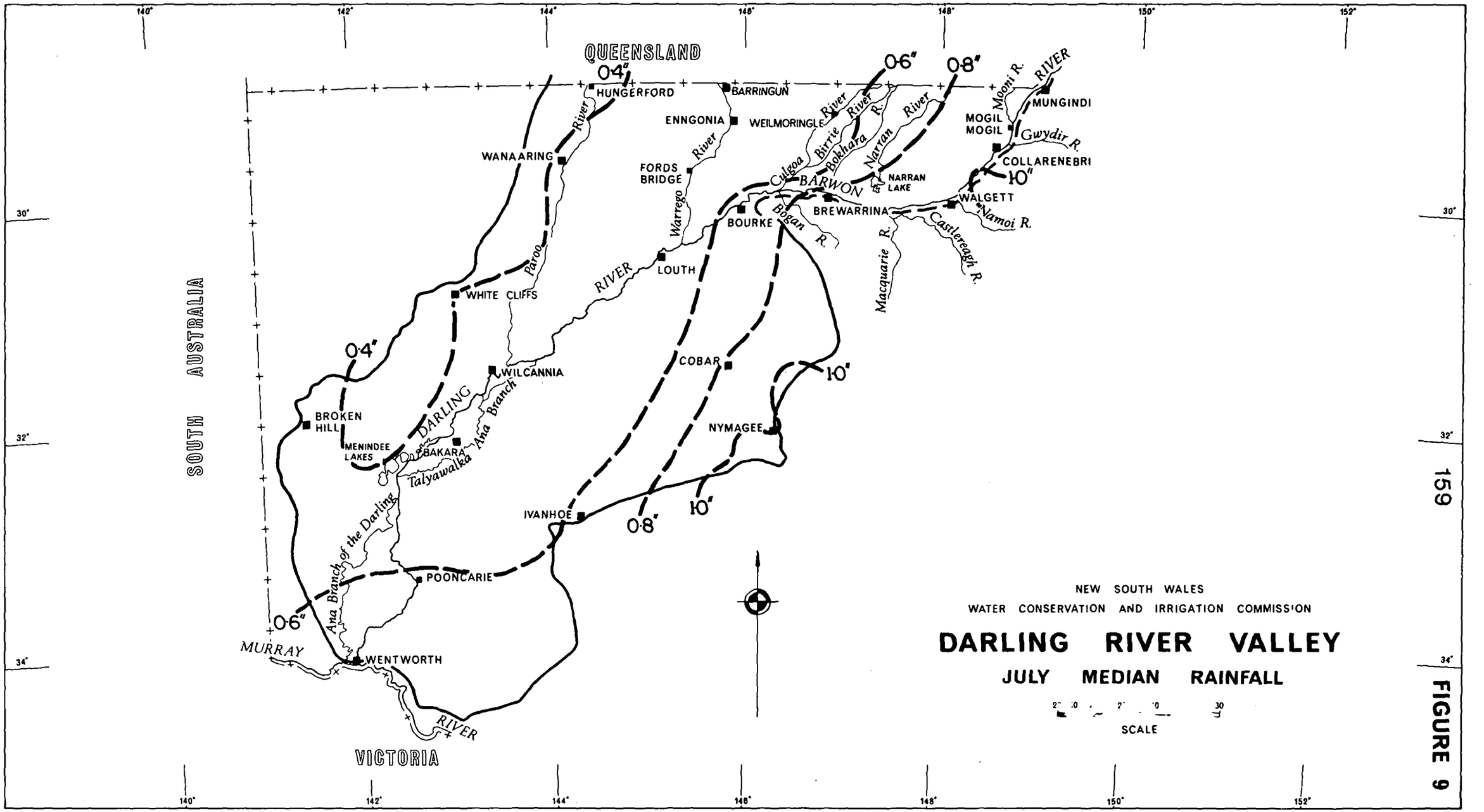

QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
0·4"
0·6"
0·8"
1·0"
HUNGERFORD
BARRINGUN
ENNGONIA
WEILMORINGLE
WANAARING
FORDS BRIDGE
MOGIL MOGIL
MUNGINDI
COLLARENEBRI
WALGETT
NARRAN LAKE
BREWARRINA
BOURKE
LOUTH
WHITE CLIFFS
WILCANNIA
COBAR
NYMAGEE
BROKEN HILL
MENINDEE LAKES
BAKARA
IVANHOE
POONCARIE
WENTWORTH
DARLING
RIVER
Paroo
Warrego
Culgoa
Birrie
Bokhara
Narran
Bogan R.
Macquarie R.
Castlereagh R.
Namoi R.
Moomi R.
Gwydir R.
Talyawalka Ana Branch
Ana Branch of the Darling
MURRAY
140°
142°
144°
146°
148°
150°
152°
30°
32°
34°
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
JULY MEDIAN RAINFALL
SCALE

FIGURE 9

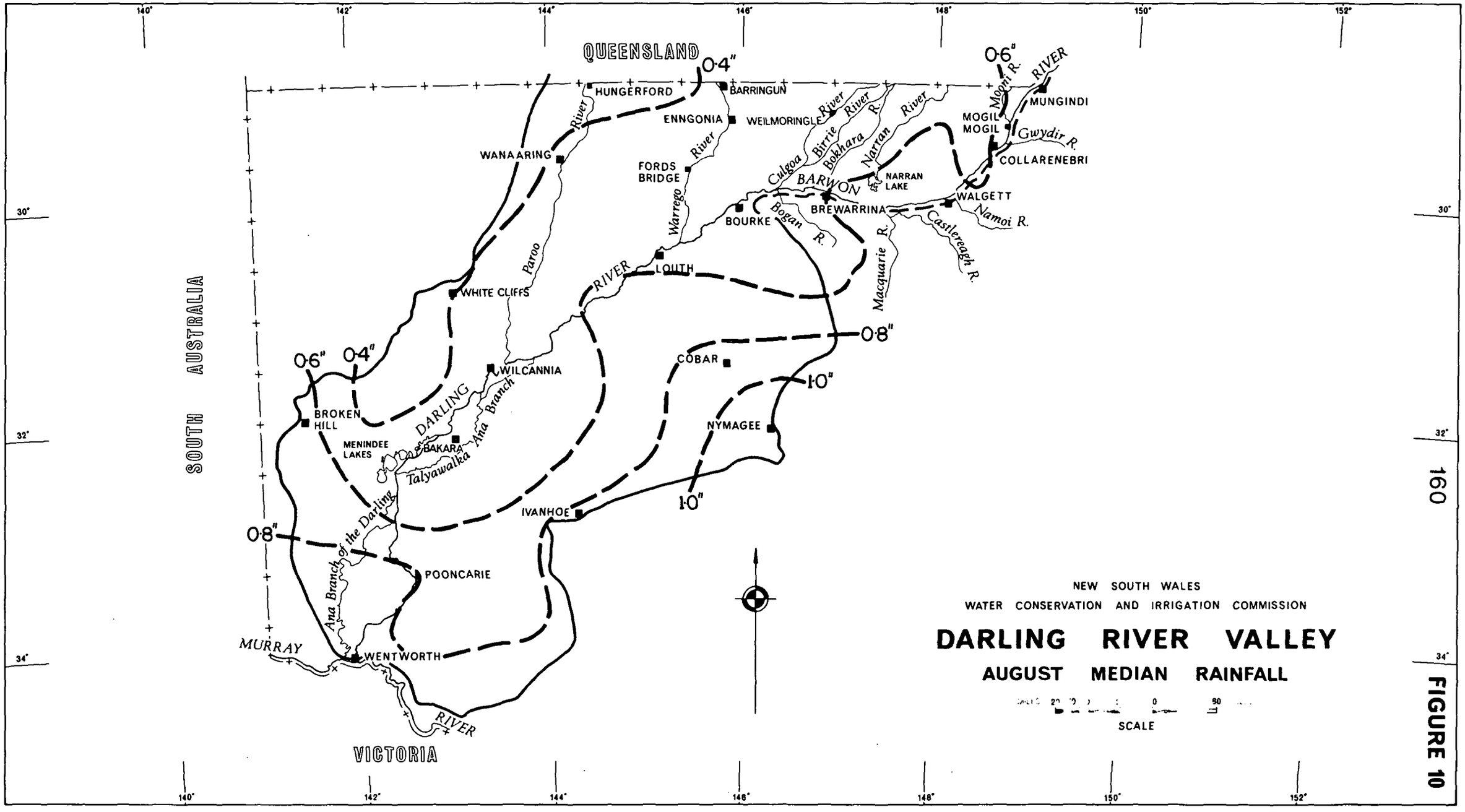
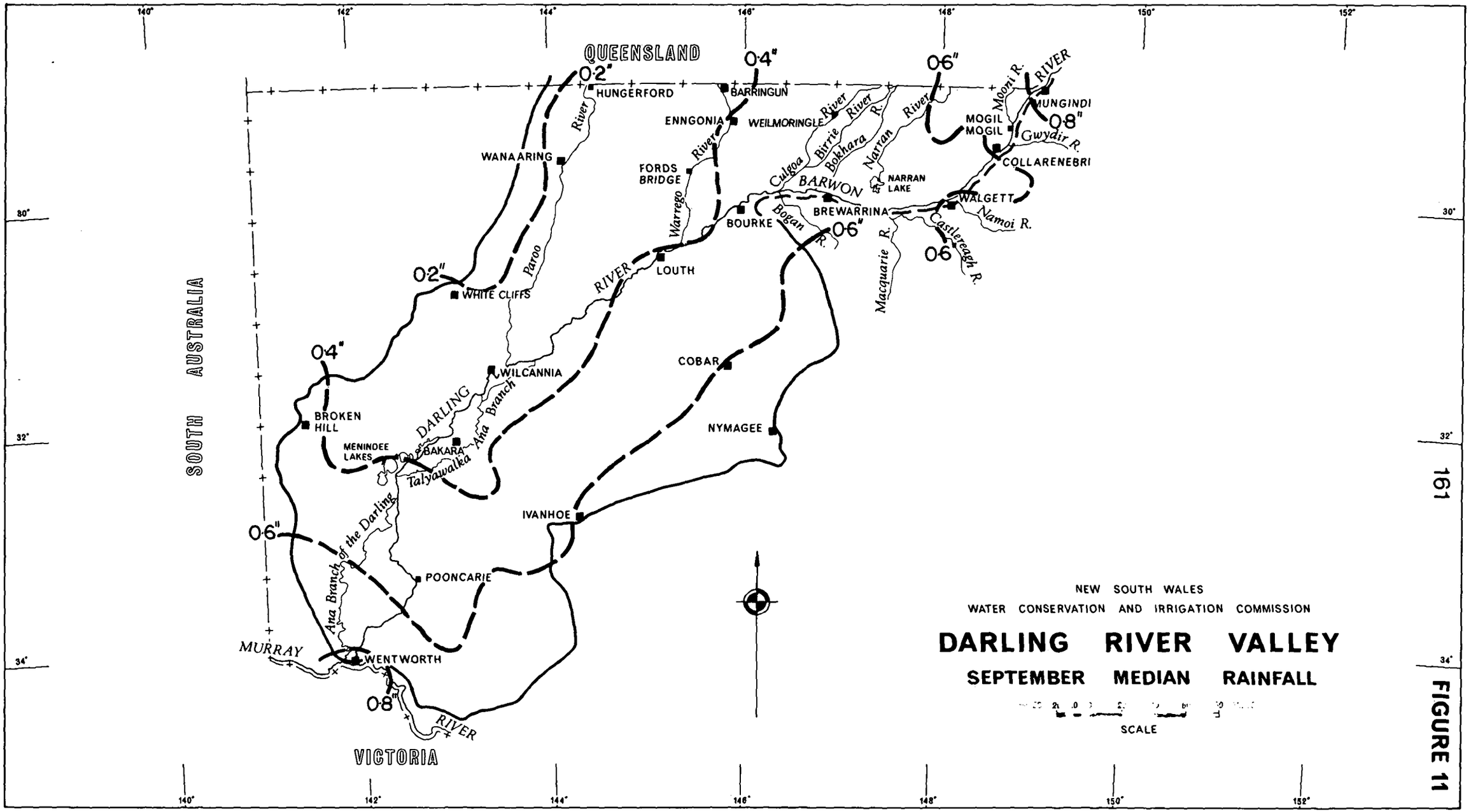

QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
HUNGERFORD
BARRINGUN
ENNGONIA
WEILMORINGLE
WANAARING
FORDS BRIDGE
MOGIL MOGIL
MUNGINDI
COLLARENEBRI
NARRAN LAKE
BARWON
BREWARRINA
WALGETT
BOURKE
LOUTH
WHITE CLIFFS
WILCANNIA
COBAR
NYMAGEE
BROKEN HILL
MENINDEE LAKES
BAKARA
IVANHOE
POONCARIE
WENTWORTH
MURRAY
RIVER
DARLING
Paroo
Warrego
Culgoa
Birrie
Bokhara
Narran
Moonie R.
Gwydir R.
Namoi R.
Castlereagh R.
Macquarie R.
Bogan R.
Ana Branch
Talyawalka
Ana Branch of the Darling
0·4"
0·6"
0·8"
1·0"
140°
142°
144°
146°
148°
150°
152°
30°
32°
34°
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
AUGUST MEDIAN RAINFALL
SCALE

FIGURE 10



NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

DARLING RIVER VALLEY

SEPTEMBER MEDIAN RAINFALL

SCALE

FIGURE 11

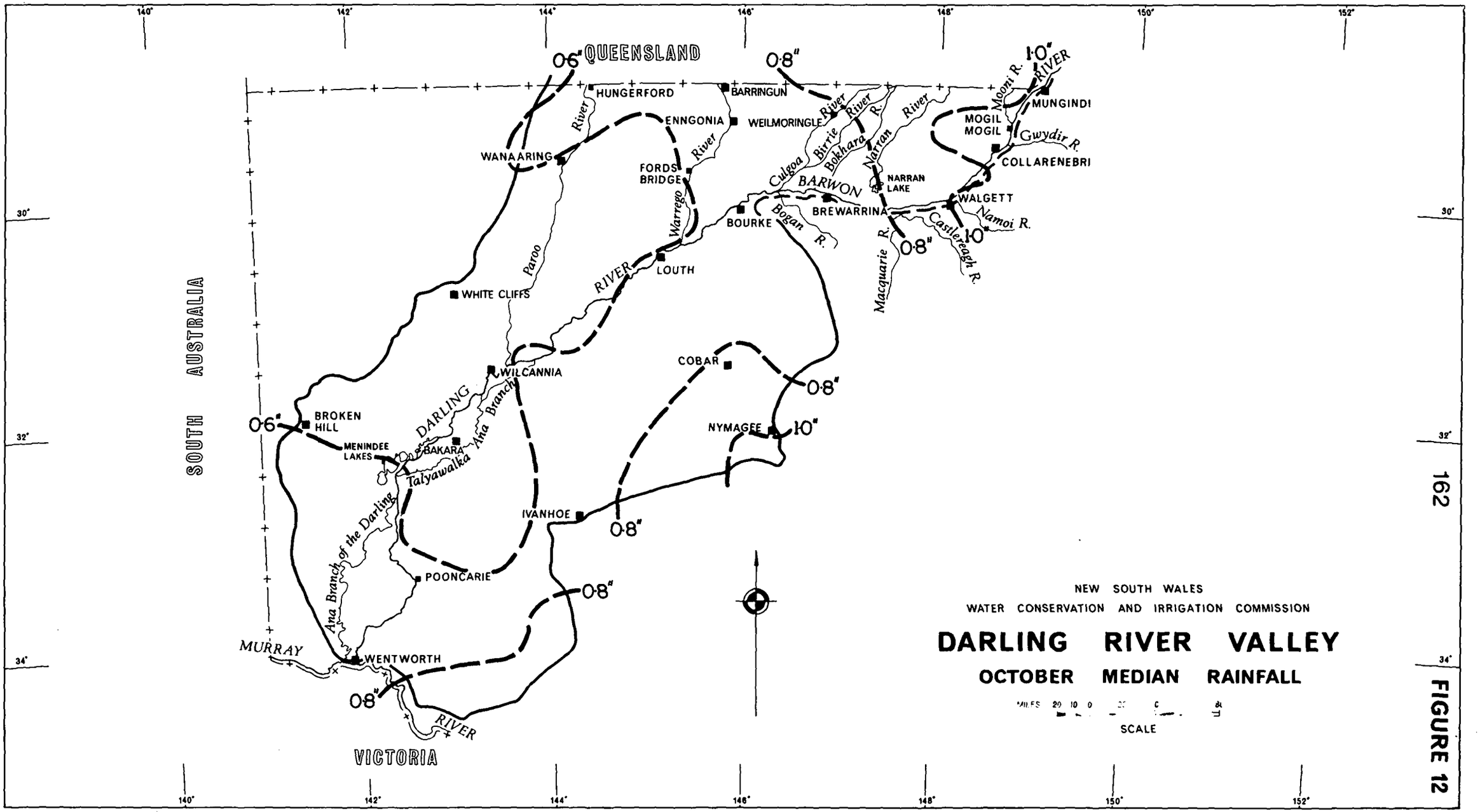

QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
0·6"
0·8"
1·0"
HUNGERFORD
BARRINGUN
ENNGONIA
WEILMORINGLE
WANAARING
FORDS BRIDGE
MUNGINDI
MOGIL MOGIL
COLLARENEBRI
NARRAN LAKE
WALGETT
BREWARRINA
BOURKE
LOUTH
WHITE CLIFFS
WILCANNIA
COBAR
NYMAGEE
BROKEN HILL
MENINDEE LAKES
BAKARA
IVANHOE
POONCARIE
WENTWORTH
DARLING
RIVER
Paroo
Warrego
Culgoa
Birrie
Bokhara
Narran
Moonie R.
Gwydir R.
Namoi R.
Castlereagh R.
Macquarie R.
Bogan R.
Talyawalka
Ana Branch
Ana Branch of the Darling
MURRAY
BARWON
30°
32°
34°
140°
142°
144°
146°
148°
150°
152°
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
OCTOBER MEDIAN RAINFALL
SCALE

FIGURE 12

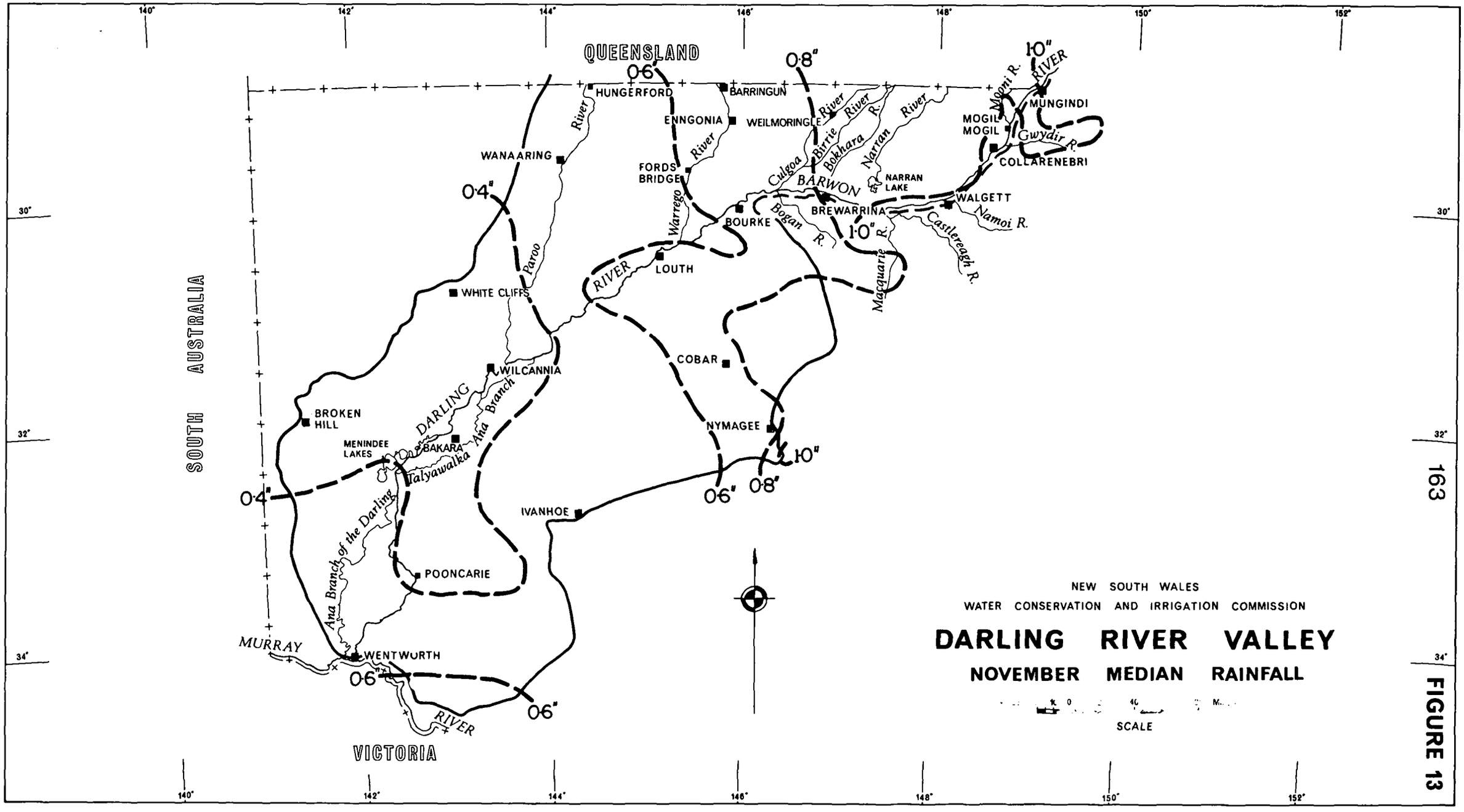

QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
HUNGERFORD
BARRINGUN
ENNGONIA
WEILMORINGLE
WANAARING
FORDS BRIDGE
MOGIL MOGIL
MUNGINDI
COLLARENEBRI
NARRAN LAKE
WALGETT
BREWARRINA
BOURKE
LOUTH
WHITE CLIFFS
WILCANNIA
COBAR
NYMAGEE
BROKEN HILL
MENINDEE LAKES
BAKARA
IVANHOE
POONCARIE
WENTWURTH
DARLING
Darling
Paroo
River
Warrego
Culgoa
Birrie
Bokhara
Narran
Moonie R.
Gwydir R.
Namoi R.
Castlereagh R.
Bogan R.
Macquarie R.
Talyawalka
Ana Branch
Ana Branch of the Darling
MURRAY
0·4"
0·6"
0·8"
1·0"
140°
142°
144°
146°
148°
150°
152°
30°
32°
34°
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
NOVEMBER MEDIAN RAINFALL
SCALE

FIGURE 13

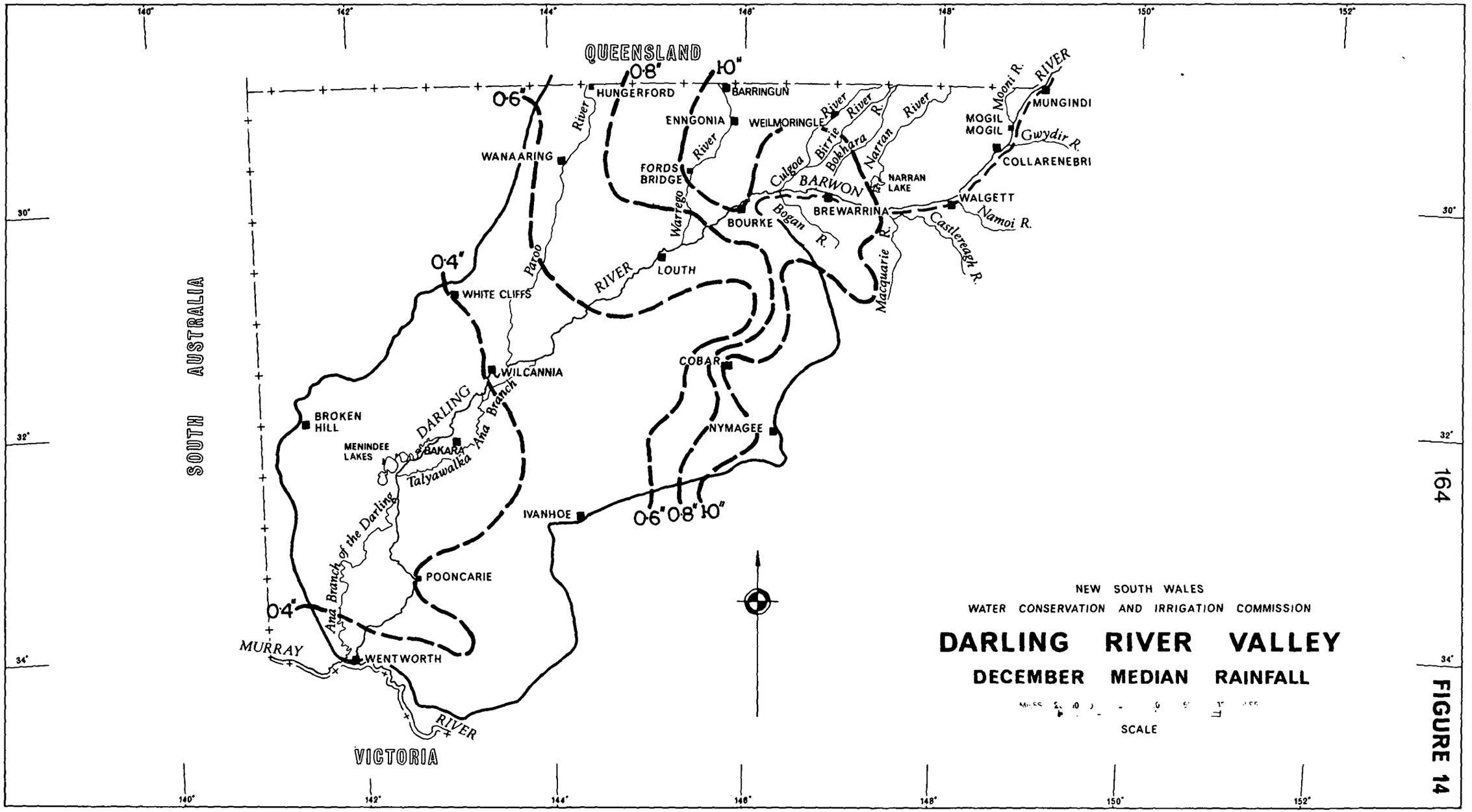

QUEENSLAND
SOUTH AUSTRALIA
VICTORIA
0·6"
0·8"
1·0"
0·4"
HUNGERFORD
BARRINGUN
ENNGONIA
WEILMORINGLE
WANAARING
FORDS BRIDGE
BOURKE
BREWARRINA
NARRAN LAKE
WALGETT
MOGIL MOGIL
MUNGINDI
COLLARENEBRI
LOUTH
WHITE CLIFFS
WILCANNIA
COBAR
NYMAGEE
BROKEN HILL
MENINDEE LAKES
BAKARA
IVANHOE
POONCARIE
WENTWORTH
DARLING
RIVER
MURRAY
RIVER
Paroo River
Warrego River
Culgoa River
Birrie River
Bokhara R.
Narran River
Moonie R.
Gwydir R.
Namoi R.
Castlereagh R.
Macquarie R.
Bogan R.
Talyawalka Anabranch
Anabranch of the Darling
140°
142°
144°
146°
148°
150°
152°
30°
32°
34°
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
DECEMBER MEDIAN RAINFALL
SCALE

FIGURE 14

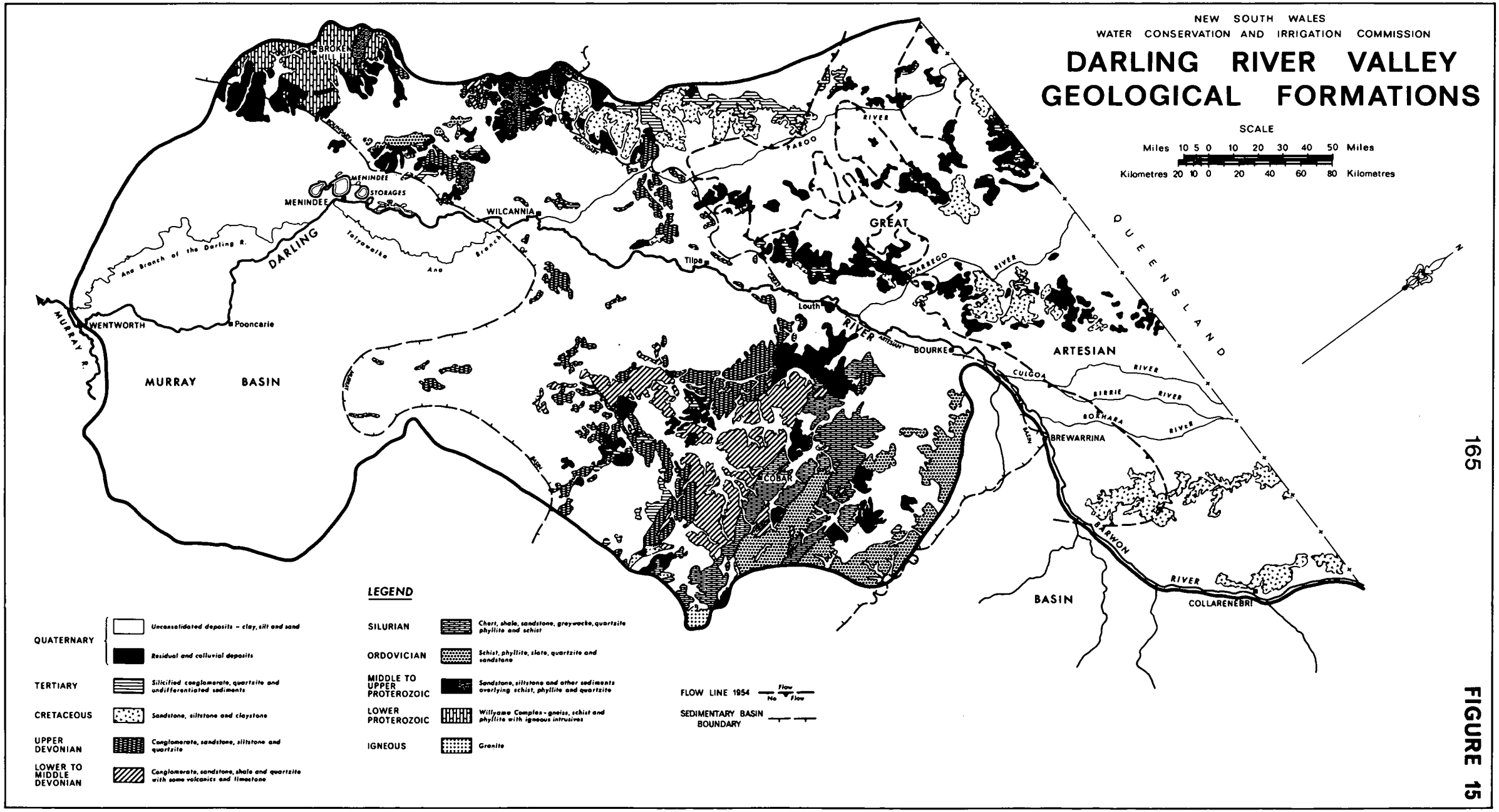
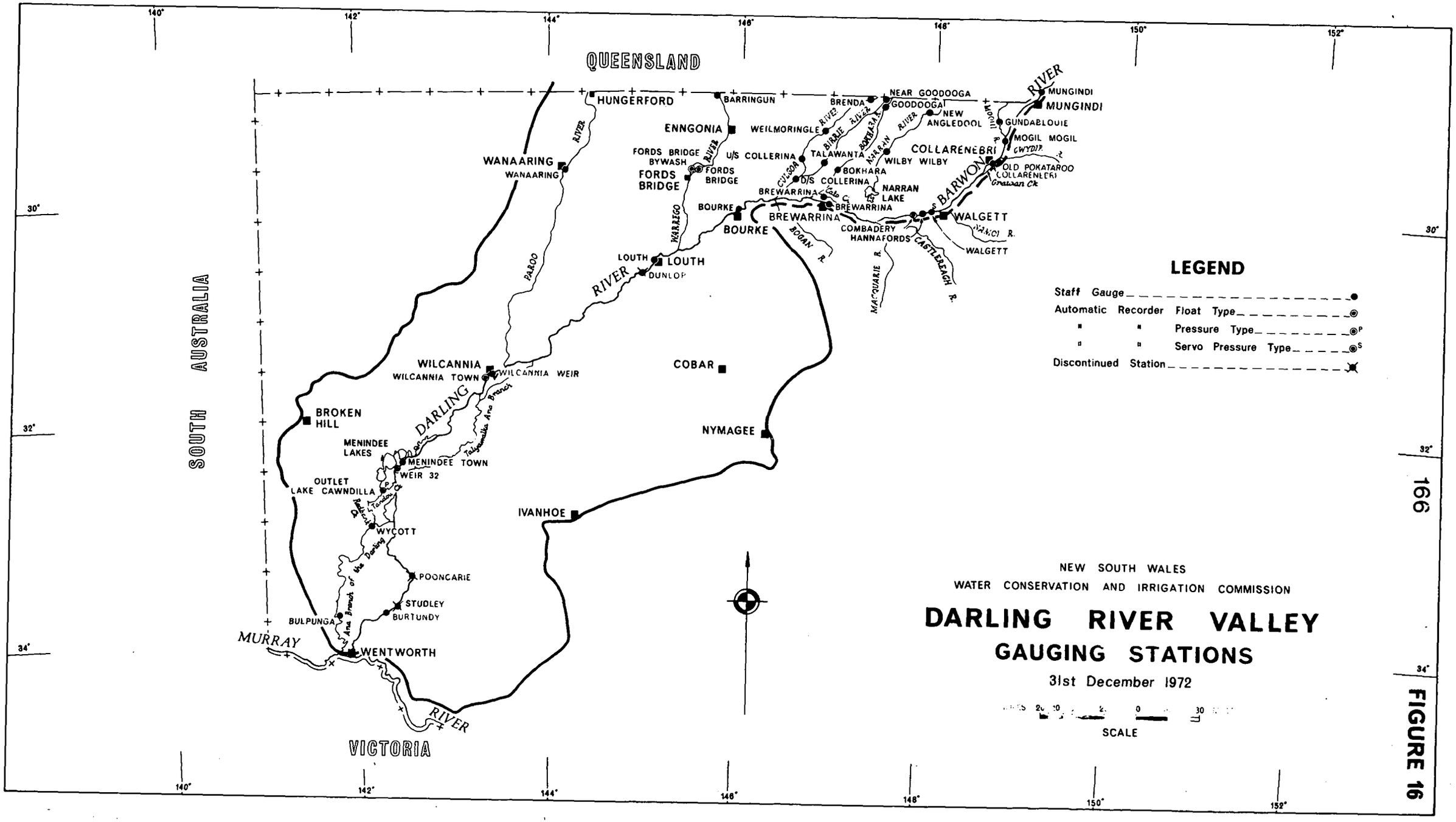

NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
DARLING RIVER VALLEY
GEOLOGICAL FORMATIONS
SCALE
Miles 10 5 0 10 20 30 40 50 Miles
Kilometres 20 10 0 20 40 60 80 Kilometres
BROKEN HILL
MENINDEE
MENINDEE STORAGES
WILCANNIA
Tilpa
Louth
BOURKE
BREWARRINA
COBAR
COLLARENEBRI
WENTWORTH
Pooncarie
MURRAY R.
DARLING
Ana Branch of the Darling R.
Tolybelka Ana Branch
MURRAY BASIN
GREAT ARTESIAN BASIN
QUEENSLAND
PAROO RIVER
BARREGO RIVER
CULGOA RIVER
BIRRIE RIVER
BORNARA RIVER
BARWON RIVER
BALIN
LEGEND
QUATERNARY
Unconsolidated deposits – clay, silt and sand
Residual and colluvial deposits
TERTIARY
Silicified conglomerate, quartzite and undifferentiated sediments
CRETACEOUS
Sandstone, siltstone and claystone
UPPER DEVONIAN
Conglomerate, sandstone, siltstone and quartzite
LOWER TO MIDDLE DEVONIAN
Conglomerate, sandstone, shale and quartzite with some volcanics and limestone
SILURIAN
Chert, shale, sandstone, greywacke, quartzite phyllite and schist
ORDOVICIAN
Schist, phyllite, slate, quartzite and sandstone
MIDDLE TO UPPER PROTEROZOIC
Sandstone, siltstone and other sediments overlying schist, phyllite and quartzite
LOWER PROTEROZOIC
Willyama Complex - gneiss, schist and phyllite with igneous intrusives
IGNEOUS
Granite
FLOW LINE 1954
No Flow
Flow
SEDIMENTARY BASIN BOUNDARY

FIGURE 15



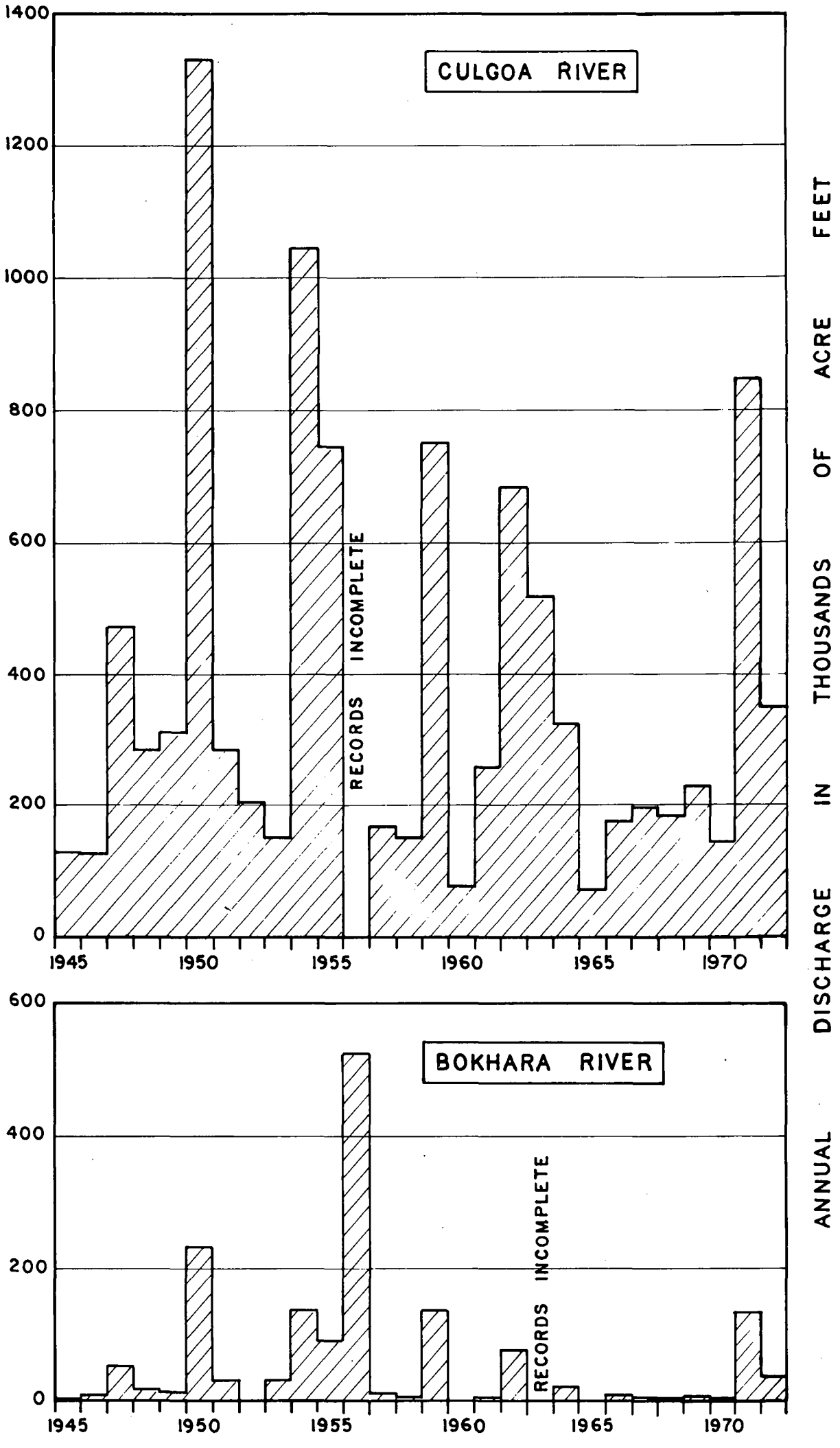
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

DARLING RIVER VALLEY
GAUGING STATIONS

31st December 1972

FIGURE 16

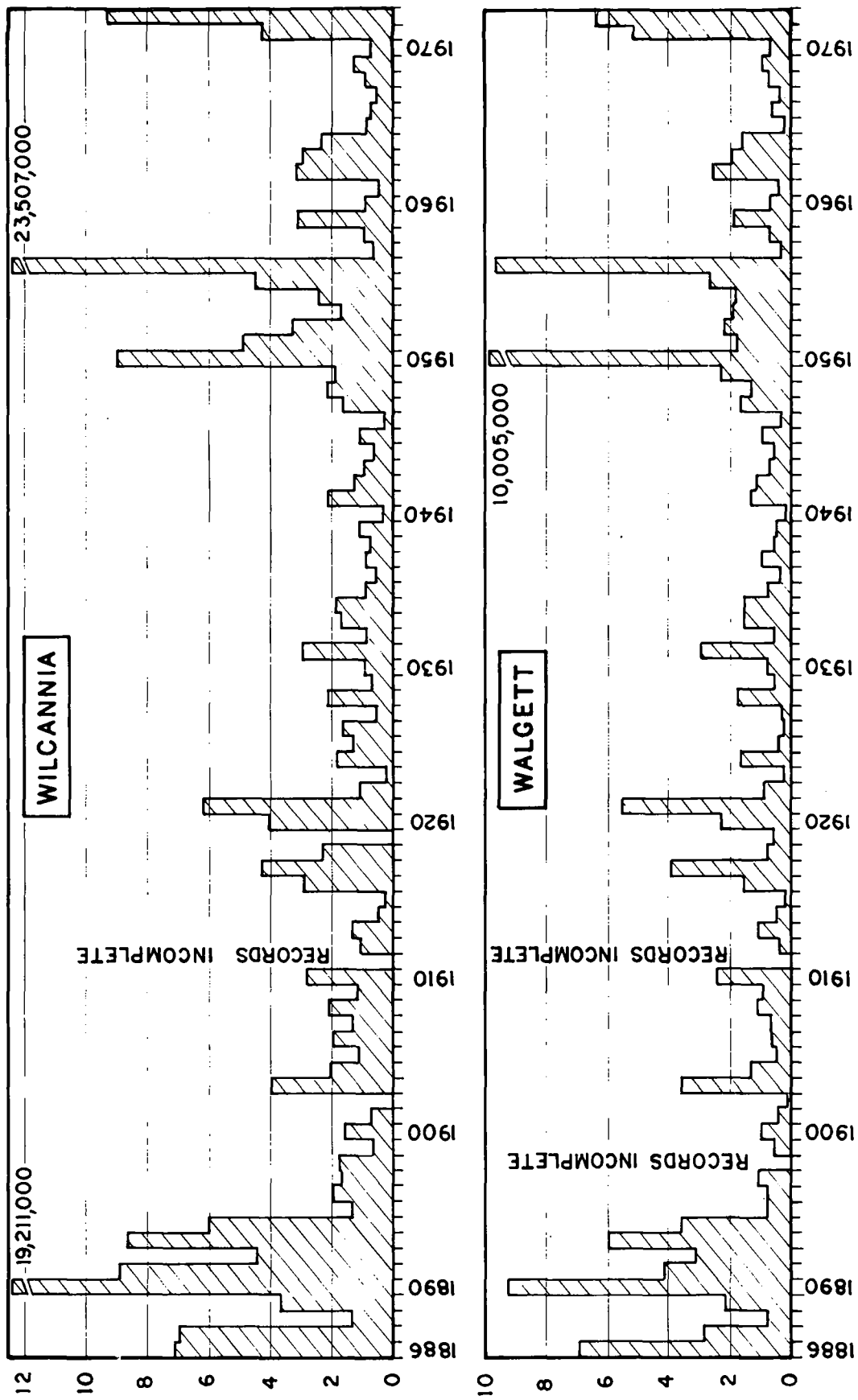
FIGURE 17



HYDROGRAPHS OF ANNUAL DISCHARGE
CULGOA RIVER DOWNSTREAM OF COLLERINA
BOKHARA RIVER AT BOKHARA

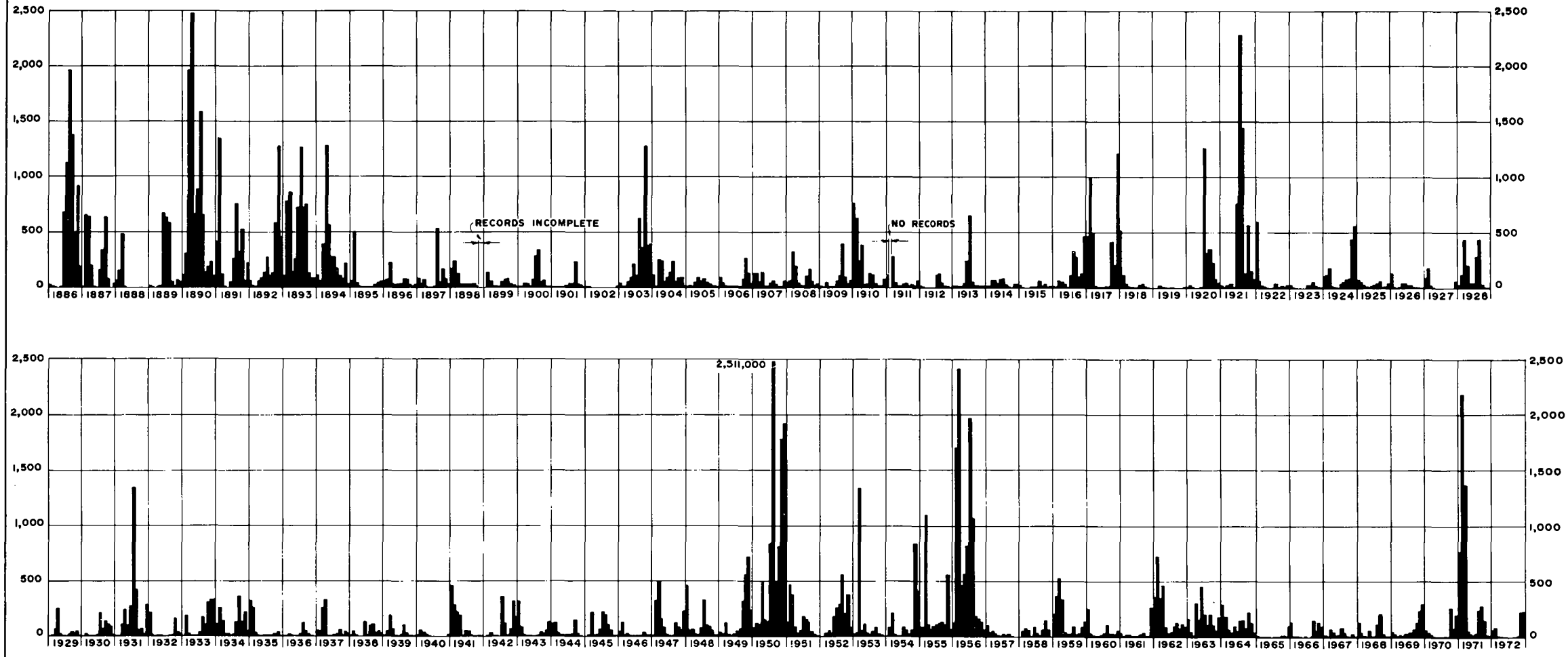
FIGURE 18

ANNUAL DISCHARGE IN MILLIONS OF ACRE FEET



HYDROGRAPHS OF ANNUAL DISCHARGE
DARLING RIVER AT WILCANNIA
BARWON RIVER AT WALGETT

ANNUAL DISCHARGE IN MILLIONS OF ACRE FEET



HYDROGRAPH OF MONTHLY DISCHARGE — BARWON RIVER AT WALGETT

FIGURE 19

011832

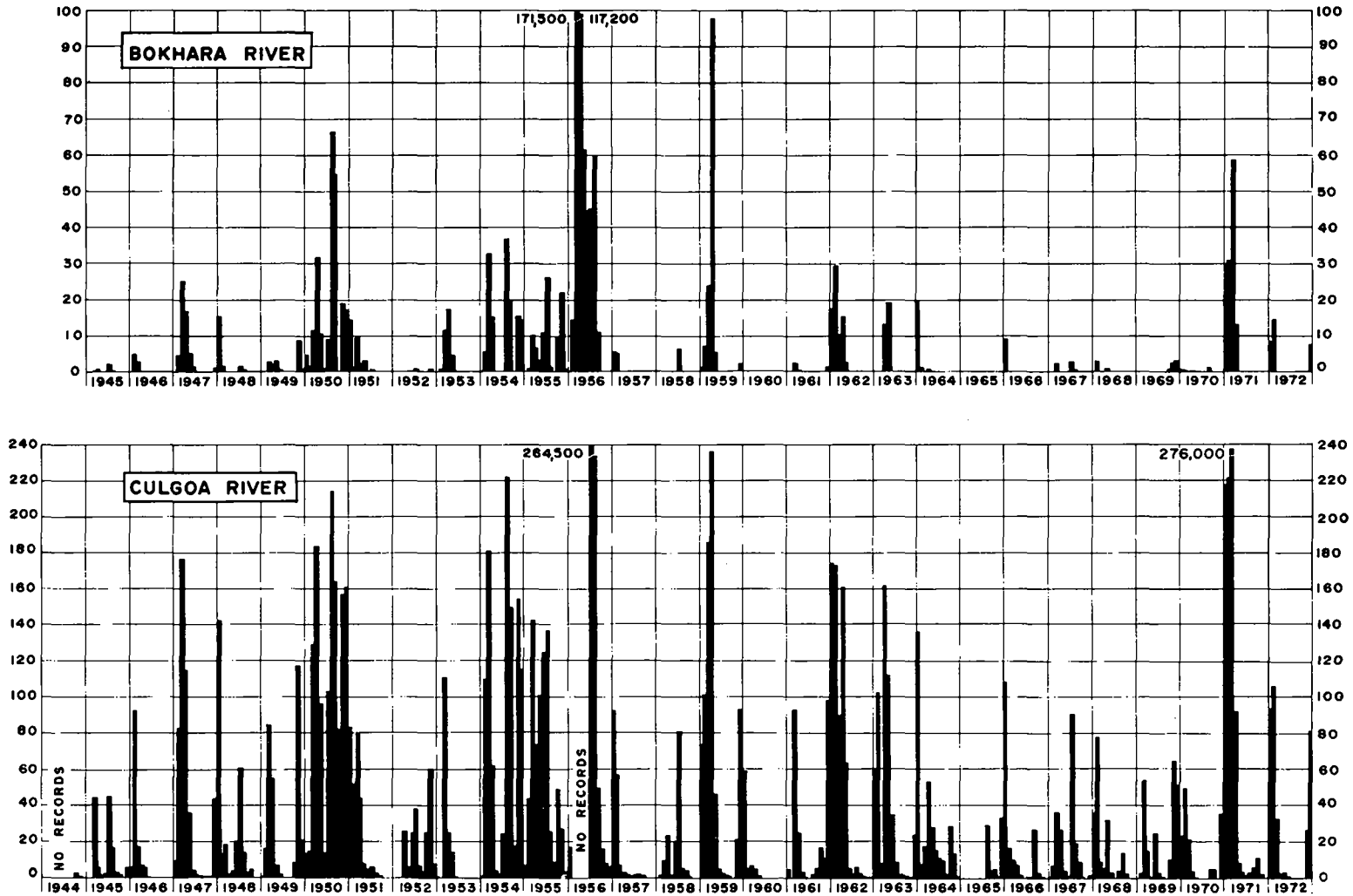
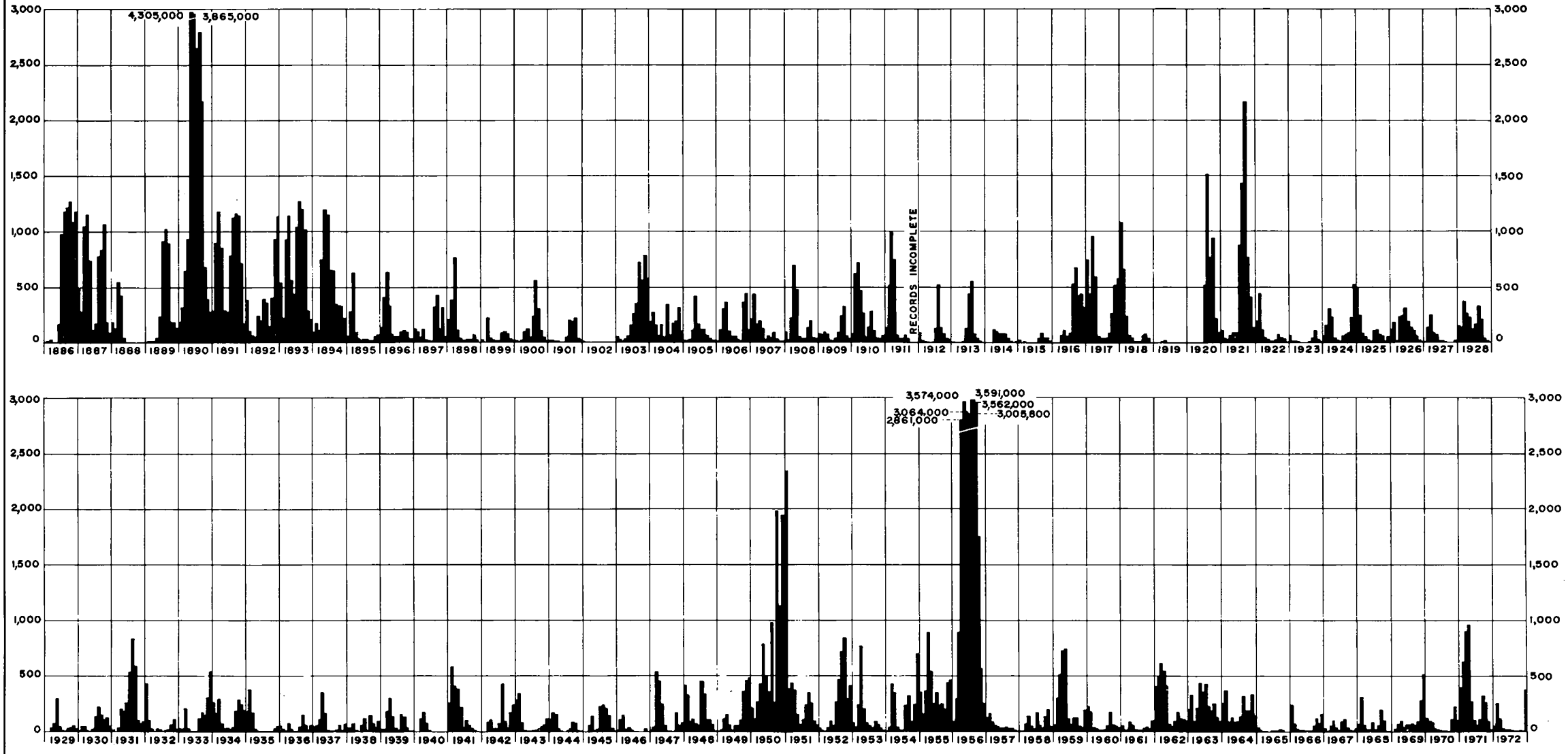


FIGURE 20

HYDROGRAPHS OF MONTHLY DISCHARGE

BOKHARA RIVER AT BOKHARA

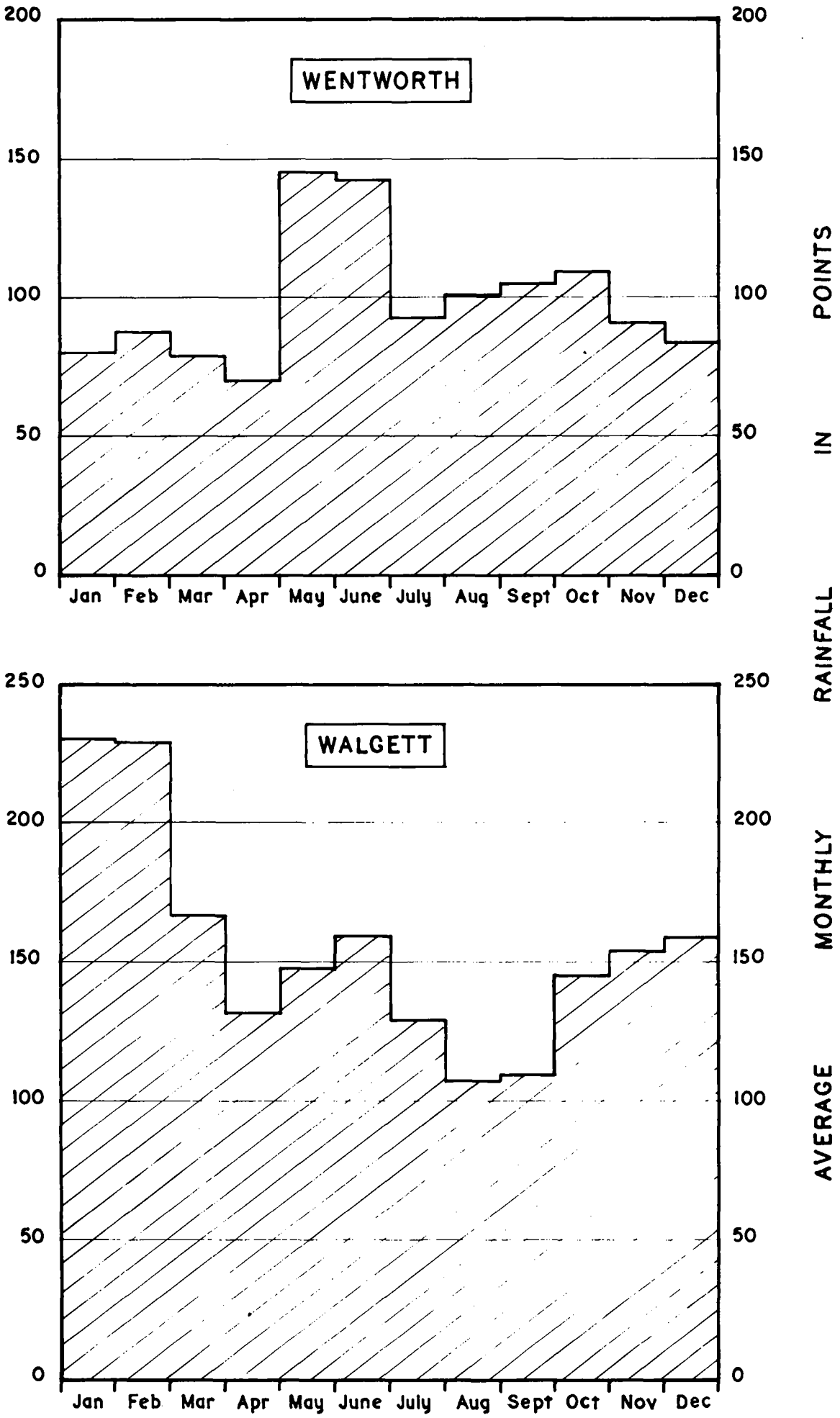
CULGOA RIVER DOWNSTREAM OF COLLERINA



HYDROGRAPH OF MONTHLY DISCHARGE — DARLING RIVER AT WILCANNIA

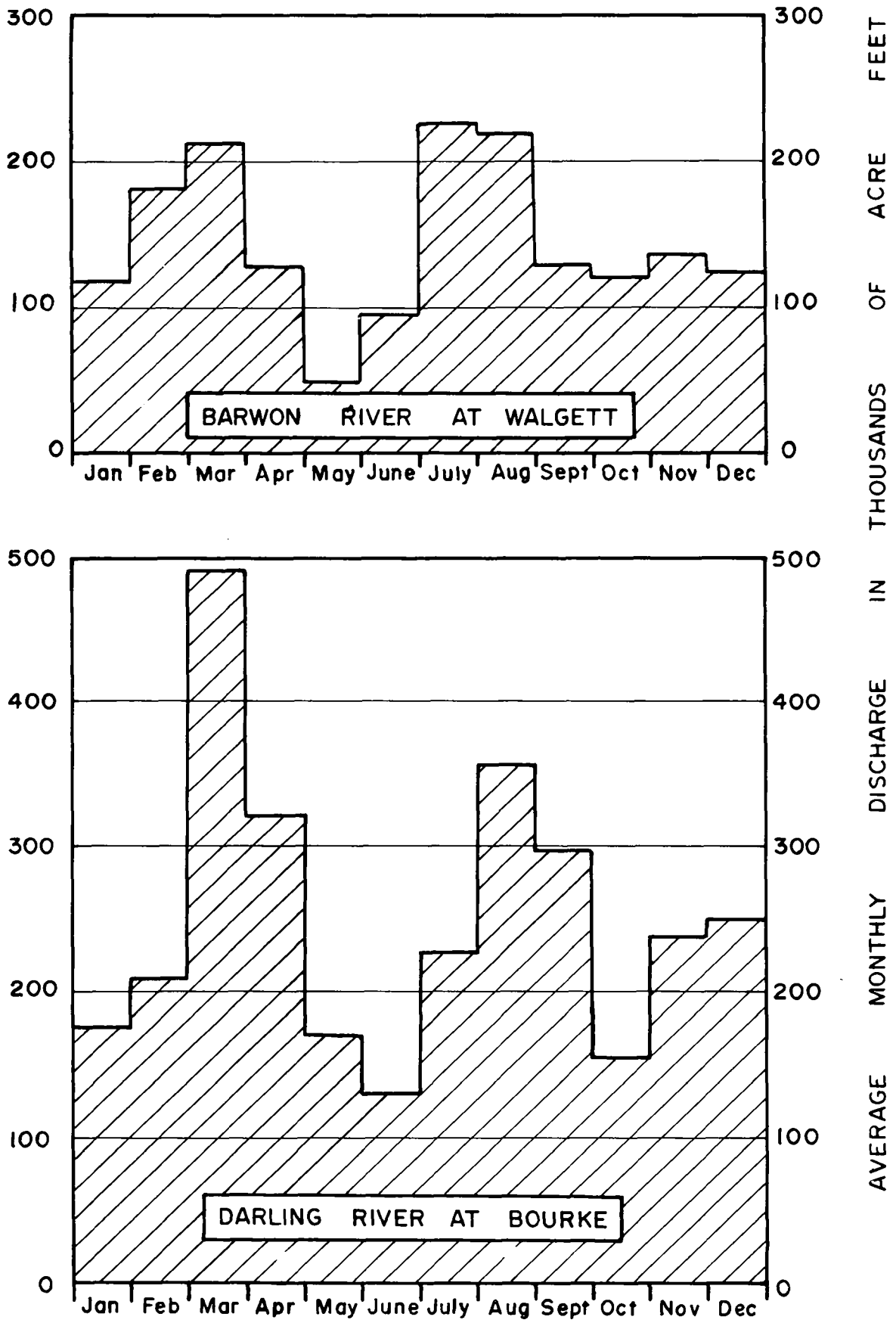
FIGURE 21

FIGURE 22



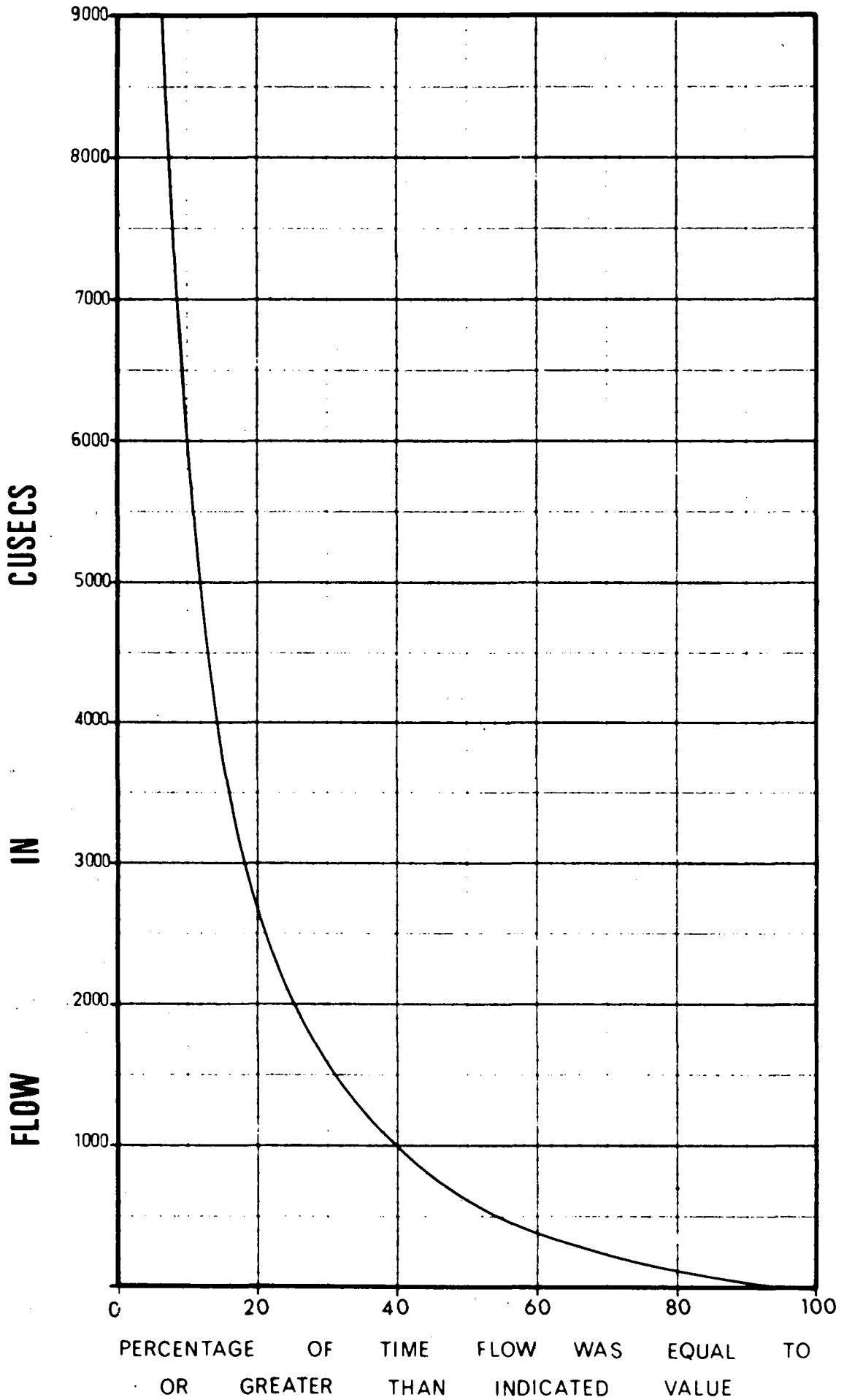
AVERAGE MONTHLY RAINFALLS AT WENTWORTH AND WALGETT

FIGURE 23



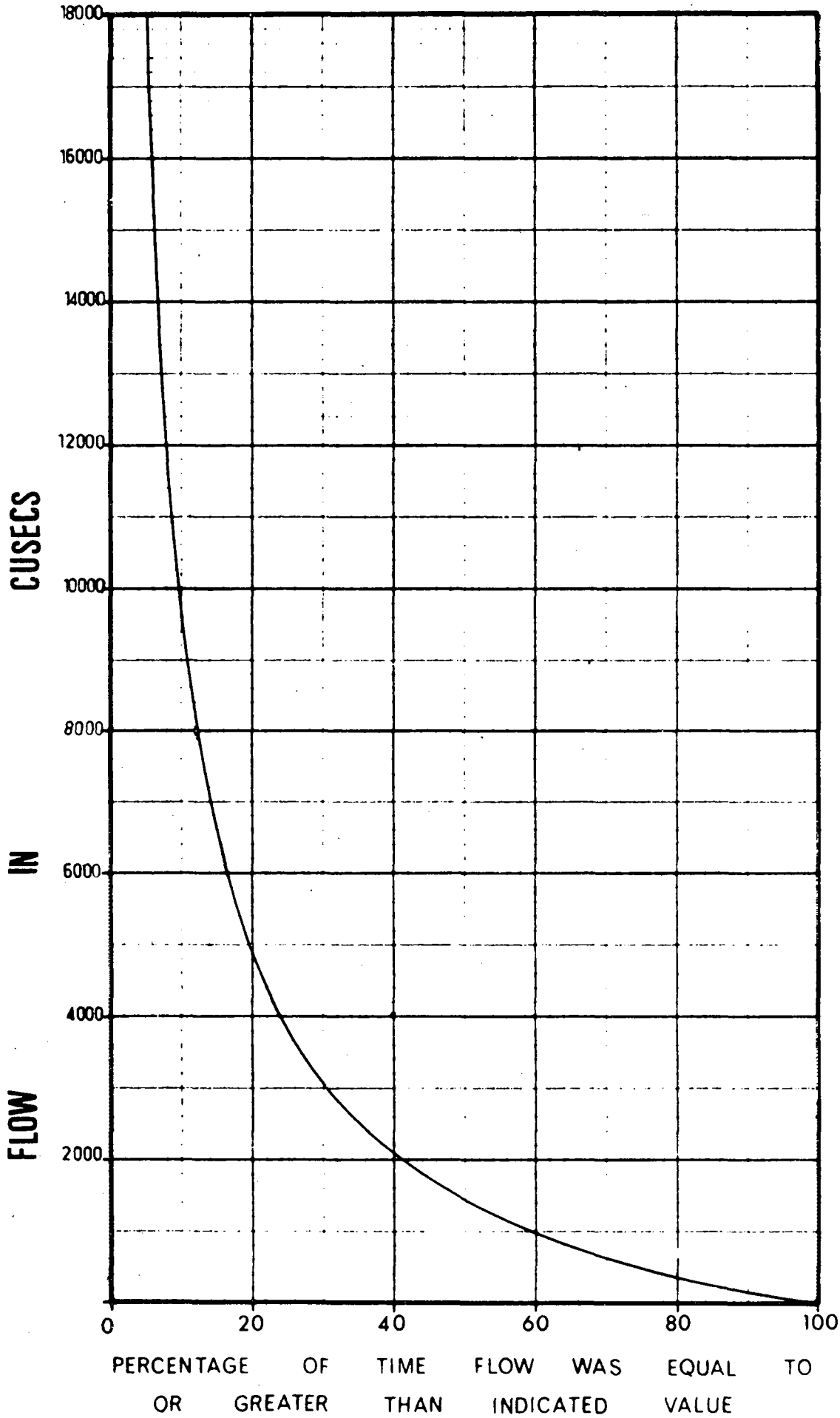
AVERAGE MONTHLY STREAMFLOWS
BARWON RIVER AT WALGETT
DARLING RIVER AT BOURKE

FIGURE 24



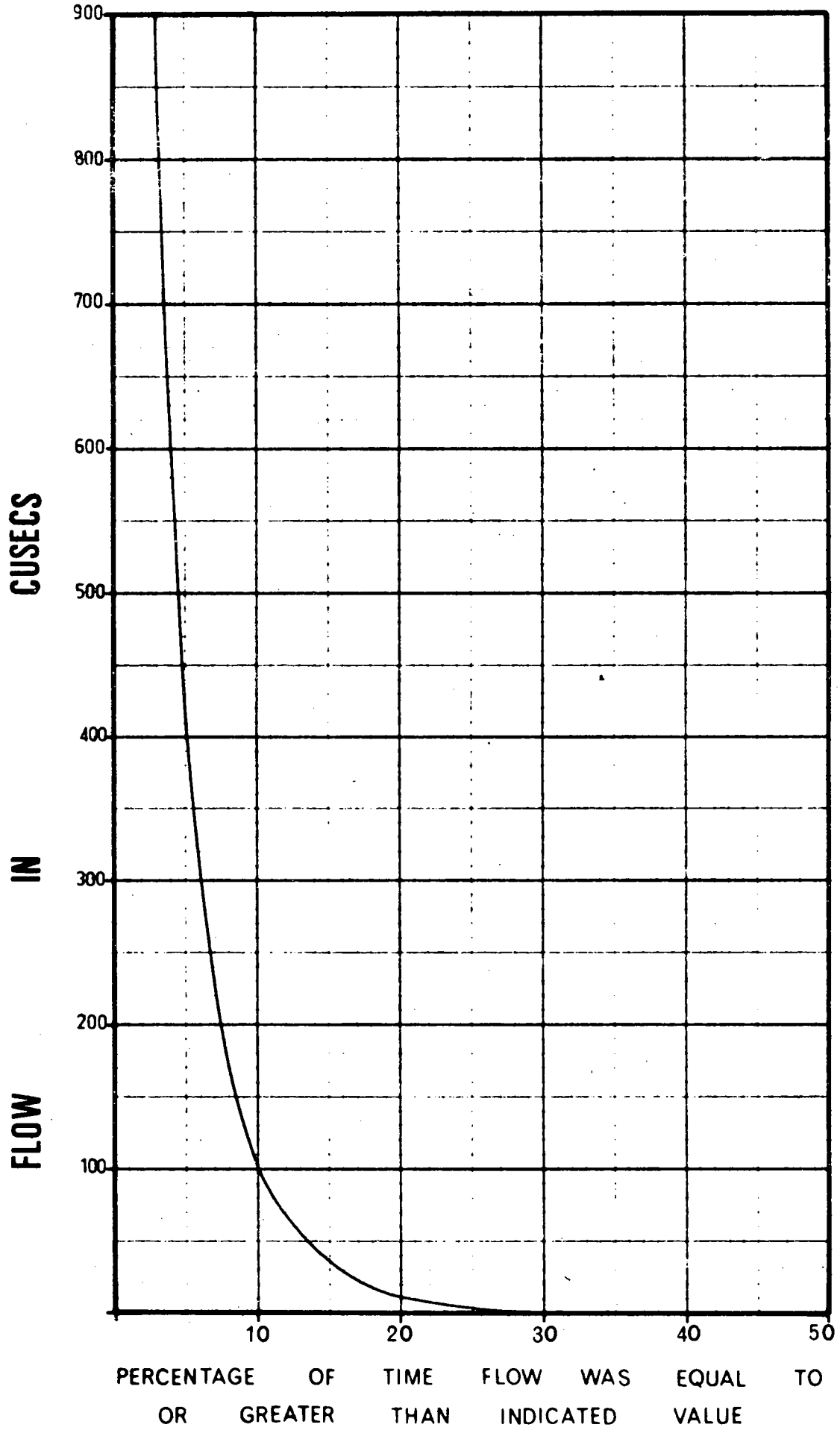
FLOW DURATION CURVE FOR BARWON RIVER AT WALGETT

FIGURE 25



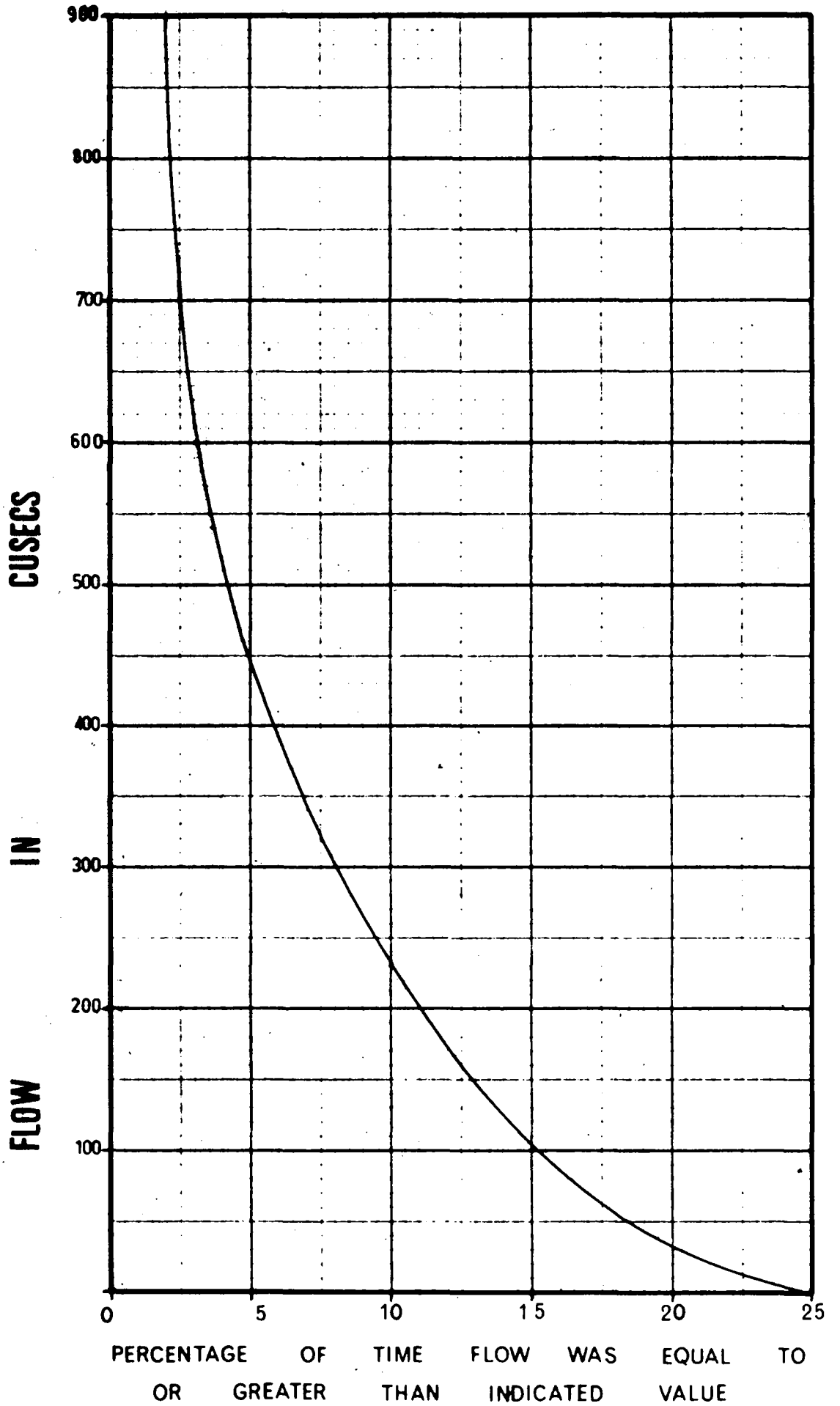
FLOW DURATION CURVE FOR DARLING RIVER AT BOURKE

FIGURE 26



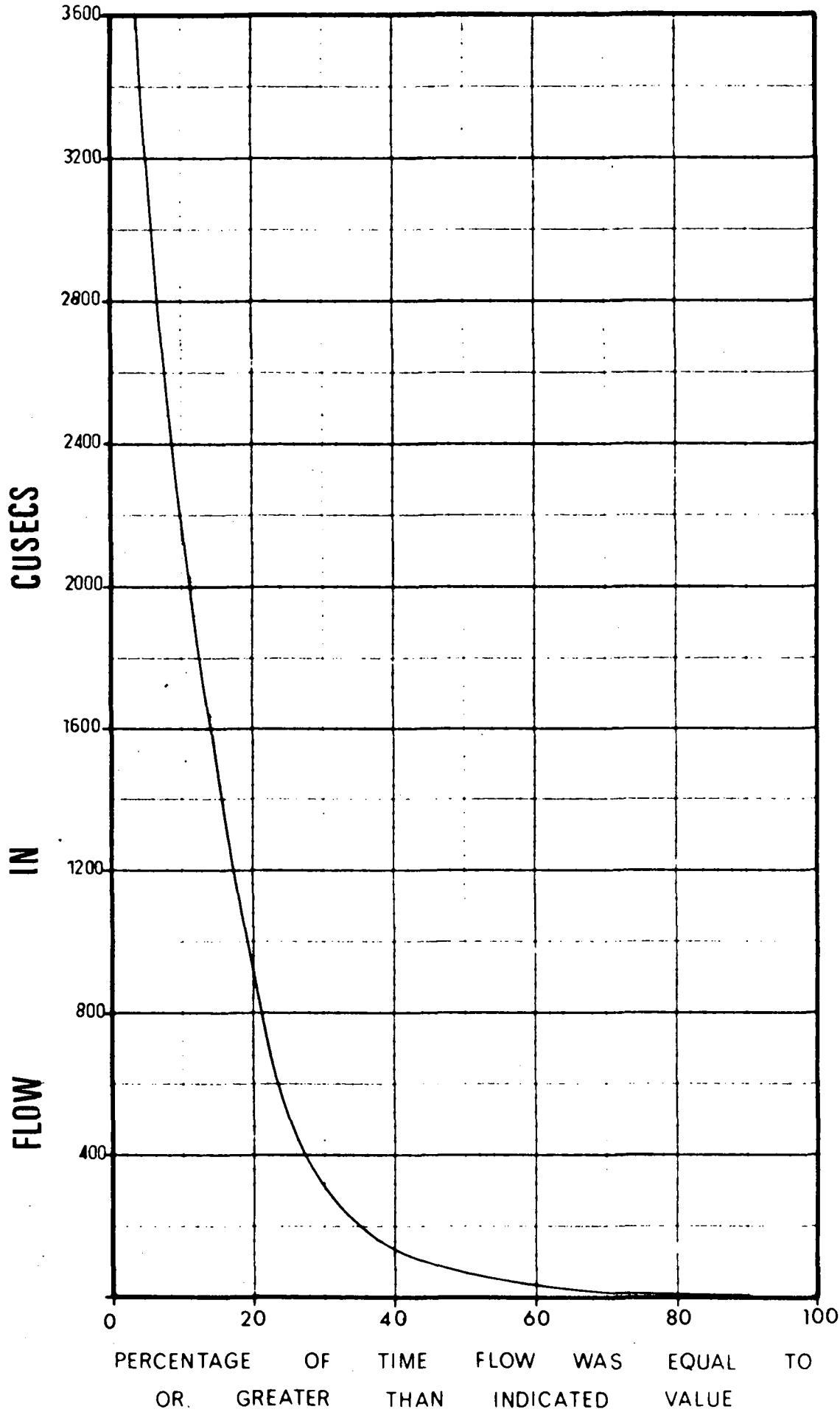
FLOW DURATION CURVE FOR MOONI RIVER AT GUNDABLOUIE

FIGURE 27



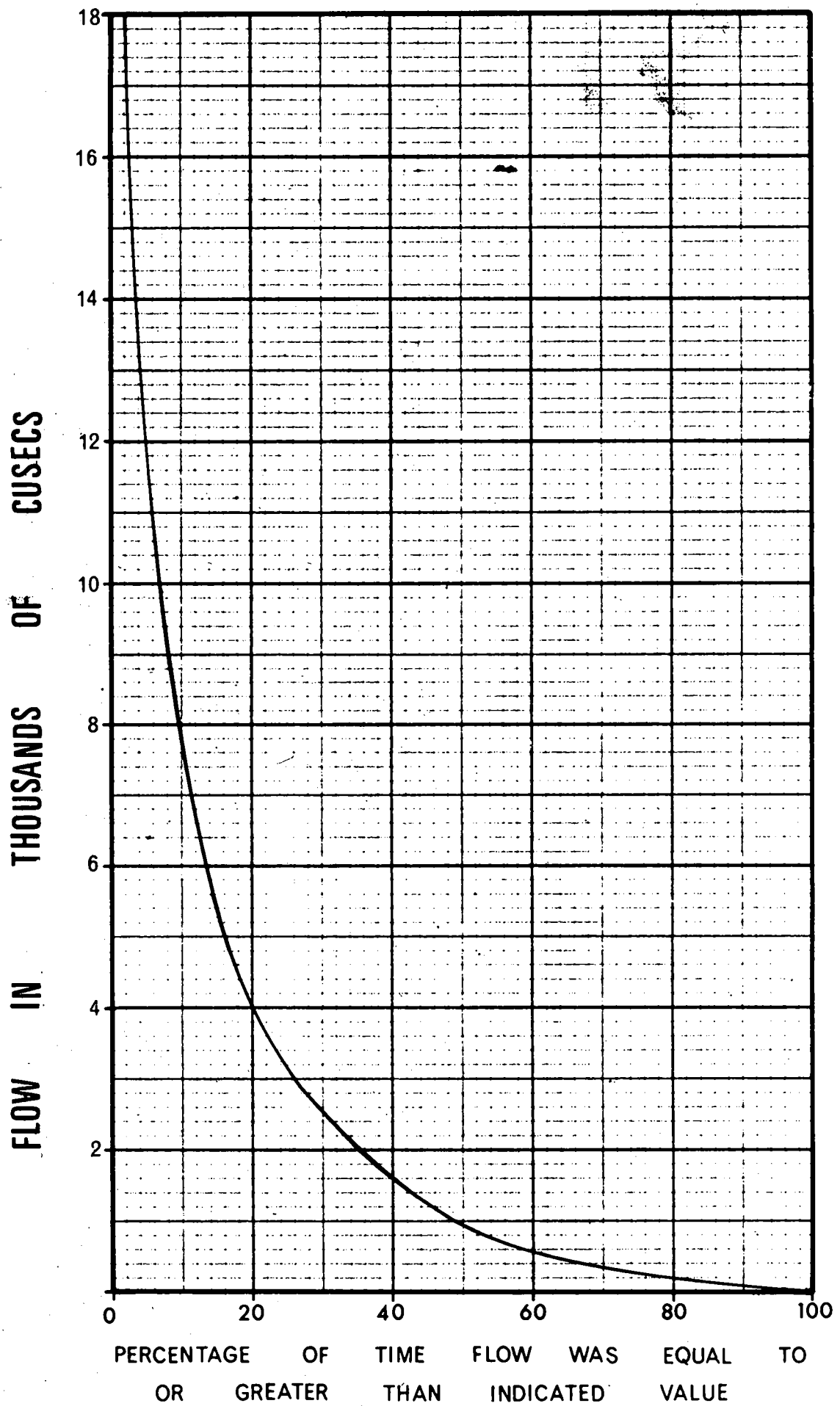
FLOW DURATION CURVE FOR BOKHARA RIVER AT BOKHARA

FIGURE 28



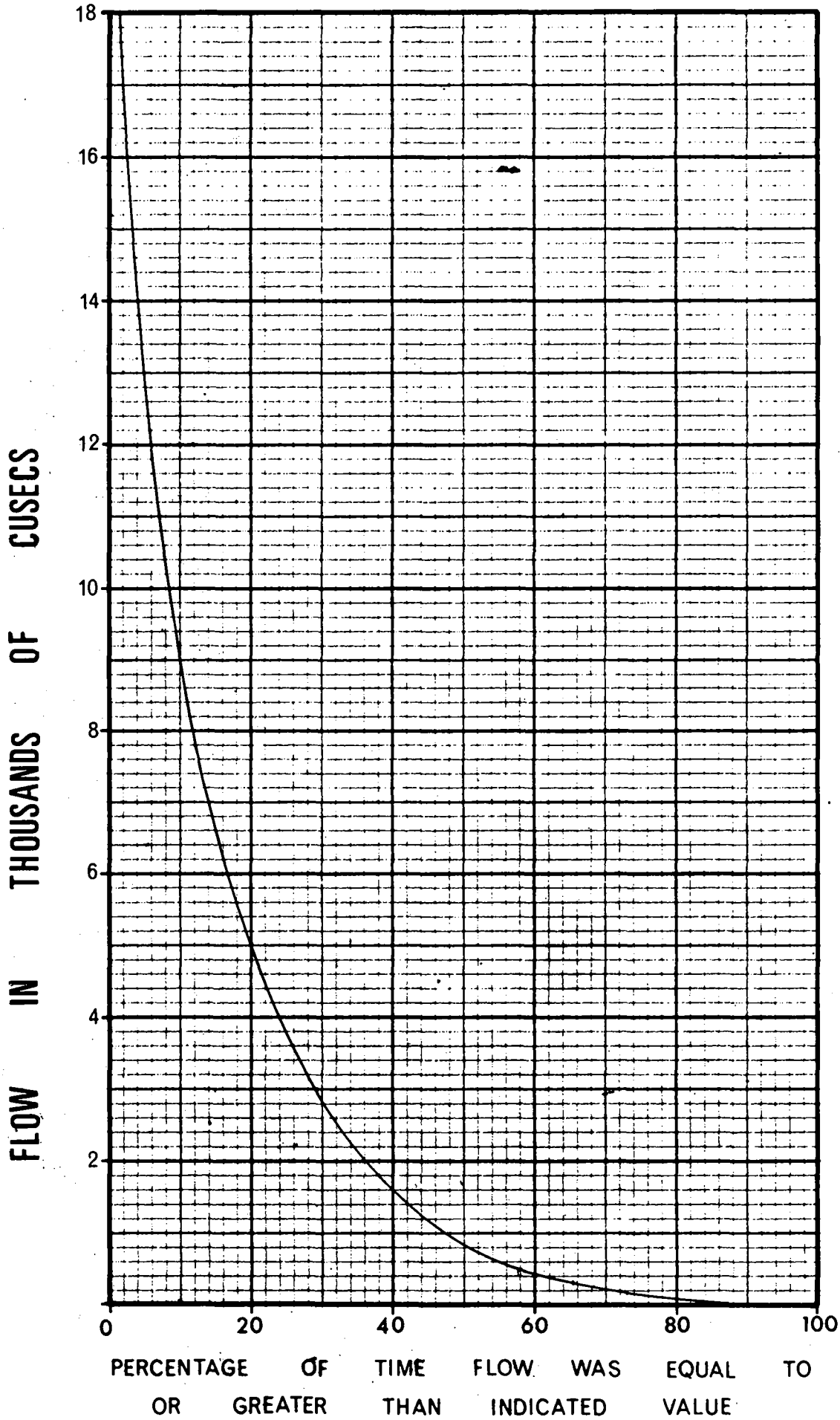
FLOW DURATION CURVE FOR CULGOA RIVER DOWNSTREAM COLLERINA

FIGURE 29



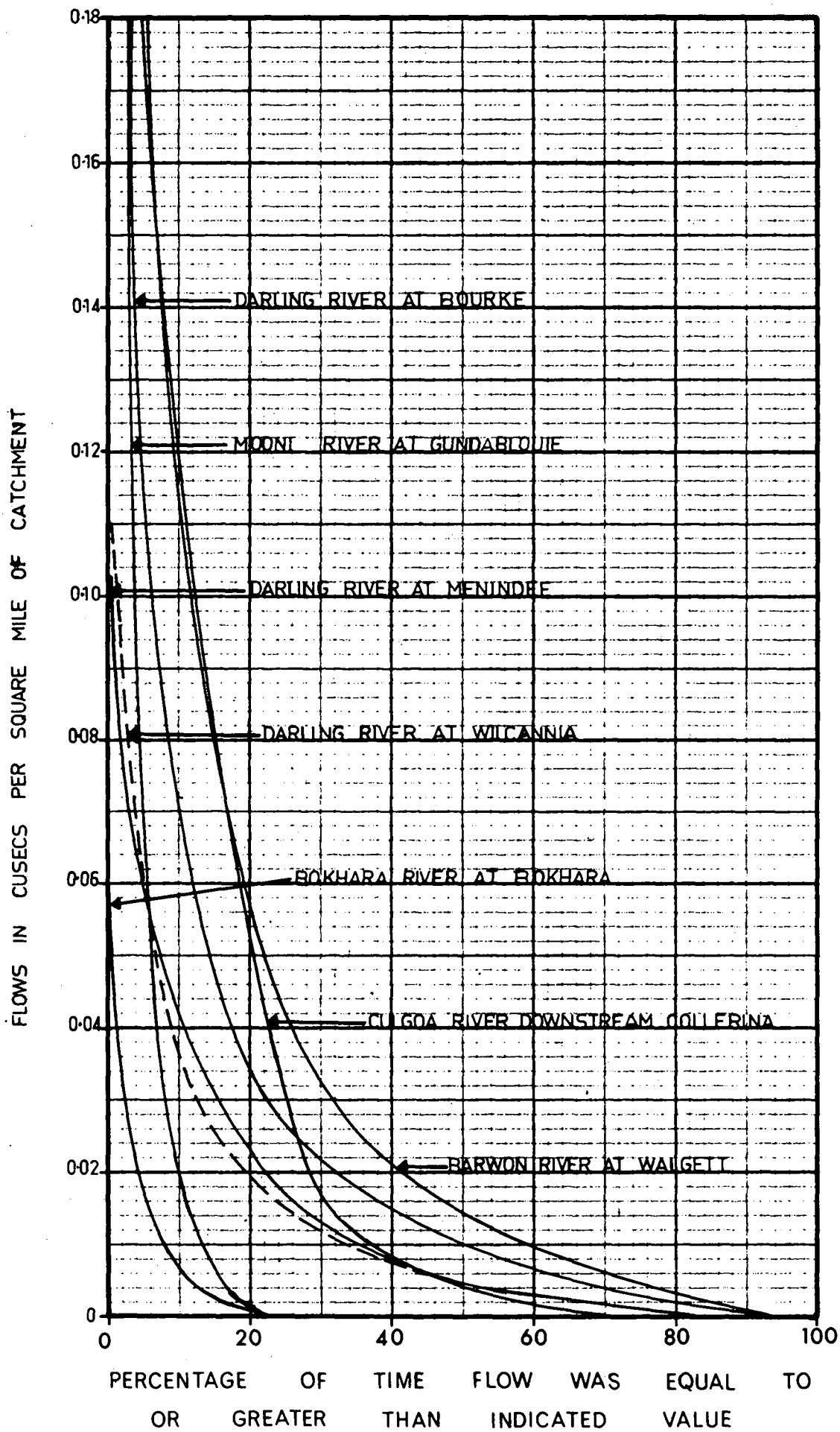
FLOW DURATION CURVE FOR DARLING RIVER AT WILCANNIA

FIGURE 30

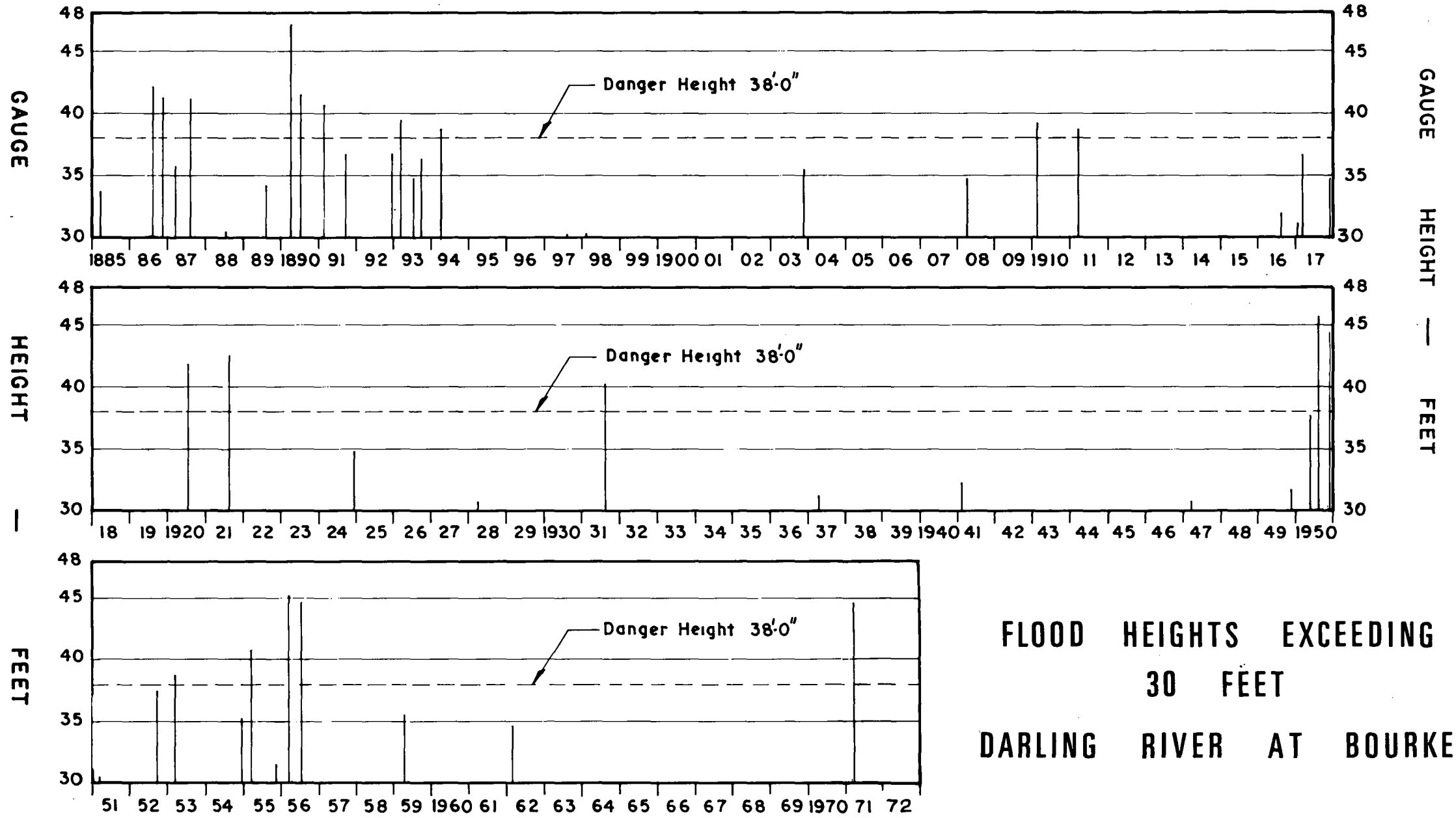


FLOW DURATION CURVE FOR DARLING RIVER AT MENINDEE

FIGURE 31



FLOW DURATION CURVES FOR SELECTED DARLING VALLEY STREAMS

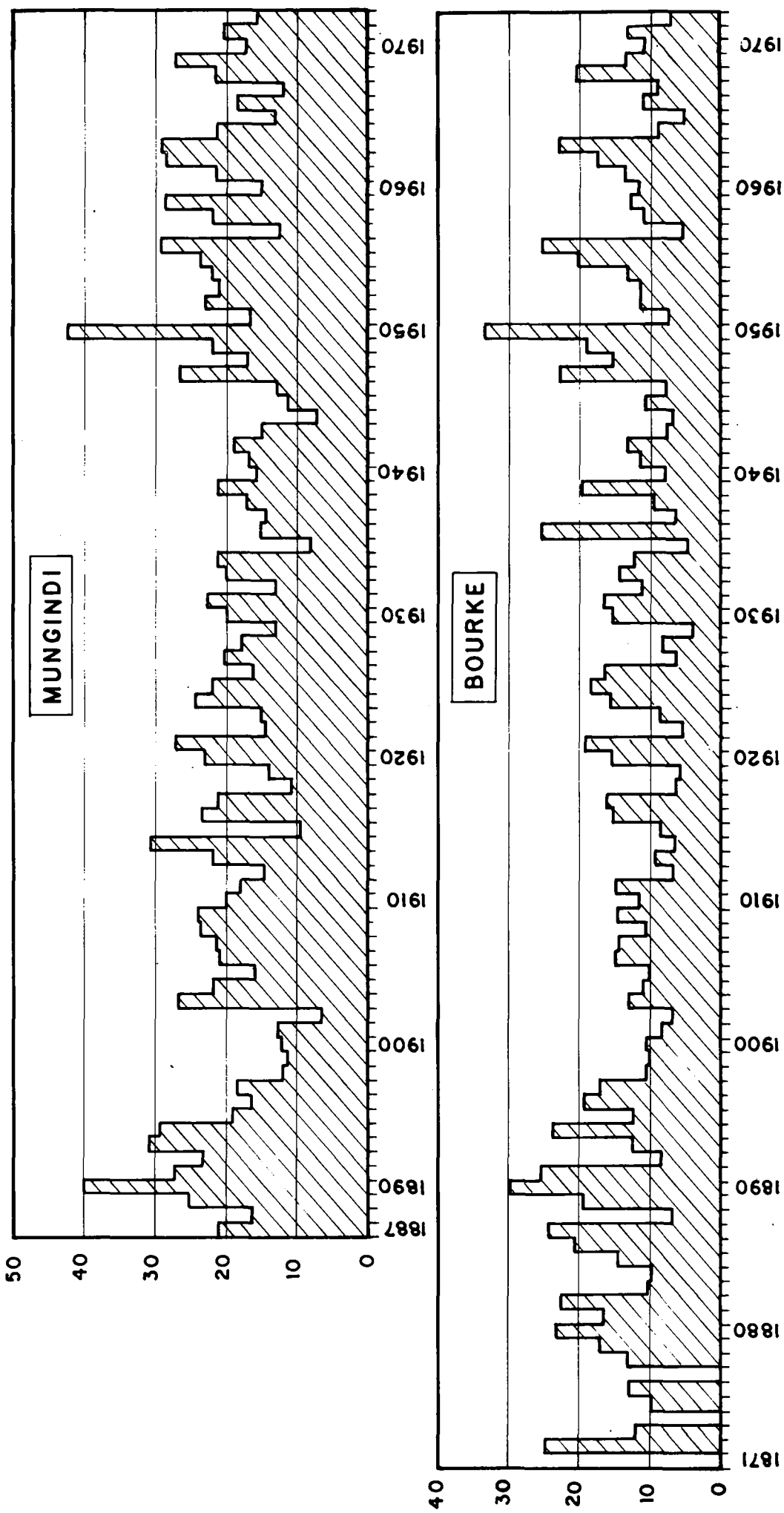


FLOOD HEIGHTS EXCEEDING 30 FEET

DARLING RIVER AT BOURKE

FIGURE 32

FIGURE 33



ANNUAL RAINFALLS AT MUNGINDI AND BOURKE

FIGURE 34

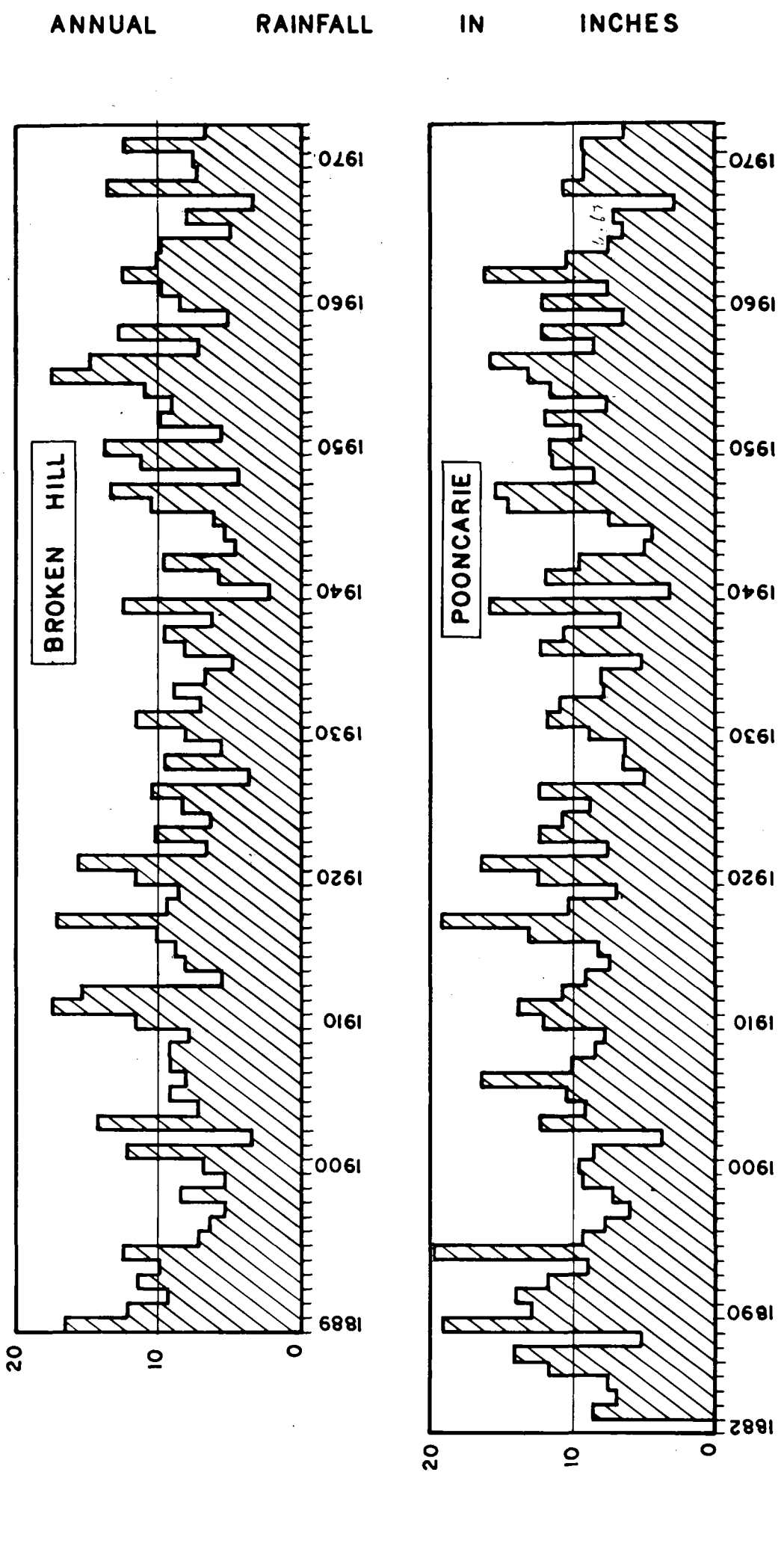
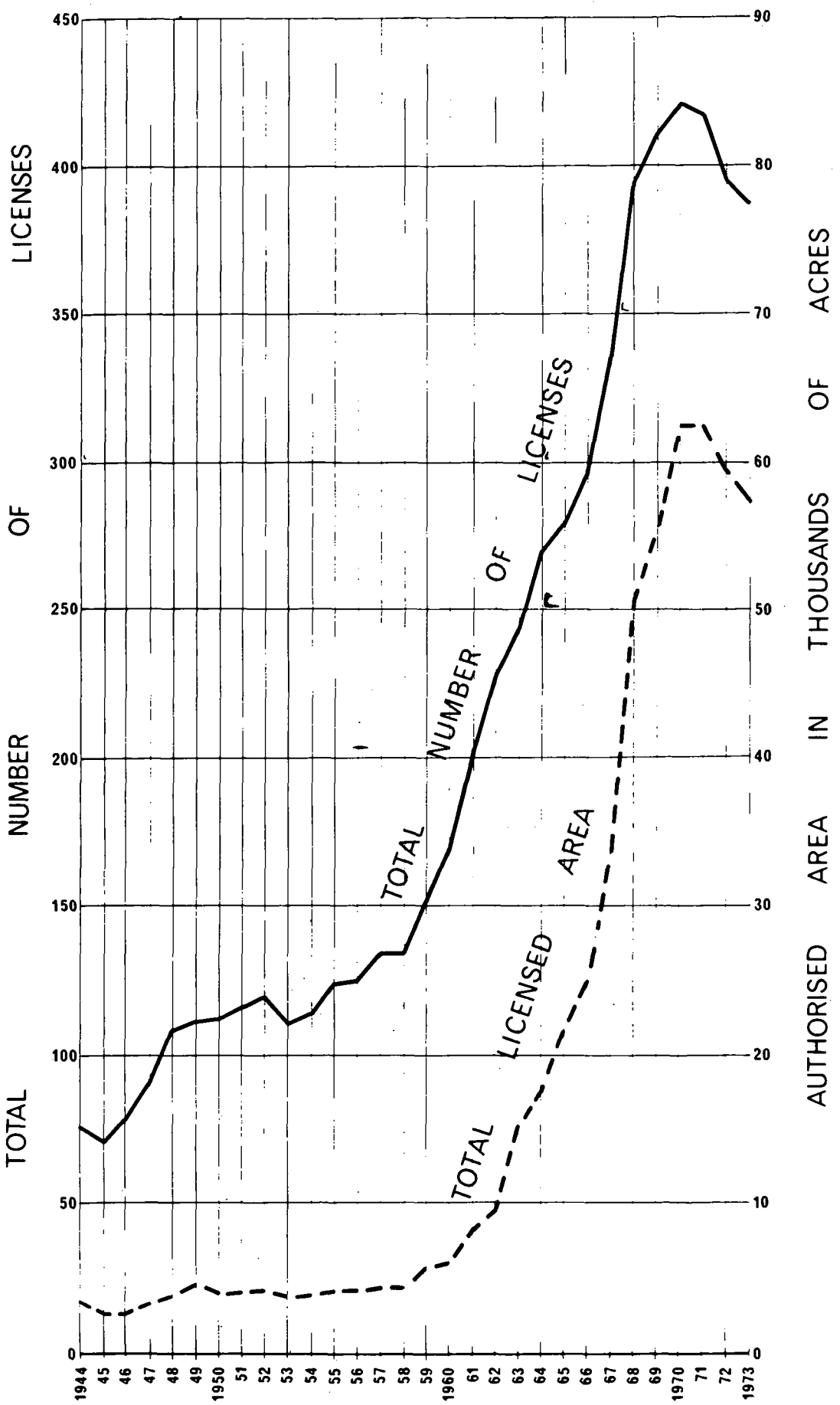

ANNUAL RAINFALL IN INCHES
BROKEN HILL
POONCARIE
20
10
0
1889
1900
1910
1920
1930
1940
1950
1960
1970
1882
1890
ANNUAL RAINFALLS AT BROKEN HILL AND POONCARIE

FIGURE 35



DARLING RIVER VALLEY
AREA AUTHORISED FOR IRRIGATION
AND TOTAL NUMBER OF LICENSES AT
30th JUNE FOR EACH YEAR INDICATED

MENINDEE LAKES SCHEME

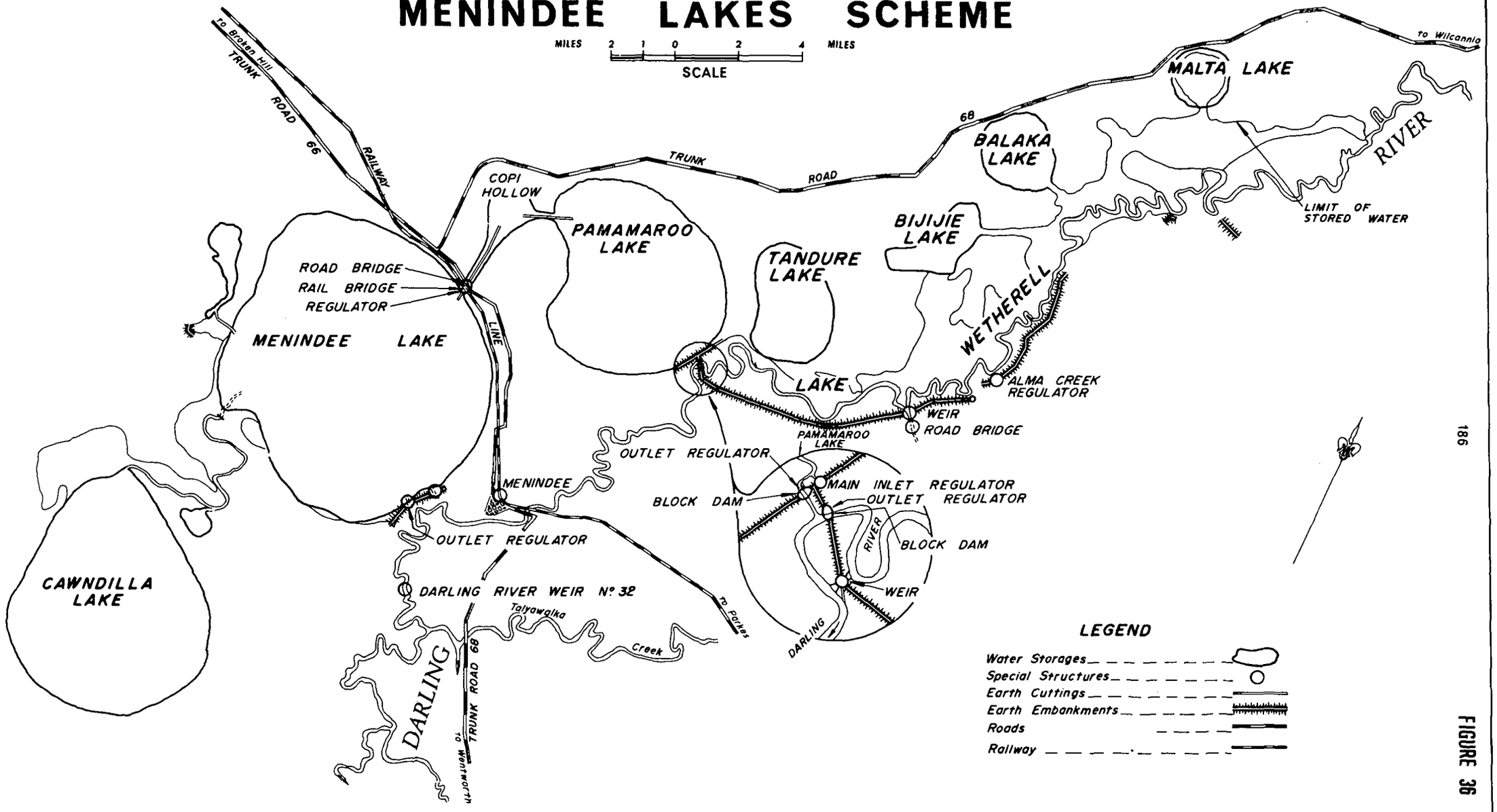
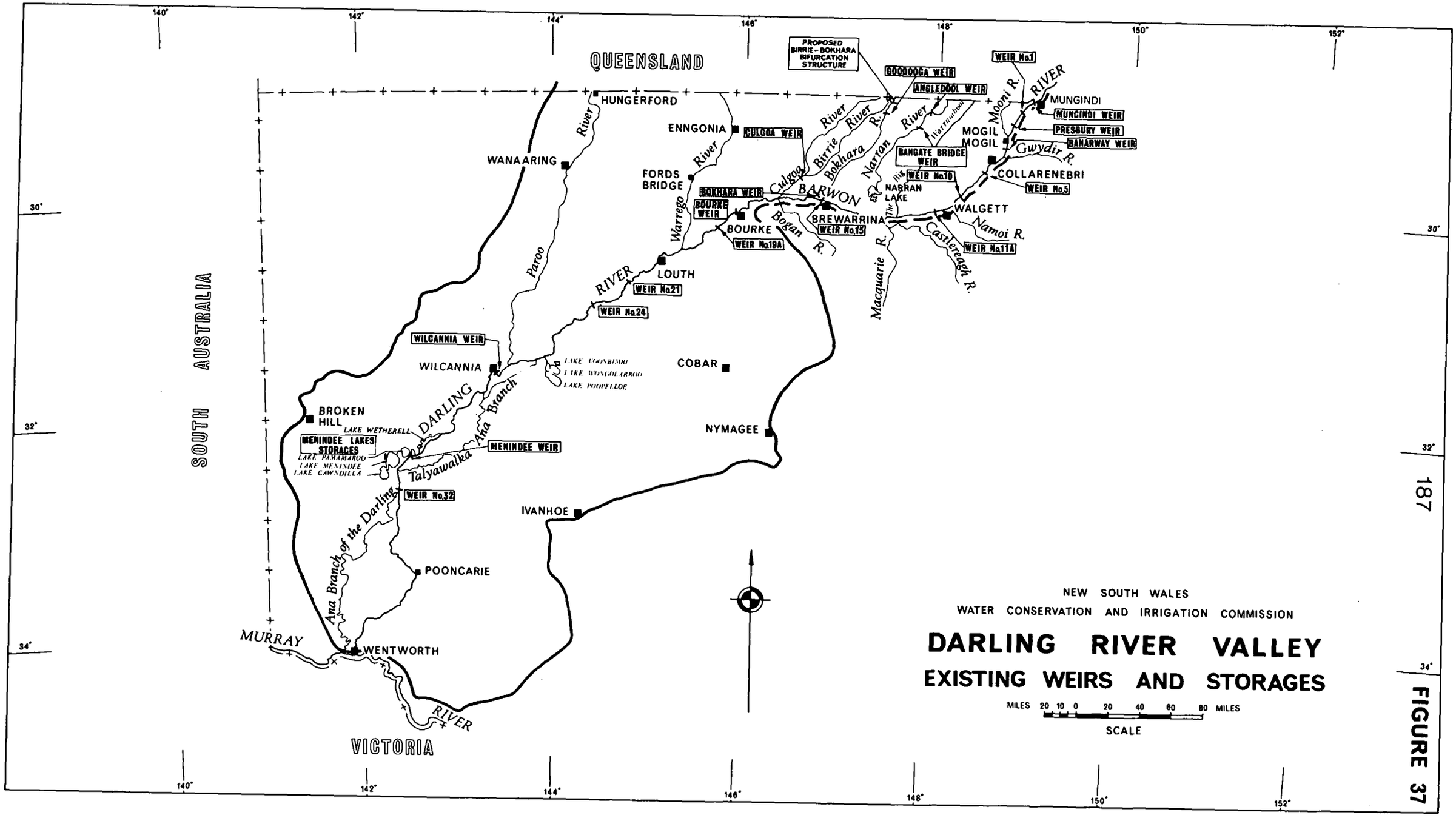


FIGURE 36



NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

DARLING RIVER VALLEY
EXISTING WEIRS AND STORAGES

MILES 20 10 0 20 40 60 80 MILES
SCALE

FIGURE 37