

## An Aboriginal Dam in Northwestern New South Wales

R. J. ROWLANDS and J. M. ROWLANDS\*

THERE are extremely few reports of Aboriginal earth structures used for water storage in the literature available. Giles (1889: Vol. 2) reported three clay dams in the Great Victoria Desert of South Australia and Western Australia. The largest of these was located in sandhill country about 70 miles southeast of Maralinga. It was described as 2 ft thick at the top of the wall, 5 ft thick at the bottom, and 60 ft in length. This embankment was nearly 5 ft high, and formed a circular enclosure with an opening through which water entered. The capacity, based on these dimensions, would have been several thousand gallons. Giles also described a pathway which had been cleared amongst the stones for 'some dozens of yards', close to this dam.

The other two Aboriginal dams mentioned by Giles were of smaller dimensions. One was situated about 90 miles north of Maralinga, and the other 170 miles further west, in Western Australia. The latter, named Boundary Dam by Giles, formed a reservoir described as about 8 ft long, 3 ft wide, and 6 ft deep when full. The amount of water used by Giles' party from this dam, and also Tietkens' description (1889 : 34), suggest that it was somewhat larger.

Johnston (1941 : 35-54), in a paper summarizing the known Aboriginal waters in northern South Australia, listed several other small Aboriginal dams which have been found in this region since Giles' expedition. Maurice (1904 : 5) visited one of these sites in 1901 while on a prospecting expedition, and described embankments, shaped somewhat like a horseshoe, made of clay interlaced with mulga twigs. George (1905 : 1-4), also while carrying out geological explor-

ation for the South Australian Department of Mines in 1904, was guided to five small dams. These are in the vicinity of Wyola Lake, 100 miles northwest of Maralinga. George's descriptions were brief, but the dams all appear to have been rather smaller than Giles' Boundary Dam. All of these dams in the Great Victoria Desert were constructed in claypans among the sandhills. They appear to have been built across small watercourses or gutters which drain into the claypans.

Basedow (1925 : 97) described small banks of clay used to direct rainwater into rockholes, in the Musgrave Ranges, northeast of the Great Victoria Desert. Apart from these examples in northern South Australia, the only other description of an Aboriginal dam known to the authors is by Leichhardt (1847 : 405). He described a wall of clay built to catch fresh water from a soakage a little above high water mark, on the bank of a tidal estuary on the Gulf of Carpentaria. This was probably located on the Foelsche River, about two miles from its junction with the Wearyan River, in the Northern Territory.

### *Description of site*

The site described here is located 45 miles east of Tibooburra, on Pindera Downs Station, in northwestern New South Wales (*see* locality map, FIG. 1). The Bulloo River Overflow is flanked by low gibber-covered hills. From these hills, several short watercourses, from a few hundred yards to a few miles in length, run down to the floodwater area.

The Bulloo River Overflow is, for periods of up to 10 years or more at a time, a dry flat clay lake-bed. Only in exceptionally wet seasons, when heavy and sustained rain falls much further north in Central Queensland, the Bulloo River fills the Bulloo Lake

\* 70 Ursa Street, North Balwyn, Victoria 3104. Ms. received December 1968. The Australian Institute of Aboriginal Studies has kindly subsidized publication.

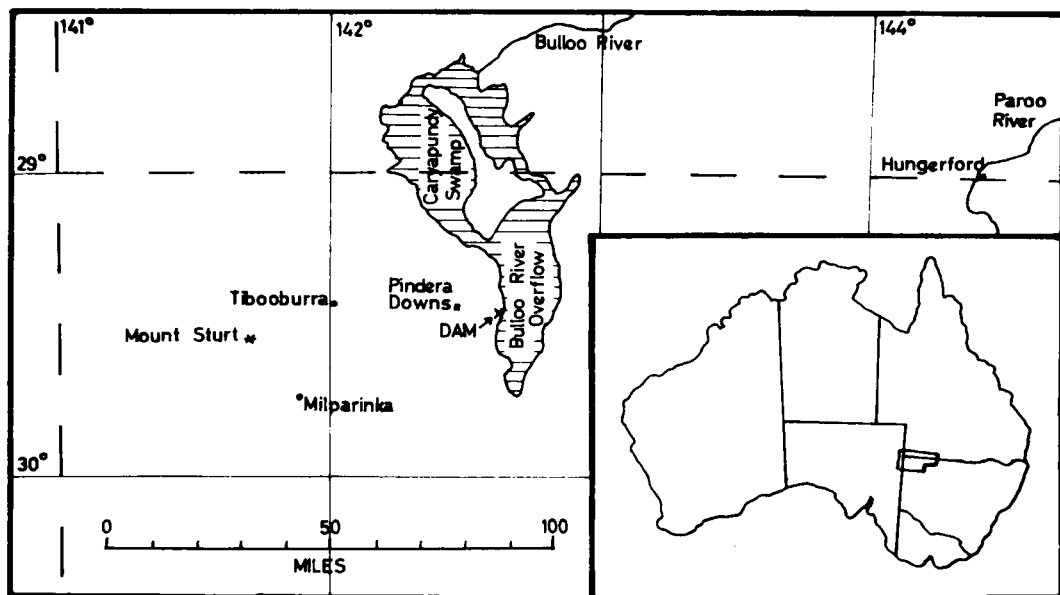


FIG. 1 Locality map

and the Caryapundy Swamp, and flood-water enters the Overflow area. This normally dry lake-bed has scattered areas of canegrass and other low vegetation. The hills near this site support only a few low bushes and very little other herbage.

A slight bank, which runs around the hills about 20 ft above the clay lake-bed, suggests that at one time the lake was filled fairly consistently to this level. A flood of such magnitude is unknown in recent times. This ancient shoreline, which is marked by a steeper than average slope for 2 or 3 ft, is covered with gibber stones, and appears no different in this respect to the rest of the hills.

Just above this shoreline, and on either side of one of the smaller watercourses descending from the hills, is a bank which extends for almost 330 ft in a smooth curve (PLATE III). It is broken only by a gap, 40 ft wide at the top, where the watercourse passes through. The top of this bank is quite level for the whole of its length on both sides of the gap, and is about 6 ft above the bed of the watercourse where the latter emerges through the gap in the bank. FIG. 2 shows a scale contour plan of the area of this bank. The bed of the water-

course just outside the gap is taken as reference height in this plan.

The levelness of the bank on both sides is foreign to the general slope of the hillside, so that it appears quite unnatural. It seems to have been built up above the original ground level over the area indicated by dotted lines in FIG. 2; dashed lines indicate the suggested original contours and the position of the watercourse. The embankment is up to 20 ft thick at the base, and is built up to about 2 ft high for much of its length, and to almost 6 ft at the watercourse.

Scattered over the bank are large numbers of small stones. These are up to 4" across, but the average size is 1" to 1½", considerably less than those covering the rest of the hill. The stones on the bank include many flaked pieces and chips, and a few roughly worked implements. Similar flakes and implements were found on a flat area a little to the north of the embankment.

The material of the bank consists of a mixture of clay and small stones. Earth dug from the hillside beside the bank was mainly clay, the stones being confined chiefly to the surface. Recent erosion in the side of the watercourse where it cuts through the

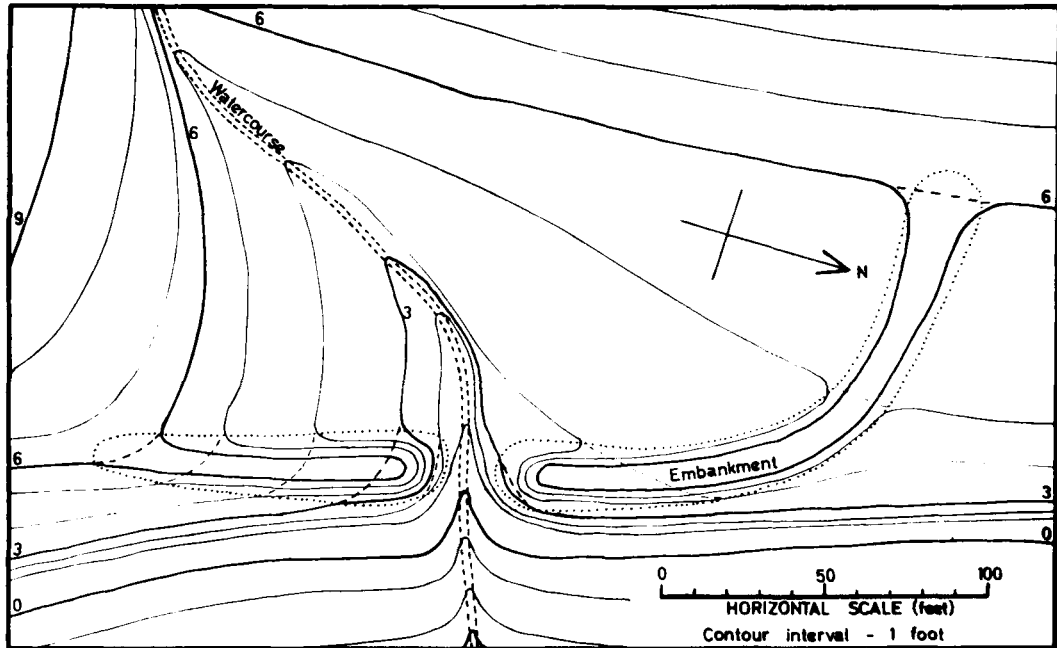


FIG. 2 Contour plan of embankment. Dotted line shows extent of bank. Probable original contours are shown dashed across area of bank

bank shows a distinct break about  $5\frac{1}{2}$  ft below the top of the bank, the soil below this level being relatively free of stones, and of a darker colour, to that above this level. Eroded banks a few yards away show only the lower layer extending to the surface.

Leading from the camp-site north of the embankment is a track or pad. Although superficially similar to animal pads in the hills, it is different in character and appears much older. It is wider than the many sheep tracks that exist in the area. The track follows another and larger watercourse away from the Overflow for about a mile, and continues across an extensive gibber-covered plain beyond the head of the watercourse. This plain is several miles across, almost devoid of vegetation, and quite featureless.

The track was originally found and followed by Mr F. Nicholls of Pindera Downs Station. While following the track, he discovered a stone arrangement 1.7 miles west of the dam. This arrangement consists essentially of two roughly parallel lines of stones, about 3 ft apart, extending for 110 ft on a

bearing of  $253^\circ$ . The track leads between these lines and continues beyond, probably for a considerable distance. As a result of the recent drought, drifting sand now covers this gibber plain to a depth of several inches, and it is no longer possible to trace the track very far beyond the stone arrangement, nor to determine the full extent of the arrangement. This sand cover has deepened considerably since we first visited the area in 1966. The arrangement is one of 15 recorded by us in the vicinity of the Bulloo River Overflow.

#### Discussion

The form of this bank, its composition, and the nature of the eroded edge of the watercourse leave little doubt that the structure is not of natural origin. The implements found on the surface of the embankment suggest that it was formed while Aborigines were still living in the area. The adjacent camp-site and the association with a stone arrangement suggest that the dam was of importance to the Aboriginal people, and

that its use was not short-lived.

Much of the bank is not high, at least half being less than 2 ft. A bank of this height would not need to be wider than 6 or 8 ft for stability. The width of 20 ft would suggest that the bank may have been originally higher and narrower—perhaps 3 or even 4 ft high where at present it is 2. Weathering over a long period would cause such a bank to become lower and wider, even after the watercourse had broken through. The concentration of stones on the surface support this suggestion.

The reports of Sturt (1849) and Wills (1863), from the first two European parties to penetrate this region, in 1844 and 1860 respectively, indicate that the Aboriginal population south of the Bulloo River and Cooper Creek was sparse. Members of Sturt's party came within 30 miles of the Bulloo River Overflow, but found more reliable water near Mount Sturt, further west. Wills described Cannilta waterhole, 2 or 3 ft deep and well shaded by box trees, within 5 miles of the site described above. The barren nature of the country adjacent to the dam, with few bushes and no trees, suggests that this camp-site has not been in regular use for a considerable time. The presence of more favourable camp-sites within a few miles tends to support this suggestion.

There are no records of early settlers or prospectors having camped or worked in the area adjacent to this part of the Bulloo River Overflow. It is most unlikely that Europeans would have built this dam, as there is no indication of provision for a bywash, and, in any case, a far more suitable site on a larger creek is located a few hundred yards to the north. Intensive searching, both by Mr F. Nicholls and by ourselves, failed to reveal any evidence of European occupation of this area.

All of this evidence suggests that the bank is definitely the remains of an Aboriginal dam, built to retain water for some time after rain. It would provide a reliable supply in this waterless country, and consequently allow convenient hunting in the Overflow area. This bank differs considerably from those described in South Australia, being much lower and wider in proportion, and considerably larger in extent. Some at least

of the South Australian dams were built of clay reinforced with mulga twigs. The stony filling available beside the Bulloo River Overflow would be a more durable material, the stones naturally present giving considerable resistance to erosion. The layout of the dam is similar (apart from size) to those in South Australia, being constructed as a curved bank across a small watercourse leading into a flat evaporative basin.

If this structure is an Aboriginal dam, it is the largest structure built by the Aborigines to be recorded in this country. Its construction would have involved the moving of an estimated 150 cubic yards of filling, a task not beyond the capabilities of a group of people to whom a reliable water supply was of the utmost importance. It may well have been built over a period of dozens or even hundreds of years, its height gradually being increased to provide a larger storage. The builders would have been finally rewarded with a waterhole holding over 150,000 gallons when full, which would last for many months, even allowing for evaporation and seepage. The hard and stony nature of the hills forming the catchment would ensure some runoff after even a few points of rain, so that the supply would have been reasonably reliable. Although the country is barren at the moment, and has been so for many years, there is ample evidence (in the form of stone arrangements, extensive burial grounds and numerous camp-sites) that the area once supported a much larger Aboriginal population than it would in its present condition.

This dam was discovered by Mr F. Nicholls, who first noticed the unnatural form of the hillside beside the watercourse. There is no reason to suppose that this form of Aboriginal water conservation was restricted to the Great Victoria Desert. Dams such as this may have existed in other parts of the low rainfall area of Australia, where the absence of natural reservoirs associated with larger creeks or rock outcrops resulted in extreme scarcity of surface water. Europeans exploring the country naturally looked for water mainly in the larger creeks and around the higher hills. Giles seems to have paid more attention than most to Aboriginal footprints and smokes, and it is he who

found the first three dams. All but the most durable of such dams would have disappeared quite quickly, but, as this example shows, it is possible that some of the larger ones may have survived to the present time. *Acknowledgements.* We wish to express our thanks to Mr F. Nicholls for the assistance and information he provided, and to the Australian Institute of Aboriginal Studies for support and encouragement in our work.

## BIBLIOGRAPHY

BASEDOW, H. 1925. *The Australian Aboriginal*. Adelaide.  
 GEORGE, F. R. 1905. *Prospecting Expedition North of Nullarbor Plains*. South Australian Parliament. Paper No. 60 of 1905.

GILES, E. 1889. *Australia Twice Traversed . . . 1872 to 1876*. London.  
 JOHNSTON, T. H. 1941. Some Aboriginal Routes in the Western Portion of South Australia. *Proc. Roy. Geog. Soc. of Australasia, South Australian Branch*, 42, 33-65.  
 LEICHHARDT, F. W. L. 1847. *Journal of an Overland Expedition in Australia from Moreton Bay to Port Essington . . . 1844-45*. London.  
 MAURICE, R. T. 1904. *Extracts from Journals of Exploration. Fowlers Bay to Rawlinson Ranges and Fowlers Bay to Cambridge Gulf*. South Australian Parliament. Paper No. 43 of 1904.  
 STURT, C. 1849. *Narrative of an Expedition into Central Australia . . . During the Years 1844, 5, and 6, etc.* London.  
 TIETKENS, W. H. 1889. The Nullarbor Plains and the West Boundary of the Province. *Proc. Roy. Geog. Soc. of Australasia, South Australian Branch*, Vol. 2, Third Session, 34-8.  
 WILLS, W. J. 1863. *A Successful Exploration Through the Interior of Australia, etc.* London.

## BOOKS RECEIVED (Continued from page 127)

Douglas, M. and P. M. Kaberry (eds). *Man in Africa*. Tavistock. 1969.  
 Ekvall, R. B. *Fields on the Hoof*. Holt, Rinehart and Winston. 1968.  
 Epstein, A. L. *Matupit*. Australian National University Press. 1969.  
 Fishman, J. A., C. A. Ferguson, and J. Das Gupta (eds). *Language Problems of developing nations*. John Wiley and Sons. 1969.  
 Fürer-Haimendorf, C. von. *The Konyak Nagas*. Holt, Rinehart and Winston. 1969.  
 Gardner, R. and K. G. Heider. *Gardens of War*. Random House. 1968.  
 Gill, W. *Petermann Journey*. Rigby. 1969.  
 Glass, A. and D. Hackett. *Pitjantjatjara Texts*. Australian Institute of Aboriginal Studies. 1969.  
 Glasse, R. M. *Huli of Papua*. Mouton and Co. 1968.  
 Harney, B. and A. P. Elkin. *Songs of the Songmen*. Rigby. 1969.  
 Hercus, L. A. *The Languages of Victoria: a late survey*. Australian Institute of Aboriginal Studies. 1969.  
 Holthouse, H. *Cannibal Cargoes*. Rigby. 1969.  
 Hsu, F. L. K. *The Study of Literate Civilizations*. Holt, Rinehart and Winston. 1969.  
 Jay, R. R. *Javanese Villagers*. Massachusetts Institute of Technology Press. 1969.  
 Jocano, F. L. *Growing up in a Philippine Barrio*. Holt, Rinehart and Winston. 1969.  
 Le Clair Jr., E. E. and H. K. Schneider (eds). *Economic Anthropology*. Holt, Rinehart and Winston. 1968.  
 Lewis, P. H. *The Social Context of Art in Northern New Ireland*. Field Museum of Natural History. 1969.

Lucich, P. *Children's Stories from the Worora*. Australian Institute of Aboriginal Studies. 1969.  
 McBurney, C. B. M. *The Haa Fteah (Cyrenaica) and the stone age of the South East Mediterranean*. Cambridge University Press. 1967.  
 Macknight, C. C. (ed.). *The Farthest Coast*. Melbourne University Press. 1969.  
 McKnight, T. L. *The Camel in Australia*. Melbourne University Press. 1969.  
 Marchant, L. R. (compiler). *A List of French Naval Records and Illustrations Relating to Australian and Tasmanian Aborigines, 1771 to 1828*. Australian Institute of Aboriginal Studies. 1969.  
 Mulvaney, D. J. *The Prehistory of Australia*. Thames and Hudson. 1969.  
*New Zealand Archaeological Association Newsletter*.  
 Rappaport, R. A. *Pigs for the Ancestors*. Yale University Press. 1968.  
 Roberts, A. and C. P. Mountford. *The Dawn of Time*. Rigby. 1969.  
 Roberts, A. and C. P. Mountford. *The Dreamtime*. Rigby. 1966.  
 Rogers, E. M. and L. Svenning. *Modernization among Peasants*. Holt, Rinehart and Winston. 1969.  
 Schneider, K. R. *Destiny of Change*. Holt, Rinehart and Winston. 1968.  
 Sierksma, F. *Tibet's Terrifying Deities*. Mouton and Co. 1966.  
 Spradley, J. P. *Guests never leave hungry*. Yale University Press. 1969.  
 Trezise, P. J. *Quinkan Country*. A. H. and A. W. Reed. 1969.