

DISCUSSION NOTES FOR TWO MEN IN A TINNIE

Selected scenes of the five episodes can be shown. Selection depends on time available and student enjoyment of the video

Episode 1

The episode begins in the headwaters of the Darling River. Examples of towns found near these headwaters are Roma, Mitchell and Toowoomba. The streams that form the start of the Darling River here are quite small and often dry. For example, the Maranoa River is often dry. In fact, its aboriginal translation is 'river of sand'.

The first major development on tributaries to the Darling River is the region of St. George. **The Age** newspaper travel section in 2004 reported, "St George is a very typical Queensland rural town on the vast flatlands beyond the Great Dividing Range. It is located 550 km from Brisbane via Goondiwindi or 509 km via Dalby, is 201 m above sea-level and has a population of 3800."

"The town itself is located on the Balonne River, has wide streets, and is primarily a service centre for the surrounding wheat, sheep and cotton farmers, although fruits and vegetables and beef also make useful contributions to the local economy."

"The plaque at Jack Taylor Weir, beside the Balonne River on the western side of the town, explains how the town got its name. It reads: 'At this spot on St Georges Day - April 23 1846 - Sir Thomas Mitchell crossed the Balonne and established a camp calling the crossing St Georges Bridge. This was the origin of the town St George. St George was incorporated as a municipality in 1902, with a population of around 900. A bore, drilled to a depth of 2709 feet, was completed in 1904. The initial flow was 570,000 gallons a day. A pump is now used to maintain the pressure."

"The quest for water continued to preoccupy the town with irrigation projects contemplated as early as 1922 although it was not realised until the 1950s. In 1967 the scheme was extended to include the construction of Beardmore Dam, facilitating the development of the cotton and horticultural industries. The shire has since become one of the country's major cotton producers. The Irrigation Project, which starts 8 km south of town, adjacent the Carnarvon Highway, now covers over 13,000 hectares. The town's progress in recent times has been further enhanced by the construction, in 1972, of an irrigation weir (the Jack Taylor Weir) on the Balonne.

Jack Taylor Weir

Situated on the Balonne River, this concrete construction has a storage capacity of 10,000 megalitres. It is nearly 6 metres high and is fitted with 13 vertical lift gates. There is a pump station on the eastern banks of the river.

Beardmore Dam

21 km north of town, just off the Carnarvon Highway, is Beardmore Dam. This is a pleasant rest stop with well-kept parklands and barbecue/picnic facilities. Boating, skiing and fishing are permitted and there is a boat ramp, although no camping is allowed and fishing is prohibited 100 metres upstream and 200 metres downstream.

Completed in 1972, the dam holds 81,000 megalitres and is of earth-fill construction. When full, it covers 3350 hectares.

The Murray – Darling Basin Commission website writes of this area:

'The St George Irrigation Area is located on the Balonne River, near the town of St George. The scheme dates from the mid-1950s. The completion of the Jack Taylor Weir provided a water supply for St. George and made possible the irrigation of some 2,700 hectares. The completion of the Beardmore Dam in 1972, together with the Moolabah and Buckinbah Weirs on the Thuraggi Watercourse, made possible the expansion of the irrigation scheme. Within the Irrigation Area, there is a total of 9,470 hectares of irrigable land. Downstream of the Beardmore Dam, on what is regarded as the Regulated Section of the Balonne River, irrigation allocations have been granted to 80 landholders. Cotton is the main commodity; others include cereals, oilseeds and fodder crops.'

There are many problems further down the Darling River caused by the indiscriminate building of dams by individual farmers and the use of water by cotton farmers, the largest of these being Cubbie Station. Around St George and Dirranbandi, cotton growers and individual farmers now have about 40,000 hectares of dams at best four metres deep in an area where the annual evaporation rate is about two metres a year. This means that to deliver an allocation of water up to six times the allocation has to be held in the storage to allow for evaporation and other delivery losses.

Further downstream from Cubbie Station is Brenda Station. This property relies on regular flooding to grow feed for stock. However, there have been no floods for 7 years and cattle numbers have been cut by 45% and sheep numbers by 30%. Trees are dying along the river channel and on the floodplain due to a lack of flooding.

The junction of the Barwon and Culgoa Rivers is the formal start of the Darling River. Further downstream is the town of Bourke. The town is the centre of a large cotton, wool and citrus area. However, due to the current drought, the town is currently in decline with people leaving due to a fall in jobs in the irrigation and farming sectors. As they leave, there will be a flow-on effect on services as there are less people to keep all services open.

Episode 2

Bourke – Development of irrigation and subsequent employment of people in the cotton industry.

Wilcannia – Town people are on bore water

Menindee Lakes – These are a water storage system. The Lakes irrigate the Lower Darling. They cover an area of 453 square kilometers. The amount of water in the Lakes is naturally viable depending on the flow of the Darling River. They provide a valuable ecological habitat, are a focus for recreation and regional tourism and are vital for local and regional economies. Water losses due to evaporation are high as the

Lakes are shallow. Currently only 2 of the 7 Lakes are holding water. Menindee Dam can hold 2,000,000mL.

Episode 3

Blue - green alga develops where the water is abundant in phosphorus and nitrogen. These come in from factories and farms. It thrives in long periods of sunlight and still, calm conditions – conditions found during drought.

Salinity problems in the Darling River due to low flow.

Wentworth – The junction of the Darling and Murray Rivers

Spread of carp – Their feeding habits affect the river floor by increasing water turbidity which then affects plant life and other fish.

Hume Weir – The embankment is 1.6km long and it can hold as much as 6 Sydney Harbours. It is designed to catch winter floods and release water during summer and times of drought.

Albury – Dependence on tourism

There is a problem with weeping willow infestation. The seeds usually flow down the river from upstream.

Use of fish ladders at weirs makes these areas a target for fishermen.

Rice farming uses 20% of all Murray irrigation water.

Episodes 4 and 5

- Barmah Forest – There are some notes on this location on page 175 of the textbook, *New Perspectives*. For the trees and native grasses to survive big floods (for the trees) and big dries (for the grasses) are needed. Neither of these conditions is conducive to modern farming methods. This is the largest River Red Gum forest in Victoria and it contains over 200 species of birds. It is one of 'THE LIVING MURRAY' sites of ecological significance and a wetland of international importance under the Ramsar Convention. Some logging and cattle grazing do go on in this area.
- The Convention on Wetlands, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty, which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. There are presently 154 Contracting Parties to the Convention, with 1634 wetland sites, totaling 145.7 million hectares, designated for inclusion in the Ramsar List of Wetlands of International Importance. (<http://www.ramsar.org/>)
- Rice Growing – Rice growing uses approximately 20% of all Murray – Darling water.

- Annual Australian production = 1.2 million tonnes from approx. 150,000ha
- Australian consumption = 10 kg/person/year.
- Up to 85% of the rice produced in Australia is exported.
- Globally, Australians are the most productive and most water efficient rice-growers - achieving the greatest yield per hectare and greatest yield per ML of water used.
- Average Australian yield is 9 tonnes/ha, but some farms have recorded yields as high as 14 tonnes/ha (the world average is only about 4 tonnes/ha.)
- The industry has a farm gate value of around \$350 million and total value (export earnings, value-added) of over \$800 million.
- No more than 30% of the approved rice area on a farm in the Murrumbidgee Irrigation Area can be used to grow rice at any one time. In the Murray Valley there is a limit to water use of 4ML/ha across the whole farm, which equates to around one third of the farm being used at any one time for growing rice.

<http://www.savewater.com.au/index.php?sectionid=124&linkid=124>

- Renmark – South Australian irrigation practices are more efficient than those upstream. For instance, there are no open channels in South Australia – all irrigation water is piped.
- Banrock Vineyard - Banrock Station is an historical 1,700 hectare property at the junction of Banrock Creek and the Murray River in South Australia's Riverland region. Before they produced wines, the soils had been used extensively for grazing sheep, cattle and vegetable production. But now, following some passionate environmental work in conjunction with major Australian conservation group Wetland Care Australia, Banrock's soil and nearby wetlands have been lovingly restored.

Importantly, native water birds are returning to nest. Native fish, water plants, frogs, insects, and birds are once again contributing to the health of the River Murray. The vision at Banrock Station is for a fully sustainable ecosystem where the natural environment can co-exist alongside a vineyard enterprise that produces outstanding full flavoured Australian wines. The vineyard is a vital link between the surrounding native vegetation and wetlands. Importantly, Banrock Station makes certain that viticulture practices have no impact on the natural environment. The vineyard features "state of the art" trellising, soil conservation techniques, minimal spray programs, and computer controlled irrigation scheduling.

The managers of this property have replicated natural flood and drought conditions in a swamp environment. This has led to a regrowth of the natural vegetation and a return of bird species.

- Salinity - The Murray-Darling Basin is a naturally saline environment. The MDBC website states that; "The salts come from the weathering of the rocks, from many of the groundwaters, and from salt deposited over thousands of years by precipitation (cyclic salt). The natural flora and fauna are adapted to the conditions, but the exacerbation of these conditions as a result of human activities has created a totally different situation. High salinity levels in water are causing

significant problems for all users, agricultural, domestic and industrial. For example, in most situations, water salinity of more than 700 EC is unsuitable for irrigating most horticultural crops, while 800 EC* is the accepted maximum level for domestic supplies in larger towns and cities (for some small communities, there is often no alternative to a poor quality supply)"

Generally speaking, the problems are of more concern in the southern than the northern parts of the Basin. There is also a clear relationship between river flow and salinity levels, the lower the flow the higher the level of salinity. Flows are affected by natural conditions, but river regulation, can influence the numbers of periods of very low flows and hence of very high salinity levels.

- Lake Alexandrina - Australia's largest river system finishes its journey to the sea in broad and shallow freshwater lakes. Officially, the Murray Lakes are freshwater, and Adelaide's reserve water supply--which explains why Adelaide is building filtration plants. The lakes were originally semi-tidal estuaries. Barrages were built from the 1920s to keep the tides out and to raise the pool level for the steam navigation, which the railways had killed a decade previously.
(<http://www.ace.net.au/schooner/mlakes.htm>)
- Coorong Lakes – Problems in this area include salinity, poor water flow and threatened biodiversity.

Constant dredging is needed to keep the Murray mouth open.