

Preface

Irrigation was introduced to Australia by European settlers, probably no earlier than the 1820s. The Aboriginal people constructed weirs and excavated channels but only to trap fish. Accordingly there was no long-term experience of irrigation as in many other parts of the world, but it has achieved great importance in Australia, with impact in cities as well as the countryside. Development at first depended on the skill and enterprise of individual landholders, notably in Tasmania, who were able to draw on nearby rivers. Unsuccessful efforts were made in the 1840s and 1870s to develop complex irrigation schemes and until the 1880s most irrigation involved pumping rather than gravitation from perennial streams.

When agricultural settlement extended on the mainland to inland tracts with low unreliable rainfall the need for water soon led to interest in irrigation and help was sought from colonial governments. The advice they first obtained from hydraulic engineers did not favour irrigation but its progress in the United States encouraged popular agitation in favour of government action at a time when the advantages were being demonstrated in many parts of Australia by pastoralists, farmers and Chinese market-gardeners. At last steps were taken in Victoria to establish irrigation through government loans to locally based irrigation trusts and by agreement with two Canadians who had developed irrigation settlements in California. These projects were sustained for a time by the prosperity which then prevailed in Victoria; they suffered during the subsequent depression but provided valuable though costly experience.

A major outcome in the 20th century was to enshrine irrigation as a matter primarily dependent on government intervention. In south-eastern Australia the governments of the three south-eastern states on the mainland set up bodies with authority to establish irrigation settlements catering for local residents and migrants, and to regulate the use of water for irrigation. In Tasmania, however, different arrangements were made.

My interest developed through work as a soil scientist with the Commonwealth Scientific and Industrial Research Organisation (CSIRO). Its Division of Soils had been established in 1929, mainly in response to problems of waterlogging and salinity affecting irrigated lands in the

Murray River valley. It undertook classification and mapping of soils, concentrating at first on the numerous irrigation settlements and extending gradually to other areas. When I joined that Division in 1946 it was providing information on the soils of areas intended for war service land settlement and one of my first assignments was to take part in a survey of farm land at Loxton, South Australia, before establishment there of an irrigated horticultural settlement. Related work was undertaken elsewhere by colleagues in CSIRO and by others in state government bodies. The publication of soil maps and information on irrigation problems provided me with an introduction to the complexity of irrigation in Australia.

Extending the domain of irrigation was widely accepted as progress during the mid-20th century but the 1970s brought doubts, with the focus on Murray Valley salinity problems and critical studies of the economics of irrigation. These concerns influenced the changes in the 1980s affecting management of the River Murray and control of the water industry in different States. However, serious problems continue to arise with irrigation.

During the 1970s I realised that the history of Australian irrigation had attracted little attention and began its study. The main contributions then included the essay by Alfred Deakin, the biography of George Chaffey, which provided information on the Chaffey irrigation colonies of Mildura and Renmark on the River Murray, a popular account of irrigation in the Murray valley and near the Murrumbidgee River, and a chapter of a book mainly concerned with economic aspects of Australian irrigation.¹

In the last quarter of the 20th century, the history of Australian irrigation has been referred to in works dealing with institutions responsible for water supply and irrigation, the celebration of the Australian bicentenary, and the centenary of the Mildura and Renmark settlements. Only one of these publications is devoted entirely to the development of irrigation in an Australian state: Tasmania. It was followed recently by an account of the history of Australian irrigation, which deals mainly with engineering aspects of events in the twentieth century.²

My aim has been for a comprehensive treatment of the pioneering period of irrigation, showing the diffusion of experience among the colonies or states, the contributions made by particular landholders, engineers, and public figures, and the involvement of people from various ethnic origins. This book is concerned with developments up to 1920 when the contemporary mix of government and private enterprise was achieved. While irrigation was always undertaken primarily for better production by landholders in country districts, it had begun to

affect urban life through involvement with sewerage and by the watering of parks, gardens and playing fields.

What is meant by irrigation? Although definitions vary, they all agree that the practice involves the application of water to the land. Some assume that irrigation is concerned only with crop production, but would exclude certain arrangements involving methods regarded as primitive. George Gordon, the hydraulic engineer with wide interest in Victorian irrigation, advised that it is to be understood as:

the conveyance of water without labour from a point where it is collected, or made available, to the lands to which it is to be applied, and its distribution over these lands. The term is also so used in connection with the utilisation of the sewage water of towns ...³

Another view is that irrigation includes 'any process, other than natural precipitation, which supplies water to crops'. Irrigation will be regarded in this account in the widest sense as the application of water to land for a particular purpose. Generally in Australia it has been used in support of rural industries.⁴

This book considers development of irrigation through three significant periods. The earliest runs from the establishment of penal colonies to the impact of gold discoveries. The unusual feature of Australian irrigation is its lack of antiquity, and chapter 1 concerns initiation of the practice. The remarkable early Tasmanian interest in its use and the relative lack of it on the mainland are dealt with in chapters 2 and 3. For the next period, distinguished by Roberts⁵ as marking the emergence of agriculture, chapter 4 deals with irrigation in south-eastern Australia by European farmers and Chinese market-gardeners and with the campaign for an ambitious scheme for provision of irrigation and transport by an extensive canal in Victoria.

Irrigation in the last period, starting about 1875, became involved with closer settlement in forms which included the gradual selection of small holdings, the planned irrigation areas, and various cooperative settlements. Independent irrigators made an impressive contribution, shown in chapter 5, the first for this period, but they were gradually overshadowed by the involvement of some colonial or state governments in irrigation following official enquiries and legislation as outlined in chapter 6. Then follow several chapters roughly in chronological order: four dealing with irrigation used under different arrangements for closer settlement (chapters 7–10), and others concerning the association of irrigation with cities (chapter 11), the development of relations between states concerning irrigation in the Murray–Darling

drainage basin (chapters 12 and 13), and with the use of underground water (chapter 14).

The fact that irrigation is a human accomplishment determined that my account of its pioneering phase in Australia should give attention to the interests and attitudes of the main players in the story together with the engineering and agricultural aspects of the development. My study showed that progress in the pioneering phase of Australian irrigation has involved serious controversy, occasional romanticism, and technology transfer combined with local innovation; these considerations should be reflected in the following account.