

Agriculture and the Development of the Australian Economy during the Nineteenth Century¹

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REVIEW ARTICLE OF G. L. BUXTON, *The Riverina, 1861-1891*. Melbourne, Melbourne University Press, 1967. xi+338 pp. £4.70; D. B. WILLIAMS (ed.), *Agriculture in the Australian Economy*. Sydney, Sydney University Press, 1967. xvii+349 pp. £2.80; R. DUNCAN, *The Northern Territory Pastoral Industry, 1863-1910*. Melbourne, Melbourne University Press, 1967. xv+190 pp. £3.25; P. BURROUGHS, *Britain and Australia, 1831-1855*. Oxford, Clarendon Press, 1967. xi+419 pp. £4.20.

IN Australia today one-tenth of the work force is engaged in agriculture and less than one-eighth of the gross domestic product comes from primary production. Australia is obviously far removed from the popular image that sees her as a land of sheep, kangaroos, and cricketers. But what was the position in the nineteenth century? Professor E. O. G. Shann, in his pioneer economic history, described her as "John Bull's greater wool-sack", a judgement that most Australians have been happy to accept. Australia was a country of recent settlement where economic growth, according to Professor Habakkuk, "was stimulated by increased British demands for imports. Since this was a demand for primary products the economic growth did not, for the most part, take the form of rapid industrialization." Arguing along the same lines, Professor

Nicholls has written with particular reference to Australia that "agricultural progress was not only clearly a major contributor to... subsequent economic development, but was apparently established with a minimum of time, effort, and social hardship." The revolution that has taken place in the writing of Australian economic history over the last decade or so makes it necessary to re-assess such views and permits a more accurate examination of the part that agriculture played in Australian economic development.²

I

When the First Fleet arrived at Sydney Cove in January 1788 one of the first tasks was to start the cultivation of crops, for the mother country intended its southern jail to be self-supporting. The difficulties were formidable: neither convicts nor guards made good farmers, there was a shortage of tools and capital, the soil was poor except where it was liable to flooding, and the climate was strange. Nevertheless the needs of a growing population remote from other sources of supply provided a market for food and encouraged farming in districts close to Sydney. By 1828 there were 71,000 acres of cultivated land, mostly on the Cumberland Plain between the Blue Mountains and the sea. There was also a good deal of pastoral farming, which by the 1820's

¹ Rather than attempt a close review of these works, I have tried to use them, together with other recent publications, as a basis for a general survey of Australian agricultural development. 'Agriculture' is used in the English sense to include both grazing and cultivation.

² E. O. G. Shann, *An Economic History of Australia*, Cambridge, 1930, ch. vi; Brian Fitzpatrick, *The British Empire in Australia: An Economic History, 1834-1939*. Melbourne, 2nd edn, 1949, chs. II, III, V, *passim*; H. J. Habakkuk, 'The Historical Experience on the Basic Conditions of Economic Progress', in B. E. Supple (ed.), *The Experience of Economic Growth*, New York, 1963, p. 116; W. H. Nicholls, 'The Place of Agriculture in Economic Development', C. Eicher and L. Witt (eds.), *Agriculture in Economic Development*, New York, 1964, p. 17.

was extending to the grazing lands beyond the mountains, having been forced away from the Cumberland by a shortage of grass.¹

During the 1820's and '30's the wool-growing industry was successfully established. In the early years of settlement wool had interested only one or two substantial settlers, but by 1831 Australia was supplying 8 per cent of British wool imports. Nine years later the proportion had risen to 28 per cent and by 1850 to 53 per cent. Sheep grazing stretched out well beyond the hinterland of the first settlement, into what later became Victoria, Queensland, and South Australia, although pastoralists remained in the relatively well-watered districts. Progress was not smooth. The years between 1825 and 1828 were marked by depression, caused initially by falling wool prices in England and made worse by drought in Eastern Australia. Expansion was resumed after 1828 and continued throughout the '30's; by 1840, however, profits were again being squeezed between rising costs and slightly falling wool prices. Rosy optimism that had characterized the 1830's evaporated, credit was restricted, and serious depression occurred.²

During this period of pastoral expansion wheat production had failed to keep pace with the growth of the population of New South Wales. The environment was not generally well suited to arable farming which became the occupation of poor men with inadequate resources. Supplies were imported from Van Dieman's Land, but by the 1840's South Australia began to supply New South Wales with wheat and during the next half-century emerged as the principal grain-growing region of Australia.

The eastern gold discoveries of the 1850's

greatly stimulated the growth of population, providing a growing market for producers of grain, dairy produce, and meat. The gold rushes caused some initial difficulty to the pastoral industry as men left to try their luck at the diggings, but production expanded throughout the '50's, and between 1860 and 1894 there was a five-fold increase in sheep numbers in eastern Australia and a three-fold increase in cattle population. The wool industry extended into the dry regions of western New South Wales and central Queensland, while cattlemen tested the possibilities offered in the Kimberley district of Western Australia and the Northern Territory.³

The long period of expansion in eastern Australia ended in the early 1890's when over-production in both primary and secondary industry resulted in depression, causing a fall of a third in the value of the gross domestic product by 1895. In the pastoral industry recovery was postponed by seven years of drought. Sheep numbers were halved in the ten years after 1892 and did not regain their earlier levels before 1910. The cattle population also declined, as did the value, although not the extent, of crop production. On the other side of the continent, by contrast, the ugly duckling on the Swan river was at last spreading its wings. Gold did for Western Australia what it had done for the eastern colonies forty years before. As the population grew agricultural output of all kinds was stimulated. Most remarkable was the expansion of wheat farming from the end of the nineteenth century. Aided by the government, the acreage under wheat in Western Australia increased from 34,000 acres in 1890 to 1.4 million acres in 1914.

¹ A. G. L. Shaw, 'History and Development of Australian Agriculture', in D. B. Williams, *op. cit.*, pp. 1-4; T. M. Perry, *Australia's First Frontier, 1788-1829*, Melbourne, 1963, chs. 2, 3; E. Dunsdorfs, *The Australian Wheat-Growing Industry, 1788-1948*, Melbourne, 1956, chs. 1, 11.

² Shaw, *loc. cit.*, pp. 4-5; S. J. Butlin, *Foundations of the Australian Monetary System, 1788-1851*, Melbourne, 1952, chs. 7-10, *passim*; E. A. Beever, 'The Origin of the Wool Industry in New South Wales', *Business Archives and History*, vol. v, no. 2, Aug. 1965, pp. 91-106; J. P. Fogarty, 'The New South Wales Pastoral Industry in the 1820s', *Australian Econ. Hist. Rev.*, vol. VIII, no. 2, Sept. 1968, pp. 110-22; E. A. Beever, 'Further Comments on the Origin of the Wool Industry in New South Wales', *idem*, pp. 123-28.

³ Shaw, *loc. cit.*, pp. 7-14; Buxton, *op. cit.*, chs. 1, 8, *passim*; Duncan, *op. cit.*, chs. 1-3, *passim*; R. L. Heathcote, *Back of Bourke*, Melbourne, 1965, chs. 4-6, *passim*; G. C. Boulton, 'The Kimberley Pastoral Industry', *University Studies in History and Economics*, University of Western Australia, vol. 11, no. 2, July 1954, pp. 9-24; N. G. Butlin, 'Distribution of the Sheep Population: Preliminary Statistical Picture, 1860-1957', in A. Barnard (ed.), *The Simple Fleece*, Melbourne, 1962, pp. 284-91.

In the early years of the twentieth century there were considerable increases in the output of tropical agriculture, especially sugar in Queensland; and the export of meat, wheat, and butter grew in importance.¹

II

Agricultural development in countries of recent settlement in the nineteenth century depended upon the application of capital and labour to abundant land. In the case of Australia it depended upon two other factors as well: the development of agricultural techniques appropriate to the condition of the Australian environment, and government activity in encouraging immigration, providing the legal framework of land settlement, and installing the social overhead capital required for economic growth.

First impressions of Australian land did not suggest that it was a fruitful source of wealth. The anguished cry of an early arrival—"the country, my Lord, is past all dispute a wretched one"—echoed down the nineteenth century, laced with flights of wild optimism. New-comers to the Riverina district were struck by the "apparent barrenness of these plains, [and] the cheerlessness of the landscape." The Northern Territory beguiled settlers with false hopes of rich pastures, which turned into a nightmare "drought-stricken land, grassless, waterless, sweltering under a torrid sun and rolling clouds of suffocating dust of blinding and burning intensity."²

Two general problems had to be tackled: the unreliability of the rainfall and the poverty of the soils over much of the continent. Initially, unwilling farmers adapted English methods to Australian conditions. The first arrivals possessed ploughs but no plough animals and for ten years trees were cleared with axes and the soil between the stumps tilled with hand-hoes. There was little manure available and land was cropped continuously until declining yields

compelled a shift to new areas. Cattle and sheep were kept, as far as possible, along English lines. For the first half-century of settlement no specifically Australian techniques were evolved.

The development of South Australia as the main wheat-producing colony depended upon the introduction of machinery. The stripper, which removed the ears from straw, was invented in 1843 and was well suited to the dry air of South Australia. It was followed by mechanical winnowers, binders, and reapers, and by McKay's combine harvester invented in 1884. By 1858-9 two-thirds of South Australian wheat was being harvested by machinery and ten years later almost 90 per cent. Further technical progress occurred as wheat growing extended to the dry mallee country. Areas of poor soils bearing dense mallee shrub were found extensively and were brought under cultivation, especially in Victoria, during the 1870's and 1880's. The mallee was cleared with heavy rollers pulled by horses. The crushed débris was burnt and the soil between the surviving roots ploughed by the stump-jump plough, another Australian invention. Wheat and mallee shoots came up together, but the ears were taken from the straw, which grew higher than the mallee, by means of the stripper. Straw and mallee were then burnt and ploughed in. After several years' cultivation the mallee shrub was eradicated.

With the cultivation of drier districts English wheat varieties, in general use before 1850, slowly gave way to earlier maturing types better able to withstand drought and disease. Throughout the second half of the nineteenth century, however, wheat yields declined. Cultivation techniques were still based upon continuous cropping; manuring was done sometimes, fallowing occasionally, but extensive land and high labour costs made Australian farmers indifferent to yields. Artificial fertilizers, especially superphosphates, began to be used only at the end of the nineteenth century.³

¹ Shaw, *loc. cit.*, pp. 15-17, 27; N. G. Butlin, *loc. cit.*, pp. 291-4; N. G. Butlin, *Australian Domestic Product, Investment and Foreign Borrowing, 1861-1938/9*, Cambridge, 1962, Table 2; F. K. Crowley, *Australia's Western Third*, London, 1960, ch. v; Sean Glynn, 'Government Policy and Agricultural Development: Western Australia, 1900-1930', *Australian Econ. Hist. Rev.*, vol. VII, no. 2, Sept. 1967, pp. 119-20.

² Buxton, *op. cit.*, p. 15; Duncan, *op. cit.*, p. 51.

³ Dunsdorfs, *op. cit.*, pp. 3-17, 149-61, 189-92; C. M. Donald, 'Innovation in Agriculture', in Williams

The emergence of Australian pastoral techniques also dates from the mid-nineteenth century, with the one important exception of the introduction of merino sheep. Flocks were at first tended by shepherds and penned at night, but as the wool industry extended into the outback where there was acute shortage of labour, pastures were gradually fenced. Wire fencing became fairly common during the 1850's and '60's in Victoria and the Riverina and there was a great extension of fencing in New South Wales during the 1870's. Three-quarters of a million miles were strung across the colony by the end of the decade and a further million miles was added by 1890. By the same date pastoralists were beginning to make use of wire netting to keep rabbits out of their pastures. The spread of the pastoral industry into low rainfall areas compelled wool growers to construct dams, sink wells, and install pumps to raise artesian water. Water supplies were also required on the stock routes along which graziers sent cattle to market from outback regions. Wool producers in remote areas where high transport costs prevented the carriage of greasy wool also needed washing equipment.¹

These technical developments increased the demand for capital which was needed also to acquire land, stock pastures, purchase seed, and construct homesteads. The early grain farmers in New South Wales were granted land and provided with tools by the governor. Pastoral farming demanded larger outlays and was therefore the concern of wealthier men, frequently officers or merchants who had made money in the lucrative import trades. Lack of capital, nevertheless, impeded the growth of the wool industry before the 1820's. Its development in the '20's and '30's depended a good deal upon capital imports. Free settlers sometimes brought a little capital or even flocks with them; but the more common pat-

tern was that described by Dr Hartwell: "credit proceeded from the London merchants, to the colonial merchants, to the colonial retailer, to the farmer and grazier." The establishment of the Australian Agricultural Company and the Van Dieman's Land Company in 1826 with British capital marked a more formal stage of capital inflow, although both commenced operations just as the pastoral industry experienced a slump. In the 1830's the flow of British capital increased, possibly ten-fold. "A still rising volume of British expenditure in connection with convicts; the formation of banks and mortgage companies in Britain to operate in the colonies; the transfer of funds by absentee investors for disposal by individuals and firms in the colonies; the import of cash and goods by those who migrated—these were the channels through which came the floodtide of capital."²

The process of capital formation after 1860 has been the subject of intensive investigation by Professor N. G. Butlin. Total capital formation in Australia was at a high level, comprising about 13 per cent of gross domestic product in the 1860's and for most of the 1870's, 20 per cent at the end of the '70's, and 23 per cent during the 1880's. In the depression of the '90's the proportion fell back to around 14 per cent. During the 1870's and '80's two-thirds of all the capital was raised overseas, almost entirely in Britain. Just over half of the total capital formation was channelled into the private sector of the economy and the rest into the public sector, although the shares tended to vary inversely. Investment in agricultural activity (pastoral, arable, and dairying) accounted for 27 per cent of private investment in the 1860's, 46 per cent in the '70's, and 37 per cent in the 1880's and 1890's. Capital formation in the pastoral industry was responsible for most of this investment. Capital came from mortgages granted by land companies

(ed.), *op. cit.*, pp. 57-86; Perry, *op. cit.*, chs. 1-2, *passim*; Sir Samuel Wadham, R. K. Wilson, J. Wood, *Land Utilization in Australia*, Melbourne, 4th edn, 1964, ch. III.

¹ N. G. Butlin, 'The Growth of Rural Capital, 1860-1890', in A. Barnard (ed.), *op. cit.*, pp. 322-39; Buxton, *op. cit.*, pp. 36-55; Duncan, *op. cit.*, pp. 78-84.

² J. M. McCarty, 'The Staple Approach in Australian Economic History, *Business Archives and History*, vol. IV, no. 1, Feb. 1964, pp. 15-18; R. M. Hartwell, 'The Pastoral Ascendancy, 1820-1850', in G. Greenwood (ed.), *Australia: A Social and Political History*, Sydney, 1955, p. 90; S. J. Butlin, *op. cit.*, chs. 7-9, *passim*. The quotation is on p. 227.

and by bank overdrafts. Both mortgage companies and banks relied on British funds, especially during the 1870's and 1880's. Money was used for the improvement of existing stations and, increasingly during the 1880's, for the creation of entirely new stations as speculative ventures. These were usually in the arid western areas where costs were high and productivity low.

The major component of public capital formation was railway construction, undertaken by colonial governments since it did not pay private enterprise to build railways. Railway construction accounted for about half of all public capital formation in every decade except the 1880's, when the proportion rose to two-thirds. Before 1850 farmers and graziers had relied on roads, rivers, carts, and coaches; but railways were essential to the further development of primary production. In the four eastern colonies there were fewer than 1,000 miles of railway in 1870 but these had grown to over 8,000 miles by 1890. As with pastoral finance, a great deal of the capital required for the building of railways was raised in Britain.¹

Australian primary producers were forced into capital intensive methods because of scarcity of labour. 150,000 convicts were transported to the eastern colonies before the system was scrapped in 1853. Many of them were assigned to settlers as farm labourers and shepherds; but the growing realization that convict labour might be less efficient than free labour and that a penal settlement and a free colony were incompatible led to an end of transportation, except in Western Australia where convicts were deliberately introduced in 1849 in an effort to overcome the labour shortage. Schemes to assist immigration were tried in the 1830's as a way of establishing a supply

of free labour; but the decisive decade for immigration was the 1850's when 600,000 newcomers arrived in eastern Australia, attracted by gold. Farmers and pastoralists gained little from the enlarged population. True, ex-diggers formed a pool of casual labour on which they could draw at busy times; but the increasing population stimulated manufacturing and construction industries and from about 1860 the agricultural sector had to compete in a tight market for its labour requirements. To make matters more difficult, migrants arriving in the second half of the nineteenth century generally found the outback uncongenial and most of them remained in the towns, even when they had been enticed to Australia by the prospect of boundless land.²

The role of governments in financing the construction of railways has already been mentioned. Other ways in which colonial governments promoted agricultural development included the provision of rural credit, encouragement of research into agricultural methods and, generally exhorting private enterprise to undertake all sorts of projects, as, for example, settlement of the Northern Territory after 1860.³ The most important function of government was the provision of the legal framework of agricultural development through policies of land disposal. The first governor of the penal settlement was instructed to grant land freely to former convicts and settlers with the intention of establishing a self-sufficient farming community. The policy of land grants was continued until 1831, although during the '20's grants were usually tied to the capital resources of applicants. In the same decade pastoralists and graziers were taking their flocks into outlying areas without formal grant. The governor of New South Wales sanctioned this dispersal

¹ These paragraphs are based on various works of Professor N. G. Butlin: 'The Shape of the Australian Economy, 1861-1900', *The Economic Record*, vol. 34, no. 67, April 1958, pp. 10-29; *Australian Domestic Product*, Tables 6, 9; *Investment in Australian Economic Development, 1861-1900*, Cambridge, 1964, pp. 47-50, 57-165, *passim*; 'The Growth of Rural Capital', *loc. cit.*, pp. 322-39; N. G. Butlin and A. Barnard, 'Pastoral Finance and Capital Requirements, 1860-1960', in Barnard (ed.) *op. cit.*, pp. 383-95. See also Buxton, *op. cit.*, chs. 1, 8, *passim*; Duncan, *op. cit.*, pp. 37-42, 132-7.

² The most recent discussion of assisted immigration is by Burroughs, *op. cit.*, pp. 59-75. The later history of immigration is surveyed by F. K. Crowley, 'The British Contribution to the Australian Population: 1860-1919', *University Studies in History and Economics*, University of Western Australia, vol. 11, no. 2, July 1954, pp. 55-88.

³ Duncan, *op. cit.*, pp. 6-17, 149-56.

by the issue of tickets of occupation; but in 1826 the British government imposed limits of settlement (they were adjusted in 1829) beyond which no land was to be occupied before survey, and within which title to land had to be obtained by grant or purchase. Five years later the Imperial government issued the Rippon Regulations which introduced the principle of land sales in place of grants. The British government now regarded Australia not as a prison but as a workhouse where Britain's poor might be relieved. Consequently New South Wales was to be settled closely by substantial farmers possessing the resources to buy their land, who would provide employment for landless labourers shipped to Australia on the proceeds of revenues from the sale of land.

The proposals showed the influence of Wakefieldian colonizing theory; but colonial pastoralists had their own theory of land settlement: they simply occupied land beyond the limits of settlement in order to produce wool for the British textile industry. In the 1830's the New South Wales government was forced to recognize the reality of the squatting movement and grant annual grazing licences to pastoralists. With growing wealth came political power; and in 1847 pastoralists forced changes in land legislation that gave them the security of 14-year pastoral leases with the option of purchase. Millions of acres in New South Wales passed into the *de facto* possession of a few thousand squatters, thus creating the political problem of the post-gold decade. During the 1860's, '70's, and '80's, all the colonies tried to make land available to small farmers, who would grow food for the enlarged population of Australia, by allowing intending cultivators to select holdings from among the pastoral leases. Except in South Australia these efforts to 'unlock the land' were not very successful. The grip of the pastoralists was too strong, their ingenuity in circumventing land selection regulations too great: the advantages of the country were with sheep and

cattle rather than crops; and where suited to crops, as in South Australia, with large farms rather than small. Policies for the disposal of crown land could not, successfully, run counter to economic realities, although they might frustrate development.¹

The final factor required for the successful development of Australian agriculture was access to markets. The failure of development when markets were not easily available was well-illustrated by the abortive efforts to establish grazing in the Northern Territory after 1860. The first market in Australia was provided by the Commissariat which purchased grain, meat, and dairy produce until 1823. This market was gradually supplemented and eventually superseded by the development of the private market. As population increased in Australia the home market remained important for food producers. The export of wheat commenced in the mid-nineteenth century but did not become a significant proportion of total production before the 1880's; by the end of the nineteenth century about half the total Australian wheat production was sent overseas. The development of export markets for meat and dairy produce had to await advances in refrigeration; the pastoral depression of the 1890's encouraged interest in the export of frozen meat.²

Until the end of the nineteenth century wool was the one primary product produced exclusively for an export market. From the 1820's practically all the output went to the United Kingdom and, under the stimulus of a larger market than domestic demand could provide, the industry extended rapidly. The performance of the wool industry above all else has earned for Australia the reputation of an economy that grew on the basis of primary production.

III

The traditional view of the importance of agriculture in Australia's economic development is no longer unchallenged and a lively

¹ The standard work on land settlement remains S. H. Robert's *History of Australian Land Settlement, 1788-1920*, Melbourne, 1920; Perry, *op. cit.*, ch. 4, and Burroughs, *op. cit.*, *passim*, provide important reassessments of the period before 1855.

² Shaw, *loc. cit.*, pp. 17, 27; Dunsdorfs, *op. cit.*, pp. 18-50, 166-72, 472-7; Duncan, *op. cit.*, pp. 60-5, 140-1; N. G. Butlin, *Investment in Australian Economic Development*, pp. 435, 440.

debate has arisen since the publication of Professor N. G. Butlin's major contributions to Australian economic history and Professor John McCarty's attempts to apply staple theory to explanations of Australian economic growth.¹ In some ways Professor McCarty's use of staple theory follows the views of earlier writers, such as Professor Shann and Brian Fitzpatrick, who regarded the production of primary products for export as the driving force of the economy. To place the role of agriculture in its proper perspective we need to pose a number of questions: how large a share did primary production occupy in the nineteenth-century economy?; what part did agriculture play in attracting scarce factors, capital and labour, to Australia?; what stimulus did agricultural development give to developments in secondary and tertiary industries?; how important was the export of agricultural products to the Australian economy, and did export incomes grow faster than national income as a whole?

No estimate of the size of agricultural activity is available before 1860. Agricultural production was certainly the most important part of the economy although it is easy to overlook the amount of manufacturing, constructional, and trading activity centring upon Sydney.² The gold rushes caused a fall in the relative importance of agriculture; in 1861-5, when already past its peak, gold-mining accounted for almost 14 per cent of gross domestic product, compared with 18 per cent arising from agriculture. During the 1860's and '70's mining declined in importance; at the same time there was a great expansion of pastoral activity which by 1875-7 alone accounted for 14 per cent of gross domestic product and agricultural production as a whole for 23 per cent. For the

remainder of the century agriculture produced just over one-fifth of the gross domestic product. The share of the pastoral industry fell back a little from the high levels attained in the '70's and declined sharply during the depression of the 1890's.

Between 1860 and 1876-8 total agricultural production grew faster than the gross domestic product. Pastoral production grew particularly rapidly, although less quickly than railway construction and manufacturing. After 1876-8 all components of agricultural production (pastoral, arable, dairying) grew more slowly than the gross domestic product. In this period the most rapid growth was in secondary industry. This sector had been substantial as early as 1860 when its share of the gross domestic product was only fractionally smaller than that of agriculture. By the 1870's it was larger, in spite of the rapid growth of the pastoral industry, and it remained so until the collapse of the 1890's. Certainly the share of agriculture in total output was large, but if primary production is to be regarded as the dynamic element in economic growth, its influence after 1860, and possibly before, must have been indirect, through its ability to attract capital and labour or the stimulus that it gave to other forms of activity.³

Agriculture in Australia failed to induce migration on a substantial scale and failed to absorb many of the immigrants who did arrive. The United Kingdom was the only source of migrants; and for Englishmen, Scotsmen, and Irishmen the United States and Canada were nearer at hand and cheaper to go to than the southern hemisphere. Only a trickle of Englishmen found their way to Australia without assistance before 1850. Schemes to finance immigration with funds raised by sale of land

¹ For Professor Butlin's works see earlier footnotes. Contributions to the 'staple' discussion include McCarty, *art. cit.*, pp. 1-22; G. Blainey, 'Technology in Australian History', *Business Archives and History*, vol. iv, no. 2, Aug. 1964, pp. 117-37; N. G. Butlin, 'Growth in a Trading World: The Australian Economy, Heavily Disguised', *ibid.*, pp. 138-58; G. C. Abbott, 'Staple Theory and Australian Economic Growth, 1788-1820', *ibid.*, vol. v, no. 2, August 1965, pp. 142-54; J. P. Fogarty, 'The Staple Approach and the Role of Government in Australian Economic Development', *ibid.*, vol. vi, no. 1, Feb. 1966, pp. 34-52; A. L. Loughheed, 'International Trade Theory and Economic Growth', *Australian Econ. Hist. Rev.*, vol. vii, no. 2, Sept. 1968, pp. 99-109.

² G. P. Walsh, 'The Geography of Manufacturing in Sydney, 1788-1851', *Business Archives and History*, vol. iii, no. 1, Feb. 1963, pp. 20-52.

³ N. G. Butlin, *Investment in Australian Economic Growth*, pp. 16-24.

had some success in bringing settlers to Australia during the 1830's but not in establishing them on land. Indeed, the theory of assisted immigration based upon close settlement and labour-intensive farms ran counter to the economics of pastoral dispersion. Gold, not land, eventually enticed a flood of British migrants to Australia. Thereafter immigration was absorbed into urban activities; in building, railway construction, and manufacturing. Colonial governments persisted from time to time in assisting immigration from Britain but they were unable to promote any substantial rural settlement.

A large part of the capital inflow into Australia during the nineteenth century went to finance the pastoral industry, although Professor N. G. Butlin's estimates show that only during the 1870's was pastoral investment, whether financed by capital imports or from domestic sources, greater than investment in residential construction. Much of the investment in railways may be attributed to the needs of pastoralists and farmers, although some of it went on suburban lines and railways associated with the development of mining. But Professor Butlin has demonstrated clearly that investment in railways was promoted by governments who largely ignored long-term profit considerations. Inter-colonial competition, rather than the needs of pastoralists considered rationally, was the driving force behind railway investment after 1860. Primary producers certainly enjoyed the external economies brought by railways but these were restricted by the failure of the colonial governments to provide an integrated system of communications. Further, railway construction not based upon strict profit criteria tended to divert resources from other occupations, including agriculture, to the detriment of total economic growth. Railways continued to attract capital until 1890, less because of the services they provided graziers and farmers, than because of the easy access possessed by colonial governments to the London capital market.¹

Reference has already been made to the growth of manufacturing and construction in urban areas in the second half of the nine-

teenth century. Urbanization, in fact, was a characteristic of Australian economic development much earlier. In part it was a consequence of agricultural progress. Towns were places where agricultural produce was processed, where banks and land companies financing pastoral development had their headquarters, where auctions were held, and wool was shipped to the United Kingdom. The towns too, were centres where industries developed to meet the requirements of pastoralists and farmers for equipment and consumer goods. But, clearly, urbanization and its associated constructional and manufacturing activities cannot be attributed wholly, or even mainly, to the needs of agricultural producers. In the first half of the nineteenth century Sydney was the administrative centre of eastern Australia, a port for the arrival of convicts, settlers, and imports, a centre for whaling and sealing which before the 1830's were more important activities than the production of wool. Melbourne mushroomed during the 1850's under the stimulus of gold discoveries. The pattern of immigration after 1860 further confirmed Australia as one of the most highly urbanized countries in the world. Manufacturing and building served the needs of these growing urban communities and in turn created further employment which encouraged the continued concentration of population. The main manufacturing activities in the second half of the nineteenth century were the clothing and textile trades, metals and manufacturing, the production of building materials, and the food, drink, and tobacco trades: "industries naturally arising from the circumstances of the population." Little of this manufacturing activity and even less of building construction can be attributed to the needs of agriculture. Even the demand of pastoralists for millions of miles of fencing wire from the 1870's and the demand for iron for railways failed to establish a successful iron smelting industry in Australia before the end of the nineteenth century. There was some manufacture of agricultural implements, some processing of agricultural products, some general engineering connected with agricultural requirements, but such

¹ *Ibid.*, pp. 291-8.

demands were much outweighed by the needs of the urban populations.¹

To re-establish the primacy of agricultural development in explaining successful economic development in nineteenth-century Australia we are left with its role in the export trade. Here again a caveat must be entered against the traditional explanations. Professor McCarty's ingenious attempt to depict the demand of the Commissariat for agricultural produce as the 'export' market before 1820 simply illustrates that agricultural production was a weak stimulus to economic development in the early phase of Australian history. The export of wool was not well established until the 1820's, or possibly even the 1830's. For two, perhaps three, decades pastoral exports were an engine of growth; but in the '50's they were surpassed by gold, exports of which remained of greater value than the export of wool until the end of the 1860's. From that date, until the revival of mining in the 1890's, agricultural produce, particularly wool, dominated Australian export trade. But the growth of the export trade was slower than the growth of the economy as a whole. The proportion of export earnings to total national income was reduced by more than half between 1860 and 1887; it grew again in the 1890's only because export earnings remained fairly stable while the value of gross domestic product fell.²

Agriculture was, however, practically the sole provider of export earnings during the nineteenth century, except for the two decades in which the export of gold was important. The earnings from the sale of wool overseas paid for growing imports, many of them connected directly with the process of urbanization, and serviced the ever-increasing capital inflows on which Australian economic growth depended. The burden of interest and dividends increased from the 1870's and reached 37 per cent of export incomes by 1890. Much of the economic

development in the form of urban building, manufacturing, and railway construction contributed very little to exports, and the continuation of capital inflow, therefore, depended very much on the ability of the wool industry to earn foreign exchange. But pastoral expansion itself was becoming less and less profitable in the late 1880's as the industry moved into the high-cost areas of the arid outback. By 1890 the long period of expansion, dating from 1860, was over. Australia was, temporarily, no longer a place attractive to British investors.

Australian economic development in the nineteenth century was hydra-headed. Taking the century as a whole the centres of growth were as much the coastal cities as the pastoral plains. A great deal remains to be known about the processes of economic development; in particular the Australian penchant for urban existence, despite all the myths to the contrary, still requires an explanation. But the re-writing of Australian economic history has proceeded sufficiently far to permit the identification of two important functions for agriculture in the complicated story of economic development. Farming was the first economic activity taken up in new settlements. Early arrivals in Australia were forced into agriculture since the Imperial government did not intend to provide them with food indefinitely; and as regional studies have demonstrated, the hope of profit from the grazing of sheep or cattle or the production of crops encouraged pioneers to move into virgin districts. Secondly, the success of the wool industry in producing a commodity demanded by the industrializing countries of the world made possible the import of capital on which continued expansion depended. These were important roles for agriculture, although more modest and more complex than that implied in the view that regards Australia as the rural sector of the British economy during the nineteenth century.

¹ N. G. Butlin, *Investment in Australian Economic Growth*, chs. III, IV, *passim.*; Blainey, *art. cit.*, pp. 127-9; H. Hughes, *The Australian Iron and Steel Industry, 1848-1962*, Melbourne, 1964, pp. 1-25.

² McCarty, *art. cit.*, pp. 10-15; Abbott, *art. cit.*, *passim.*; Blainey, *art. cit.*, pp. 118-27; Butlin, *Investment in Australian Economic Growth*, p. 30; 'The Shape of the Australian Economy', p. 18.