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## THE FIRST FIFTY YEARS OF AGRICULTURE IN NEW SOUTH WALES.

BY

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*In this and a series of following articles it is proposed to outline in some detail the significant events and problems relating to the first attempts at farming and constructive land settlement in New South Wales, from the arrival of the first fleet in 1788 to the economic depression years of 1842-43. Each essay will be fully documented, numbered, and given a separate title. Each, it is hoped, will be complete in itself. Together, it is planned that they will provide a sufficiently comprehensive canvas of the changing agricultural picture during the first half-century of economic development in this State.*

*The articles are largely based upon original documentary and contemporary source material assembled by the author from the historical records of the Mitchell Library, Sydney, in the course of the completion of a University research study. Chapters of this thesis, as yet unpublished, have been re-arranged and re-written to suit the particular purposes of publication in this Review.*

*The main purpose in printing these articles is to part clear the ground and enlarge the horizons for would-be students of Australia's economic and agricultural history and to explain the hitherto largely obscure and disconnected but fundamental agricultural problems of primary settlement in this country. Whilst it is true that most phases of Australia's history have received either partial or detailed consideration, the references to agriculture as such are fragmentary. Other than for a monograph by W. S. Campbell, published in a centenary issue of the N.S.W. "Agricultural Gazette," (January, 1901), no adequate consecutive record of Australian agriculture is available. There are many references, otherwise, to the development of the sheep and wool industry and the work of John Macarthur. The publication of this series of articles should therefore help towards filling this gap, and for these reasons this contribution is offered.*

## 1. THE ECONOMIC BACKGROUND TO THE COLONIZATION OF AUSTRALIA.

### Introduction.

Roberts, the historian of Australian land settlement, refers in his "Squatting Age" to the incredible backwardness of farming during the first fifty years of settlement in Australia. He goes on to point out that towards the end of this period, and in a primarily agricultural country, half the proceeds of the wool clip were being expended for foreign grain, and that as late as 1845, it could have been said that the Colony had never consistently raised enough wheat for its own consumption. In common with some of the contemporary observers of the time to which he refers, his conclusions are that "it was scandalous that this state of affairs should have persisted for so long."

Early agriculture in Australia was an abject failure and the cause of continual frustration and disappointment. Such an end result was inevitable, taking into account the distance of the Colony from overseas markets, the situation and quality of its farming districts, the backwardness of the methods employed, the irregularity of the rainfall, the poor calibre of the cultivators, the general instability of the settlement, the endless fluctuations in prices and markets, the vested interests which very soon after foundation assumed control, the counter attractions of wool growing, and the lack of foresight and power over the purse strings possessed by the early administrations. It may be said that almost any combination of these factors was sufficient to ruin the prospects of successful farming. Together, they were inexorable in their ultimate effect in crushing the smaller cultivators. As an argument, it may be proposed that given similar general conditions of isolation from and lack of markets, any attempt at small settlement, of the type attempted in the early years of colonization would, in modern times, be likewise hazardous, with the scales loaded against success.

At no single point from 1788-1842 can it be said that farming was stabilised, or that the solution of its difficulties was in sight. In the monopoly period following the departure of Phillip from the Colony, the Commissariat market was the plaything of a small ring of officers; in 1803 wheat was unsaleable at any price because of a glut; in 1806, and again in 1809, after two damaging floods on the Hawkesbury, wheat rose to 80s. and more a bushel; between 1810-1821 successions of gluts and scarcities damaged any hope of general economic security and ruined many of the small farmers; in the 'twenties the Colony was swamped with imports, a long-continued drought causing immense damage to more than one harvest; in the 'thirties and early 'forties a shortage of grain caused a fear of conspiracy between millers, created a near famine in 1840, manifested itself in extraordinary fluctuations in the price of grain (2s. 6d. to more than 20s. a bushel); persuaded Governor Gipps to build rock excavations to hold wheat purchased on a cheap market in anticipation of a later shortage, and provoked endless grounds for controversy. It stands to reason that in such

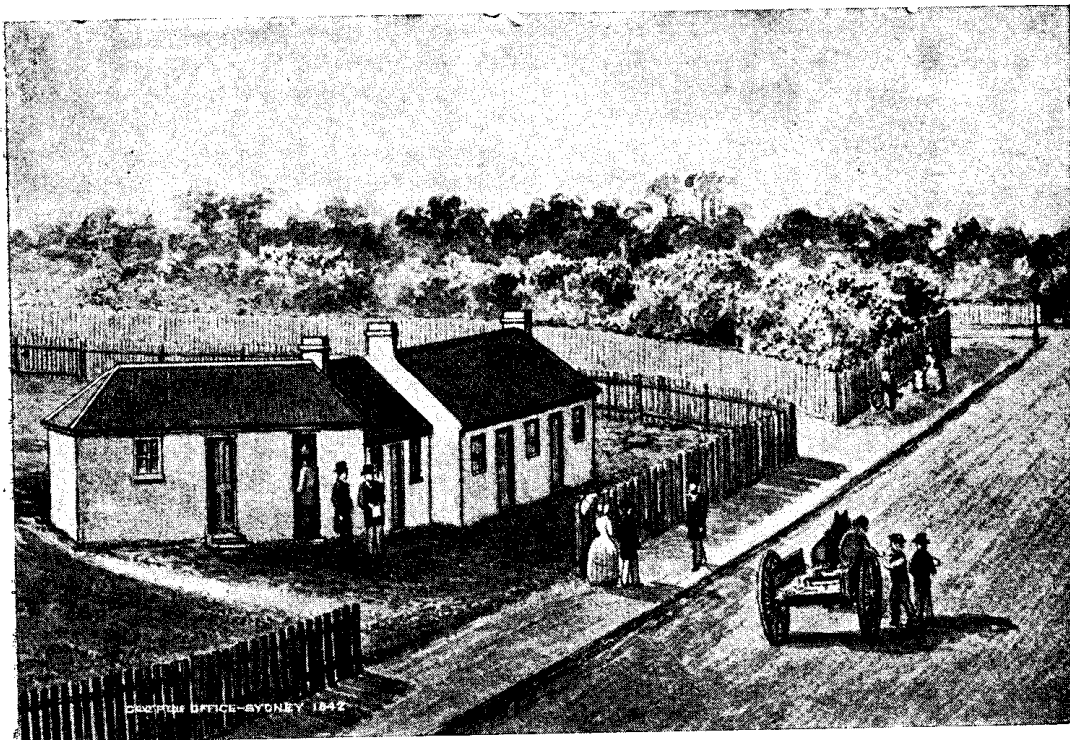
a constant environment of market instability with, oftentimes, prices depressed far below what were justified by production costs, safe farming was out of the question. The factor which created this unfortunate cycle was the unpredictable production of the native agriculture, associated with influences of drought, flood, waste or pests, causing repeated food shortages. The only steps possible for correcting these food shortages and averting famine were to make imports of foodstuffs. The trouble was, however, that these could not be controlled and measured to provide exactly for the scarcities "whether feigned or real." The results were, quite often, a flooding of the market with supplies, causing a lack of demand for locally-grown produce, discouragement to farming, and, thus, starting in its train an inevitable movement to a later shortage. It follows that, if one cause more than another may be singled out to account for the failure of farming, the uncertainty of the markets may be said to have been such a principle obstacle to success. It is this peculiar uncertainty which is so striking a feature of any examination of the early period, sufficient in itself to bankrupt any man dependent on one or two crops alone for a livelihood and not possessing any reserve of capital. To J. A. Betts, a farmer at Wilmington (1839-1853), as it was to observers such as W. C. Wentworth, J. T. Bigge, Atkinson and others, this was the most pernicious of all the problems of the farming community. To the farmers themselves it appeared in the same light, calling forth unfavourable comparisons between their own lot and that of the Americans, with markets on their very doorsteps. The failure was so obvious, even in the 'twenties, as to provoke a newspaper of the period, the "Monitor," to question whether it might not be as well to abandon farming altogether if it could not stand on its own feet, whilst in the 1830's and early 1840's, nobody expected that the Colony would ever keep itself in food, and hopes were being entertained that New Zealand might become the "granary of the Colony." Not until agriculture in Australia was able to catch up with and exceed home requirements, can it be said that there was any hope of prosperity for its farming.

This question of market instability was only one of the problems of agriculture in the early period. There were innumerable others, bound up with issues such as capital resources, labour shortages, costs involved in maintaining convict assignees, transport and communication difficulties, the ravaging and blighting of crops, exhaustion of lands, lack of manures and fertilisers, high prices for goods other than foodstuffs and high interest rates. Generally it can be observed that the small under-capitalised farmer, with no special protection from Government, but thrust into the whirligig of free enterprise, was hopelessly ill-equipped to compete with men holding capital, free lands in selected situations, adequate labour resources, and with sometimes interests also in trade and grazing. But even the ranks of the wealthy and near-wealthy were subjected to a drastic pruning in the years of depression, 1828-1831 and 1841-1844, following upon a stock boom and a severe drought in the first of these instances, and the pricking of an inflation bubble in the latter, related remotely also to another severe drought in 1837-39.

It is interesting to observe how very similar are the problems of the present day to those which were encountered more than one hundred years ago. For instance, in 1946, in an official annual N.S.W. report, there is reference to a drought in the Western Division of the State with its serious consequences—transport difficulties associated with restocking, deterioration of improvements, animal pests, the protection of financially embarrassed landowners, all affecting the stricken area, and of the fact that there is “no simple answer to the long-range problem of general rehabilitation in the case of the more involved holders.” There is a further reference to the serious drought of the preceding year in the Riverina, of the removal with government help of 50,000 horses and cattle to prevent their total loss by starvation, and of “general drought relief to dairy farmers.” Other mentions are made of the “severe storm damage in November, 1945, . . . which in the Riverstone, Blacktown and adjacent areas had caused considerable damage to poultry and vegetable farms . . . and had made it . . . a matter of urgency to supply materials for effecting speedy repairs,” and of the abnormal flood conditions on the Central and North Coast which were “recurring phenomena necessitating government intervention in order to restore damaged fences and buildings and to provide sustenance to householders who (had) suffered loss.” So it seems that the elements which in the early years plagued and devastated the settled areas, still remain untamed. The analogies may be further illustrated. Where, in the early days, there can be noted the hopes and mixed opinions as to the possibilities of flax, hemp, tobacco, linseed and other crops, there are now similar ideas concerning Ramie Fibre, Soy beans and Linseed. Where Commissioner J. T. Bigge thought new markets were required to cope with the produce to be sold at Sydney, there may be observed, in 1946, a similar concern relating to the adequacy of the existing Sydney market, and a similar interest in decentralisation of marketing. There are the parallel convictions that only importations of pure-bred stock could then, and can now, improve the domestic quality, and that “balance is necessary in any scheme of small-land and ex-soldier settlement.” But of predominating importance are the questions raised of overseas markets for produce, of the “stabilisation of primary industries upon a permanently sound footing”; of “marketing, price stability and other economic questions upon which so much depends if the position of the primary producer is to be rendered more secure”; of the “moulding of the agricultural pattern”; of “united effort to secure maximum food production”; and of the means to be taken for the relief of producers whose crops had failed. The comparisons are all absorbing, for it was much these same questions which bewildered the early Governors, striving for such a well-balanced pattern of agriculture.

If nowadays it can be said that “the development of a healthy and well balanced agriculture is the greatest single contribution to the economic as well as to the social well-being of the nation,” this was true, also, of the Colony of New South Wales a hundred years ago. But the fact remains that there was no such development in the years prior to 1842.

Government in this early period of Australian history was restricted. The ideas with which we are familiar and accept as a matter of course in the modern "social service state" were as yet unknown. Eighteenth and early nineteenth century notions of economics held to the land being a source of wealth, but "laissez faire", except for the interlude of the Corn Laws in England, prevented any appreciable extension of protection to the land holder. The convicts and small immigrants were settled as cheaply as possible, but there was free play, thereafter, in the merciless environment of open competition. The maligned Governor Bligh, it would appear, did attempt perhaps more than any other administrator to safeguard their economic security, but not till the Lien-on-Wool Act was credit obtainable on easy terms, as a matter of



GOVERNMENT PRINTING OFFICE—SYDNEY (1842).

[MITCHELL LIBRARY.]

course, in part payment for later produce. There was no government intervention to prevent outrageous profiteering by traders and "public-house keepers"; no financial assistance to promote rehabilitation when floods or droughts destroyed homes, buildings and crops; one reference only to a subsidy, in connection with the shipment of goods from the Hawkesbury to Sydney; little regard for an "economic and sufficient price"; no effective control of marketing—all of which were particularly required to support and stabilise the developing primitive farming of the times. In the early years the great bulk of the cultivators were convicts, but it is sufficient to note that they had little chance of being spoiled, though the "Edinburgh Review", in 1819, thought that this had

been the position. Above all other considerations was the necessity to keep down the expenses of a necessary but otherwise inconvenient and irritating penal outpost. Inevitably, under such circumstances, there were endless successions of want and plenty, which served only to widen the separation of the classes, divided already in the first few years of settlement into capitalists and poor by monopoly and the rum traffic. "In this Colony, as in every other Colony," wrote Wentworth in 1820, "there is a regular gradation of prosperity, but perhaps there is no country on the face of the earth, except Russia, where it is so partially distributed."

The fortuitous creation of an overseas market for wool, just at the turning point of the Colony's early history, provided the scope for successful employment of capital, and thereafter, in the formative years, it was all directed into this avenue, and farming was neglected. The "poor settlers", however, could never follow into this lucrative field, for whereas farming in early New South Wales, at its simplest, required only a hoe, an axe, an iron pot, some seed and a pair of willing hands, sheep and stock raising generally required the employment of capital. This was available only to those who had earlier acquired it by monopoly and trading, or to those coming from abroad, either as individuals or companies, with money to invest. Mere farming was in the later years submerged in the general clamour for stock, new pastures and the wealth which these would bring, and was impoverished by concurrent action to import cheap grain from abroad, to feed the many whom the new wealth was bringing into the country.

Moreover, government was inefficient in the first fifty years of New South Wales development, both in matters of policy and actual detail of administration. Neither should be overlooked. The early Governors, though sometimes knowing what to do, were often powerless in giving effect to a policy. Phillip lacked a loyal second-in-command. His most difficult subject to control was his lieutenant, Major Ross. Hunter, King and Bligh had limited authority over the New South Wales Corps, specially recruited for service in the Colony. The Corps ruled the governors, and in fact, broke each one of them in turn. And although the position of Macquarie was unquestioned, he yet was forced to rely upon inefficient and at times corrupt subordinates including ex-convicts, placed in positions of trust. If, for instance, there had not been unaccountable delays involved in the sealing of land grants in the years of Macquarie rule, and if the control of the government stores had been better managed, even such simple factors would have assisted the lot of the farmer. A Governor could do no more than direct and lay down principles in his administration. He could not have been expected to personally handle everything. This must be one reason why there is seen such a continual lack of conformity between ordinances issued by government and actual practice and behaviour. In the later Colony it is sufficient to note the difficulties of Bourke and Gipps in dealing with the nominal servants of the Crown.

A Governor's lot in the early Colony was most often to carry out a vague plan, laid down for him by a Home Government unfamiliar with the problems of a distant settlement. The technique

employed by Whitehall and its armchair colonial theorists was to leave a Governor mainly to his own devices and then judge him on results, whilst interfering, sometimes, at most inappropriate junctures. Despatches took months to reach Sydney from London and thus a long period always elapsed in the Governor obtaining a direction from his superiors. This inevitably stultified authority. There is the extraordinary instance, recorded by Greenwood, of a plan conceived—fortunately it was never attempted—for three ships to form a settlement on the north-west American coast in 1790-92. Phillip was to have been instructed at a time of acutest misery to furnish not only half the stores but also the personnel for the American offshoot. Half the crew of the "Sirius" was to have been borrowed. Even the colonists for the new settlement were to be furnished by Phillip, who was to lend several of his most efficient overseers and "such articles of stores, provisions, medicines and utensils, etc.," as he judged necessary for the well-being of the settlement. And if "official ineptitude and official optimism" were then carried to such extraordinary lengths, what is there to be said of the inefficiency of a later Victorian officialdom, which when warned beforehand of the frightful catastrophe impending upon the population of Ireland in 1846, due to a failure of the potato crops of 1845 and 1846, delayed assistance, with fatal procrastination, until too late, precipitating the horror of the great famine in Ireland. Even when assistance was finally given "colossal blunders of precipitancy outdid the disasters of excessive deliberation." Just as in this instance, viewed in the calmer light of later days, it can be seen that the British Government was obsessed with fears of waste, prodigality and abuse, if it had placed absolute power and unlimited supplies in the hands of an Irish administration, so it is not surprising that similar fears of needless prodigality and waste were the possible reasons behind the incessant complaints levelled at the early governors in regard to expenses. Inevitably, with spending tightened in this way, the expenses of the Commissariat—the largest single item on the budget—were the first to be cut, with calamitous results for the developing agriculture.

A final note may be made concerning the divisions in the society of the first years of settlement. These were unavoidable when both convict and free elements in the population were working in an atmosphere of antipathy and jealousies. New South Wales was never, in the first fifty years of settlement, other than as a house divided within itself, plagued by factions and conflicting interests, beset by interminable disagreements and controversies, riddled with unscrupulous elements in the population, loaded with crime, subjected to many a metamorphosis—all incidental to a rapid growth and a complex social and economic experiment. It may be suggested that a prospering agriculture requires just the very reverse of these, time to establish its roots and learn the lessons of the soil and seasons, regularity, long practice, successive generations of farming families, and the gradual establishment of trade, customs and marketing routines. Therein, perhaps, is to be found the root cause of agricultural instability in the first half-century of New South Wales history.

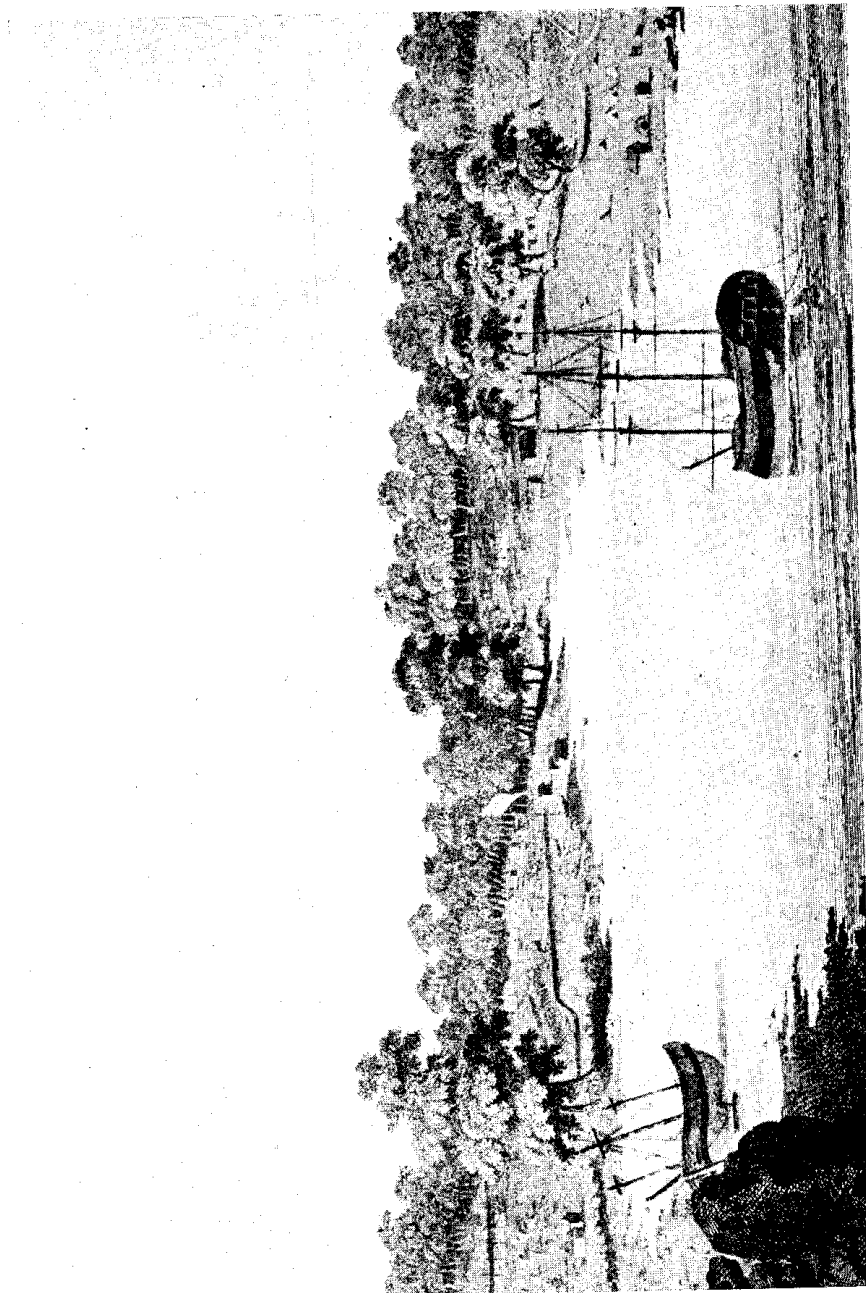


### Experiment or Expedient.

The foundation of Australia was precipitated by revolution. Had it not been for the rebellion in America the colony would probably not have been settled at all in the late 18th century, whilst the first thirty years of penal colonization were effected in semi-isolation from an England at war with revolutionary France and Napoleon (<sup>1</sup>). These events inevitably had a far-reaching significance for the wellbeing and development of the infant colony, but even more fundamental influences were the industrial and agricultural upheavals, or revolutions as they may be called, which convulsed the social fabric of 18th and early 19th century England. It would be very difficult, indeed, to understand the problems or measure the achievement of early agriculture in Australia without reference to those contemporary circumstances which in England over the first half century altered and modified both the conception and subsequent settlement of the colony. Moreover, without such a reference, the extraordinary rise of the sheep and wool industry in Australia is not understandable, apart from considerations of the parallel advancement of textile manufacturing in England, which, first of all, created the initial market, and, secondly, by a continuing expansion assured the success of fine wool growing in the colony, and thus its solvency and later growth into a dominion.

At its crudest, the impulse behind the foundation of the penal colony in New South Wales was the simple wish to be rid of a criminal section of the community, which was proving both an embarrassing expense to maintain in the wretched hulks and gaols of the time, and an increasing menace to public health because of a growing susceptibility to epidemic disease (<sup>2</sup>). Commissioner Bigge (<sup>3</sup>) was warned by Lord Bathurst in his second letter of instructions (6th January, 1819) that the colony had not been established with any view to territorial or commercial advantage, but was to be chiefly considered as a "receptacle for offenders, in which crimes may be expiated, at a distance from home by punishments sufficiently severe to deter others from the commission of crimes, and so regulated as to operate to the reform of the persons by whom they had been committed." And by and large, these offenders, as some attempts have been made to prove, were men and women and even children, caught up in the upsurge of multiple social and economic upheavals related to the Napoleonic war and the events preceding (<sup>4</sup>).

The first farmers in the colony were in the main ex-convicts. The theory was that the settlement would remain in a state of balanced simplicity, a penal outpost in which the convicts at the end of their sentences would be placed on small farms, supporting themselves and the rest of the population with their produce, and if possible—though only incidentally—exporting some commodity to England that would reimburse the home government for its expenditure (<sup>5</sup>). These hopes, however, for a prosperous peasantry were never realised. The material was simply not there, and, even if it had been, there were innumerable factors, some of which should have been foreseen, which inexorably tended to ruin the experiment. The attempt was ill conceived and unpractical—illusory is perhaps the better word—not necessarily because of



CAPTAIN HUNTER'S SKETCH OF SYDNEY (1788).

[MITCHELL LIBRARY,

intrinsic impossibility, but because of the way after which it was patterned. Then, too, such a theory was out of its time, because it cut across contemporary economic ideas in England, which in their simplest form was that progress in agriculture was bound up in large-scale capitalistic farming, not in a peasant, necessarily static agriculture. McArthur and others (<sup>6</sup>) were to put forward similar ideas in the new colony, and fifty years of trial and error in the New South Wales settlement were to prove small-scale farming a failure, capitalistic agriculture combined with grazing a success—monopoly merchandising and trading at first better than either. As in England, so too in Australia, considerable capital resources were to be found necessary to bring the soil under control, to fence, clear, weed, stock, drain and cultivate; and the fact is that the emancipist and small settlers in the colony were placed on the land practically penniless.

The small farmers in the early New South Wales settlement may be considered as, in a way, the prototypes of the small arable field farmers in the England of the times—similarly unskilled, ignorant, living from hand to mouth on a few acres, bereft of room in which to move and raise stock, without stock, unable to cultivate to advantage, too poor to purchase even the very implements and stock to make farming pay, and at least in New South Wales, unmercifully fleeced by traders. If in England the truth was being found of the old Flemish maxim, “no keep, no livestock; without stock, no manure; without manure, no crops” and the Norfolk proverb that “muck is the mother of money,” so in Australia they were to have a special significance on the poverty-stricken soils of coastal New South Wales. In both countries there was dispossession of the small man, and aggregation of property and wealth into the hands of the few. A handful of pioneers in England, a few in Australia, showed the way of successfully harnessing materials and labour to increase and improve the produce of the soil, and the many slowly followed the lead given. It so happened, however, that in Australia, the exploitation of capital was directed into those avenues which gave the greatest returns, and already by 1820 it was clear that these were stock raising and fine wool. The prospect of an equally profitable farming had been by then abandoned, and energies were coming to be increasingly centred in stock. During the first fifty years of settlement in Australia, agriculture was continually languishing, remaining far behind the revolutionary new farming developing in England. The stimuli and thrusts were not there, for more money was to be made in other fields and, moreover, the application of English agricultural practice to Australian conditions was so fraught with problems that it was to take another half century and more of trial and error to perfect it.

It is not difficult to find reasons for this continued languishing of native agriculture in the new colony. The mere cultivation of land was at all times one of the most difficult undertakings in early New South Wales. Circumstances were so completely different from what they were in England. As Wentworth (<sup>7</sup>) complained, “almost everything connected with the fifth continent is . . . singular and eccentric.” Where in England it was a case of drainage, drainage and still more drainage being the first maxim

in agriculture, the colonists in the new settlement were to be faced with droughts. At the beginning of any new farm the toil was immense. Nothing could be taken from the soil until dense forests of hardwoods, brush and underwood were first cleared. The country was pock-marked with stumps generally until the 1820's, and widely until late in the 1840's, even on the land given solely over to agriculture. The roots of the trees were unfortunately "horizontal"—they spread everywhere. The problem of clearing them itself was so great that, as late as 1820, the Society for the Encouragement of Arts, Manufactures and Commerce<sup>(8)</sup> was offering a prize "to the person who shall invent and discover to the Society the best method, verified by actual experience, of raising out of the earth and removing the stumps and roots of trees which have been left after falling the timber, so as to clear the land for the purposes of cultivation." At the same time, Major Druitt, more or less on the present site of the University of Sydney, was conducting such experiments to ascertain best methods<sup>(9)</sup>. Moreover, the soil everywhere in the County of Cumberland, away from the banks of the rivers, was poor, grading from "sandy heath," "cold hungry clay," to a "thin layer of vegetable mould" over a clay sub-soil in the best of the second-class country<sup>(10)</sup>. Near the coast it was "extremely barren," "poor hungry sand," thickly studded with rocks, "growing nothing but . . . a few miserable stunted gums . . . and a dwarf underwood." Some of it never gave "birth to a tree at all"<sup>(11)</sup>. Further inland it improved, but it always required "all the skill and industry of its owners to render it even tolerably productive"<sup>(12)</sup>. Adequate cultivation was, however, never practicable. Ploughs were unknown until 1803, and for a long time after that only the richest men could afford them. Oxen and horses were scarce. There was even much difficulty in handling them, and, as late as 1843, it was being said that few men in the Colony knew how to manage horses in ploughing<sup>(13)</sup>. The "hoe husbandry—than which there could not have been anything more primitive—was the predominant system of cultivation practised until at least late in Macquarie times. This did little more than scratch the surface of the ground, and provide a shallow and irregular seed bed for the broadcast sowings. Sometimes the crops did grow, but this was more by good luck than good management. The succession of crops inevitably exhausted the soil. On the lands near the rivers crops were sometimes abundant, but the very floods which enriched the soil spread weeds and noxious plants everywhere. Even the grasses took root as weeds, and finally, whether by exhaustion or whether by weeds, much of the farming land was rendered "powerless" and simply went out of production.

Under such circumstances, the attempts and theories to superimpose, under an entirely different set of conditions, the newer methods of cultivation coming under test in England were pathetic. Manures, English improved grasses, pure seed, rotation of crops, early and late sowings, different methods of ploughing, were discussed and tried, but without satisfactory conclusion or success. The simple facts were that away from the rivers the land used for agriculture was too poor to be productive; rainfall was too uncertain; and adequate manuring was difficult, if not very nearly

impossible. But all that was new in English agricultural practice did not fall on barren soil in New South Wales. Starting with Macarthur, the methods of Robert Bakewell were applied to stock breeding and the results were extraordinarily good, after the experimental testing period was over. This one effect of the new technology was sufficient to ensure the success of settlement, allied as it was with newer factory methods developing in England, and the expanded use these gave for all the wool that could be produced. The ramifications of developments in late 18th century and early 19th century England may be traced widely throughout the history of the first fifty years of settlement in New South Wales, and it is very necessary that at least some of these influences should be sketched in this survey.

**The Enclosure Movement—the influence of the Industrial Revolution—  
late 18th century English farming.\***

In the latter half of the 18th century extraordinary changes were coming over the face of English agriculture<sup>(14)</sup>. For three centuries before 1700 the three processes of reclamation of wastes, the breakup of open field farms, and the appropriation of commons, generally spoken of as the Enclosure Movement, had all been proceeding, but at varying rates of progress<sup>(15)</sup>. During the reign of George III (1760-1820), however, they all received an immense impetus, partly from the measure of a growing population, partly from an improved standard of agriculture. There is no question that from the scientific point of view, the wastes, commons and open fields were real obstacles to agricultural advancement; but subsequent events were to prove the injury done to the small freeholders and the poor by wholesale engrossing. During these sixty years the English peasantry was largely eliminated by Enclosures, and much of the rural population dispossessed and debased<sup>(16)</sup>. The man who had had some property rights before, lost contact with the soil and was impelled either to seek work for a wage in the country, to flock to the newly developing towns to work on machines, or to subsist on poor rates. For a time mass unemployment was added to the horrors of a new machine age, which was later to absorb in its factories the bulk of the dispossessed. The changes were so immense that they disrupted the whole of English life, so that in 1795 "there was no great distance between poor house and prison-ship"<sup>(17)</sup>. England emerged from the Enclosures with farms as we know them to-day, where before there had been chaos.

From the productive point of view, the amount of waste land that remained unused in the middle half of the 18th century was a standing reproach to agriculture. In 1795, the Board of Agriculture stated that over 22 million acres in Great Britain were uncultivated, of which 7,888,977 acres were in England and Wales;

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\*Dr. E. Dunsdorfs, Economics Research Scholar of the University of Melbourne, has drawn attention to the fact that a number of varying interpretations have been given to the Enclosure Movement and its immediate and delayed effects. The view here put forward is not original and is mainly based on that advanced by R. F. Prothero.

though this was, thinks Prothero, a gross underestimate <sup>(18)</sup>. Arthur Young, 20 years before (1773), had called attention to the extent of land lying waste in Great Britain <sup>(19)</sup>. There were 600,000 acres of waste in the single County of Northumberland. There were as many more in the counties of Cumberland and Westmoreland. In the north and part of the West Riding of Yorkshire, the contiguous Lancashire and in the west part of Durham were yet greater tracts. Lancashire in 1794 had 108,500 acres of waste land; and even in the last decade of the 18th century, 265,000 acres of Yorkshire, largely capable of cultivation, were lying idle. It was the same all over England. To bring some of these wastes into cultivation was part of the work which agriculturalists undertook in the 18th century, and it is probable that upwards of 2 million acres were added to the cultivation areas before the turn of the century <sup>(20)</sup>. These wastes were swamps producing little but the "ague" (malaria), "black regions of Ling," "bleak unproductive heaths" or "foetid fens." Even within 30 miles of London there still remained in 1795 no less than 200,000 acres of waste land, and as late as 1793 Hounslow Heath and Finchley Common were described as fit only for "Cherokees and Savages." They were "known to be a resort of the most idle and profligate of men", and there "the undergraduates in iniquity commenced their career with deer-stealing . . . and the more finished and hardened robber retired from justice." <sup>(21)</sup>.

So far as actual farming lands were concerned it is possible that in 1700 at least half the arable land of the country was still being farmed on the open-field system, that is in village farms by associations of agricultural partners who occupied intermixed strips and cultivated the whole area under common rules of cropping <sup>(22)</sup>. The agricultural defects of the open-field system were both obvious and numerous. Whilst farming remained unprogressive and population stationary, the economic loss was comparatively unimportant; but when improved methods and increased resources were commanded by farmers, and when the demand for food threatened to outstrip the supply, the need for change became imperative. Under the primitive system, the area under the plough was excessive; and much land, which might have been more profitably employed as pasture, was tilled for corn <sup>(23)</sup>.

In the open-field system, a quantity of the arable land was wasted in innumerable balks and footpaths. All the occupiers were bound by rigid customary rules, compelled to treat all kinds of soils alike, obliged to keep exact time with one another in sowing and reaping their crops. The freeholders on open-field farms were only half owners. No winter crops could be sown so long as the arable fields were subjected to common rights of pasture from August to February. It meant financial ruin if any member of the community grew turnips, clover, or artificial grasses for his stock, because necessarily it would have been alone for the benefit of his neighbours. The strips of land occupied by each partner were too narrow to admit of cross ploughing or cross harrowing, and on heavy land this was a serious drawback. Drainage was practically impossible, for if a man drained or water-furrowed his land or scoured his courses, his neighbour might block his outfalls. For

these reasons the cultivated fields were generally foul, if not from the fault of the occupier, from the slovenliness of his neighbours. The farm buildings were gathered together in the village, often a mile or more from the land, and as each man's strips lay scattered over each of the open-fields, he wasted his day in visiting the different parcels of his holding; and his expenses of manuring, reaping, carting and horse-keeping were enormously increased by the remoteness of the different parts of his occupation (<sup>24</sup>).

Vexatious rights, moreover, interfered with proper cultivation. One man might have the right to turn his plough on another's strip, and the unfortunate victim was either obliged to await his neighbour's pleasure or risk the damage to his own sown crops. Travellers, furthermore, knew no highways in the common fields. Each avoided his predecessor's ruts, and cattle trespassed as they passed. For twenty yards on each side of the track, the growing corn was often spoiled. The sheep were driven to the commons by day, and in the summer folded at night on the fallows. Otherwise the manure of the livestock was wasted over the wide area which the animals traversed to find their scanty feed. Unable to find winter keep, and fettered by the common rights of pasture which each of the partners enjoyed over the whole of the arable land, farmers reared lambs and calves under every disadvantage. During the summer months, when the horses and cattle were untethered on the unsheltered balks, they lost flesh and pined in the heat: "Ill-fed all the year round, and half-starved in the winter, the livestock dwindled in size." The promiscuous breeding of the sheep and cattle generated every sort of disorder. The scab was rarely absent from the common-fold, or the rot (probably fluke and anserobic disease) from the ill-drained plough land and pasture. No individual owner could attempt to improve his flock or his herd when all the cattle and sheep of the village were raised together (<sup>25</sup>).

Finally there were the commons. The position here, also, was often deplorable. Many of them were unstinted, and were consequently overcharged with stock, which often belonged to jobbers and not to commoners. Even in good seasons there was barely enough grass to keep the cattle and sheep alive. In bad seasons when the weather was cold or wet, and the grass late and scanty, many died from starvation. In other cases, while the main body of commoners were restricted in the number of their stock, one or more were restrained to no limit, and not only overstocked with their own sheep and cattle, but also took in those of strangers. The poorer the commoner, the less the benefit he derived. If the commons were stinted, every commoner who occupied other pasture land in severalty saved his own grass until the last moment by keeping his sheep and cattle on the common; and the small man who had no other refuge for his livestock was the sufferer. The circumstances were such that monied men were often stock-jobbers or dealers (<sup>26</sup>). They hired land at double rates on the edge of the commons, and so obtained grazing rights which they exercised by overstocking the land with their own sheep and cattle, or by agisting the livestock of strangers. It was thus that in 1793 "an immense number of grey hound-like sheep, pitiful half-starved looking animals, subject to rot," crowded Hounslow Heath; and that in 1804 the Common of Chestnut was grazed not by the poor

“but by a parcel of jobbers” (27). In theory the value of the commons to a small farmer whose holding, whether freehold, copyhold or leasehold, was mainly arable, was inestimable—provided only that he was near enough to make good use of the grass land. In fact, however, the value was often minimised by distance, by the wretched condition of the undrained and overstocked pasture, and by the risk of infection to the livestock. “There can be no question,” states Prothero, “that from an agricultural point of view, five acres of pasture, added in individual occupation to the arable holding of a small occupier, and placed near the rest of his land, would have been a greater boon than pasture rights over 250 acres of common” (28).

The inherent defects of such a system could not be cured. If this were the position in England, it was even worse in Scotland where “the methods of raising crops had remained unchanged since the Battle of Bannockburn” (29). Neither in Scotland nor in England were open-field farmers or tenants-at-will, or even leaseholders-for-lives, likely to initiate changes in the soil. It was almost equally idle to expect that small free-holders would attempt experiments in the agricultural methods of their forefathers, which in a single season might bring them to the verge of ruin. In both countries it was the large landlords who took the lead in the agricultural revolution of the 18th and early 19th century, and the larger farmers who were the first to adopt improvements. When the sudden development of manufacturing industries created, in the late 18th century, new markets for food supplies, necessity demanded the conversion of the primitive self-sufficing village farms into “factories of bread and meat.” Arable land had to be obtained, and the soil was put into usage by means of Enclosures (30).

“These Enclosures meant in their simplest forms the simultaneous processes of consolidating the intermixed strips of open-field farms, and of dividing the commons attached to them, as adjuncts of the arable holdings” (31). The processes were complex, and there were probably few who appreciated the strength of the impulse which the Enclosing movement would give to capitalistic farming. Certainly without some radical change in the open-field methods of farming, agriculture in England would have remained backward, and could not have fed the increasing population of the late 18th and early 19th centuries, nor have weathered the Napoleonic storms. For more than half a century the natural conservatism or caution of agriculture resisted any extensive change. Down to 1760 the pressure of a growing population was scarcely felt. Before 1760 the number of Enclosure Acts dealing specifically with the open-field system did not exceed 130, but between 1760 and 1815 the number rose to upwards of 1,800 (32). Of the actual area of waste, open-fields and commons actually enclosed for the first time, no exact information is available. Prothero estimates that not less than 4 million acres were enclosed in England and Wales in the latter half of the 18th century (33). After 1760 population kept outstripping production, and with it came an increased demand from great industrial centres; whilst during the French wars of 1793-1815, higher internal prices ruled because of the stoppage of foreign corn supplies and English agriculture.



became stabilised at a profitable level. As the 18th century drew to a close, population in England was commencing to shift from the South to the North, and advancing by leaps and bounds in crowded manufacturing centres of population. Huge markets were springing up for agricultural produce. Hitherto, there had been few divisions of employment because only the simplest implements of production were used. Spinners, weavers and cloth-workers, iron-workers, handicraftsmen, had combined much of their special industries with the tillage of the soil. But the rapid development of manufacturing, and the revolution in methods it was precipitating, caused its complete separation from agriculture, and the application of machinery to manual industries completed the revolution in social arrangements. A division of labour became an economic necessity. Farmers and manufacturers grew mutually dependent. Self-sufficing farming was thrown out of date. Like manufacture, agriculture was ceasing to be a domestic industry. Both had to be organised on a commercial footing. The solution was found eventually in large farms, large capital, long leases, the most improved methods of cultivation and stock breeding. Under the pressure of war prices, and of the gigantic growth of a manufacturing population, the system made rapid progress. "In England the contest between capitalist farmers and peasant proprietors was decisively terminated" (<sup>34</sup>).

Although England in 1815 emerged from the Napoleonic wars victorious, she had paid the price of victory by a huge increase in the National Debt, excessive taxation, enormous Poor Rates, and a mass of unemployed and discontented labour. The population between 1792 and 1815 had risen from  $8\frac{3}{4}$  millions to  $10\frac{1}{2}$  millions, but on the other side, the National Debt had risen from £261,735,059 to £885,186,323; Annual Expenditure from under £20,000,000 to £106,832,260; Poor Rates from less than £2,000,000 to £7,870,801 in 1818. To agriculturists the peace brought only beggary, and whilst credit and trade recovered quickly, landlords, tenant farmers and labourers suffered a depression from which they did not emerge until Victorian times (<sup>35</sup>).

The effect of the wars was also, states Barnes, the historian of the English Corn Laws, that by 1815 "agricultural society (in England) was . . . divided into three main classes . . . the landlord, the large farmer and the agricultural labourer, who was subsisting in part on the Poor Rates." (<sup>36</sup>). In fact, the completion of Enclosures during the wars "proletarianised the mass of the rural population within a few decades" by making small holdings unprofitable and reducing the expropriated small holders to the "rounds" or to applying for the Speenhamland dole-loaves or to seeking work for wages in the growing centres where the new textile enterprises were expanding (<sup>37</sup>). A well-fed peasantry was disappearing from the face of England. States G. D. H. Cole, "The period of the Napoleonic wars and of the economic crisis which succeeded it is the blackest chapter in the whole history of the British working class" (<sup>38</sup>). At the time of the setting forth of the First Fleet, poverty in England was becoming desperate, and the poor were being knocked down at auction to speculators.

There is then no wonder at the fact that early New South Wales agriculture was conditioned for failure from the very commencement of the settlement. It was useless Phillip, and after him, Hunter, King and Macquarie, writing home and asking for men who were farmers. They were simply not to be had. There was no sprinkling of skilled agricultural peasants at any time in the convict ships which arrived, nor in the free immigrants of the first fifty years of settlement were there many men of enterprise, capital and sufficient knowledge of agriculture to bring the new country under subjection. There were only convicts and those who had been convicts, broken and debauched in the main by poverty, crime, servitude, hunger and punishment. Inevitably in the new colony the first stirrings of agricultural improvement came through men with capital, like Macarthur, Redfern, Jamison, Cox and others, who finding the local peasant agriculture slovenly and stagnant, were incessant in their claims that lands and materials should be given to them and their kind, so that they could train and work the labourers arriving, who otherwise would be unfitted for any useful work on their own, and on whose productive labours depended in the last resort the future prosperity of the country. As in England, Arthur Young was asking, "Where is the little farmer who will cover his whole farm with marl at the rate of 100 to 150 tons per acre? who will pay a heavy price for the manure of towns, and convey it 30 miles by land carriage? who will float his meadows at the expense of £5 an acre? who, to improve the breed of his sheep, will give 1,000 guineas for the use of a single ram for a single season? who will send across the kingdom to distant provinces for new implements, and for men to use them? who will employ and pay men for residing in provinces where practices are found which they want to introduce into their farms?", so in Australia, in not very dissimilar circumstances, no answer could be found to the problem of small under-capitalised farming. <sup>(39)</sup>

#### **English farming methods *circa* 1800.**

It is important to note that at the time of first settlement in Australia, English agricultural practice was extremely primitive. The beginning of modern farming methods had come so late as Jethro Tull (1674-1740), "the greatest individual improver" that British agriculture had ever known, Lord Townsend (1674-1738), Robert Bakewell (1725-1795), and Arthur Young (1741-1820), but in 1788 it is certain that the newer methods invented by these men had not infiltrated very far in England. <sup>(40)</sup> Phillip was to say that he had not the smallest notions of botany, and the pity of it was that in the First Fleet there was nobody who could tell him much about it. In fact, colonization in Australia was coinciding with the revolutionary alterations in agricultural practice, which were to transform English farming suddenly from a hotch-potch of mediaeval procedures to modern farming as we know it. The legacy which Phillip brought to the new colony was not, however, these modern methods but the practices of a century or more before; and progress was to prove slower in New South Wales than it had been even in England.

Jethro Tull (<sup>41</sup>) was one of the first originators of the new methods. At a time when the chemistry of plant life was in its infancy, Tull by patient observation and experiment "learned the difference between good and bad seed, as well as the advantages of care of selection, of cleaning and steeping." He was the first to prove that a thin sowing of seed produced the thickest crop, and that there was an optimum depth at which seed might be sown. But the very improvements which he introduced, revolutionary to methods that had not changed for centuries, caused his labourers to strike, and he was forced to "contrive an engine to plant sainfoin more faithfully than hands would do", and through the force of such necessity to invent the first drill, a contraption adopted from the mechanism of an organ, and which delivered seed into the ground through notched barrels. "Tull's many mechanical inventions, however, were less valuable than the reasons given for their employment, and whilst his implements were superseded, his principles of agriculture were the first clear views of better methods." (<sup>42</sup>) The most important of these, elemental as it may now appear, was tillage before and after crops were sown, and planting of crops in rows, by which to render tillage possible. The idea thus put forward was revolutionary to established agricultural practice in which wheat and other crops were sown broadcast and left to be choked by weeds arising from manuring with stable refuse. In some respects, Tull's system was unbalanced. His horror of manure, which he dreaded as a weed carrier, caused him to think tillage alone a sufficient substitute for manuring, and his crops of thinly sown wheat were slow to mature. "Nevertheless, without fallows or manure, he grew on the same land, by constant tillage for thirteen years in succession, heavier wheat crops from one-third the quantity of seed, than his neighbours could produce by following the accepted routine." (<sup>43</sup>) The chief legacies which he left to his successors were the principles of clean farming, economy in seedings, drilling and the maxim that, "the more the irons are among the roots the better for the crop," and it was along these lines that succeeding advancement took place. On open-field farmers who sowed their seed broadcast, thickly and at varying depths, Tull's experiments were lost; and it was not until the end of the century, when his principles were put into practice by large landlords in various parts of the country, that their full advantages became apparent. (<sup>44</sup>)

A further instance of the new agricultural practices may be seen in the work of Lord Townsend (1674-1738), who may be taken as a type of the reforming landlords who took the lead in farming their estates. (<sup>45</sup>) Succeeding to a property in Norfolk, largely consisting of "rush-grown marshes . . . or sandy wastes where a few sheep starved and 'two rabbits struggled for every blade of grass'", and as it had lain undeveloped for centuries, with produce restricted to "nettles and warrens," Townsend, by reviving the ancient but almost obsolete practice of marling the ground, initiating a four-course rotation in crops, and growing turnips to feed his stock, converted his "furze-capped warrens" into tracts of well cultivated lands. Following the lines of Jethro Tull, Townsend drilled and "horse-hoed" turnips instead of sowing broadcast. He alternated root crops with cereals and grasses—the so-called Norfolk or

four-course system of cropping—and by these means he was able to do away with the necessity of taking two corn crops in succession off the same land, of leaving a portion of the land every year in unproductive fallow, and most important of all—a finding of incalculable consequence—he was enabled to carry more stock, and to maintain them without loss of condition over the winter months. His “farming in a circle, unlike arguing, proved a productive process.” So zealous was Townsend’s advocacy of turnips as a pivot of agricultural improvement that he gained the nickname of “Turnip Townsend,” and supplied Alexander Pope with material for his verse. (<sup>47</sup>) His example spread by slow degrees. Outside Norfolk, at first both landlords and farmers alike “classed turnips with rats as Hanoverian innovations and refused their assistance with Jacobite indignation.”

Without the aid of turnips, the mere support of livestock had been in winter and spring a difficult problem; to fatten sheep and cattle for the market was in most districts a practical impossibility. The introduction, therefore, of the field cultivation of roots, clover and artificial grasses proved the pivot of further agricultural progress. It enabled farmers to carry more numerous, bigger and heavier stock; more stock gave more manure; more manure raised larger crops; larger crops supported still larger flocks and herds. Thus to the enthusiast of the late 18th century, the agricultural circle now opened up seemed capable of almost indefinite and always profitable expansion. In New South Wales it was also such, but for a very different reason—endless plains to feed a limitless number of sheep. But if English agriculture at the close of the century was then owing a lot to men like Tull and Townsend, it was also owing as much to the revolutionary work of Robert Bakewell of Dishley (1725-1795), the man who had just invented scientific stock breeding.

Up to the middle of the 18th century, sheep had been valued agriculturally for their manure in the fold, commercially for their skins, and above all, for their wool (<sup>48</sup>). Wool had been, in fact, the chief source of profit to English farmers. The trade in raw or manufactured wool, both at home and abroad, had been for centuries the most important of English industries. The sheep as wool-producing animals were classified into short wools and long wools. Of the two classes, short-woolled sheep were by far the most numerous, and were scattered all over England. “Small in frame, active, hardy, able to pick up a living on the scantiest food, patient of hunger, they were the sheep of open-fields farmers; they were the breeds formed by centuries of hard travelling, close feeding on scanty pasturage, and a starvation allowance of hay in the winter (<sup>49</sup>). Nearly every breeding county in England had its local favourites, adapted to their environment of soil and climate. With cattle again no true standard of shape was recognised. Size was the only criterion of merit. “Nothing would please,” wrote George Culley (<sup>50</sup>) in 1786, “but elephants or giants”—the approved values being power of draught and milking capacity, not propensity to fatten or early maturity. Each breeding county, as in the case of sheep, had its varieties classified into Middle-horns, Long-horns and Short-horns. Some were “more like an ill-made . . . horse than an ox or cow.” The cattle were

uniformly badly shaped, long bodied and coarse. Stock breeding, whether applied to cattle or sheep, was the "haphazard union of nobody's son with everybody's daughter" <sup>(51)</sup>. Length of leg was necessary when animals had to travel through acres of mud and roam for miles in search of food. The time, however, was rapidly approaching when beef and mutton were to be more necessary than power of draught or fineness of wool. Bakewell was the agricultural opportunist who saw the impending change, and knew how it should be met: "By providing meat for the millions, he contributed as much to the wealth of the country as Arkwright or Watt" <sup>(52)</sup>.

Prior to Bakewell, crossing had been understood to mean the mixture of two alien breeds, one of which was relatively inferior. The methods he adopted were to preserve purity in line by inbreeding, and concentration upon essential points only. Like Macarthur, his successor in New South Wales, he was the first to secure the union of the finest specimens of the breeds which he had chosen as the best, selected for the possession of those qualities which he wished to reproduce or strengthen. His "New Leicesters" became the most profitable sheep for arable farmers, and incidentally nearly wrecked in the 1820's the developing Merino sheep industry in New South Wales. The innovations which he actually achieved were, however, of lesser importance than the example which he gave to all. His results were spectacular, easy to demonstrate visually, and his methods, once known, were capable of immediate imitation. All breeds were improved, and the formation of herds became a favourite pursuit of wealthy landlords. It was as if "even most of the Gentlemen are Graziers, and in some places the Graziers are so rich that they grow Gentlemen." This, at all events, became so in early New South Wales.

To Arthur Young (1741-1820), however, more than to any other individual was due the dissemination of new ideas on farming, the diffusion of the latest results of observation and experiment, the creation of new agencies for the interchange of references, the establishment of farmers' clubs, ploughing matches, agricultural societies and shows. (Even George III contributed occasionally to Young's *Annals of Agriculture* under the name of his shepherd at Windsor, "Ralph Robinson") <sup>(53)</sup>. When Young began to write on agriculture in 1768, seventeen years before the First Fleet set sail, vast districts which might have been profitably cultivated still lay waste, and of the area under tillage a large proportion was lying in the primitive backward open fields. The land was being ploughed from two to four inches deep, and five horses were being used to each plough over wide areas. Beans and grains were sown broadcast and never hoed. Drainage was badly needed, and in the winter most of the land, crops and all, were soaked in water (*cf.*, *Eastern Tour, 1770—Vale of Aylesbury*). The farmers were "of the most obstinate bigoted sort" <sup>(54)</sup>. In Buckinghamshire and Northamptonshire, the cow dung was collected from the fields, mixed with short straw, kneaded into lumps, daubed on the walls of buildings, and, when dry, used as fuel. Young thought, "There cannot be such an application of manure anywhere but among the Hottentots" <sup>(55)</sup>. And that the open-field small farmers were impervious to new methods is certain.

"You might," wrote Young, "as well recommend to them an Orrery as a Hand-hoe." He had reason on his side when he said that "The Goths and Vandals of open-field farmers must die out before any complete change takes place" <sup>(56)</sup>. Marshall (1787), independently, was endorsing such views: "Poverty and ignorance are the ordinary inhabitants of small farms; even the smaller estates of the yeomanry are notorious for bad management" <sup>(57)</sup>. It was on the larger farms that they found the spirit of improvement and the best practice, and both Young and Marshall were looking "to the few men of superior intelligence" to raise the standard of agriculture <sup>(58)</sup>.

But in the years immediately following the 1780's, an extraordinary enthusiasm for farming developed. In successive stages new crops were cultivated—swedes, mangel-wurzels, kohlrabi and others; breeders spent capital freely in improving livestock; new implements were introduced such as the threshing machine (1784) which superseded the flail; and between 1788 and 1816 numerous patents were taken out for drills, reaping, mowing, hay-making and winnowing machines, as well as for horse-rakes, scarifiers, chaff-cutters, turnip slicers, and other mechanical aids to agriculture <sup>(59)</sup>. Iron gates and fences began to be used, weights and measures of uniform standards accepted, cattle shows, wool fairs and ploughing matches held in various parts of the country and innumerable agricultural societies established. These developments, however, practically all occurred subsequent to Phillip's departure. There was a growing inventiveness up to 1793, but between 1793 and 1816—the years of the war—the momentum was accelerated. Napoleon, it is said, then proved himself "The Patron Saint of Farmers" <sup>(60)</sup>. At the head of these later developments stood Lord Coke of Norfolk (1778-1842). On his farm buildings, cottages and dwelling-houses, Coke spent, during an active lifetime, more than half a million pounds, converting his property from one giving an annual rent of £2,200 in 1776 to £20,000 in 1816 <sup>(61)</sup>. It was a transformation of a wilderness by "Marling and Claying his land, the purchase of manure, by drilling wheat and turnips, by growing sainfoin and clover, by trebling his livestock."

Nevertheless, it has to be realised that English agriculture in 1800 was improving only in the hands of wealthy landlords, large farmers and "Yeomen of the higher class." Extraordinary developments were proceeding, but there was not a right way and a wrong way applicable to any particular district. Capital, intelligence and patience—as they are still required to-day—were necessary to find the best treatment for the soil. Primitive ideas were not lost for years afterwards nor customs changed. And, whilst it is true that much was found, it still must be remembered that agriculture continues to be conditioned by almost as many problems as it ever was, though of course they are very much different. Innumerable instances to prove this slow development of scientific farming could be quoted; but a few will suffice. Whereas in 1768 turnips and clover were still unknown in many parts of England, by 1808 in Essex clover had been adopted with such zeal and over-emphasis that the land was already turning sick. <sup>(62)</sup> On the

other hand, in 1794 in Westmoreland, "the prejudice that exists almost universally against clover and rye-grass" was said to be "a great obstacle to the improvement of the husbandry of the county." (<sup>54</sup>) In 1794, notwithstanding the developments that had earlier taken place, many Northumberland sheep masters were still milking their ewes, though the more intelligent had discontinued the practice. (<sup>55</sup>) Another instance of the tyranny of custom and its effects in stultifying progress may be taken from ploughing. Although at the end of the 18th century in many districts, the Norfolk, Rotherham or Small's plough had been introduced at a great economy of cost and labour, elsewhere farmers were still clinging to some ancestral mediaeval implement. (<sup>56</sup>) In Middlesex in 1796, it was no uncommon sight to see ploughs drawn by six horses with three men in attendance. (<sup>57</sup>) In Berkshire (1794), four horses and two men ploughed one acre a day. In Northamptonshire (1794), there was in use a clumsy implement with a long massive beam, drawn by four to six horses, head to tail, with a boy to lead and a man to hold. By immemorial custom in Gloucestershire, two men, a boy, and a team of six horses were usually employed in ploughing. Yet Coke of Norfolk, using a Norfolk plough, a ploughman and a pair of horses, was able to do the same work as any of these in approximately the same time. (<sup>58</sup>)

This backwardness was to some extent due to the difficulties of communication. In some districts roads were so bad that everything was carried in sledges or on packhorses, since wheeled carriages were impracticable. In Essex "a mouse could barely pass a carriage in its narrow lanes . . . which were filled with bottomless ruts, and often choked by a string of chalk waggons, buried so deeply in the mire that they could only be extricated by a string with thirty or forty horses." When calves, bred in Northamptonshire, were sent to Essex to be reared, they were travelled in carts, with their legs tied together, were eight days on the road, and during the journey were fed with "gin balls" (flour and gin mixed together). (<sup>59</sup>) When rural districts were thus cut off from one another, their isolation was indeed a formidable obstacle to agricultural progress, for the inevitable consequences were that, barred from all contact with their neighbours, because of the impassable roads, and impeded in their access to markets, there was no ambition to raise from the soil anything beyond household needs and the satisfaction of the local demand for bread. As in New South Wales, so in England at the close of the 18th century, roads and communications were fundamental to agricultural development and expansion.

Nowhere, however, were there such differences of opinion or peculiarities as in those which concerned theories of manuring. At the turn of the century, the science of soil chemistry was a virtually unknown field. Humphry Davy, under the auspices of the Board of Agriculture, did not commence his lectures on "The connection of chemical with vegetable physiology" until 1803. (<sup>60</sup>) This was a landmark in the history of agricultural science, to be later followed by his "Elements of Agricultural Chemistry," not however published until 1813. So it is not strange that chalk, clay, marl, calk and all kinds of refuse were at the time being applied to the land. For instance, in Hertfordshire (1795), there were

being used "large quantities of soot, coney-clippings, horn-shavings, rags, hoofs, hair and ashes," and that to these were sometimes added "bones—boiled or burned—pig's trotters and mait-dust." ("") Even in early New South Wales nothing more primitive than these were employed.

### Conclusions.

It is altogether too easy to fail to give a proper historical setting to the primitive agriculture which was practised in early New South Wales, and to under-rate the very considerable difficulties which worried both governors and settlers. Ridiculous as they may now seem, some of the notions and confusions which arose over the adaptation of new methods were being encountered simultaneously in England; and it was always more difficult to apply them in Australia, situated as it was, on the very outskirts of civilisation, and at a time when books and pamphlets were hard to come by. In actual fact, these primitive colonial agricultural expedients were little worse than the primitive procedures then applying in some parts of England, where even at the close of the 18th century, the tyranny of mediæval custom had not been quite abandoned. In New South Wales when the settlers came to adapt the newer methods and to apply rotations, the rainfall ruined their efforts. Turnips were unreliable; English grasses burned with the heat; the clovers died; and the only thing left which would grow with success was lucerne, which did well on the flats, but even the lucerne could not be used in a rotation, since it took root and could not be removed to enable a planting to be successfully made with wheat. Stock were so few, furthermore, in the early days, and resources had to be so carefully husbanded, that ploughing was impossible, if indeed the seed could have been sown in rows, because of the stumps. Again, because of the so limited cleared land resources, and the immense problems and costs involved in removing the timber, stock could never be satisfactorily kept on small farms. Without stock, farmyard manure could not be obtained, and without such manure no satisfactory attempts could be made to restore fertility to the exhausted soil. Labour was absent on the first small farms. When later available, it was unsatisfactory and so tillage could only be maintained with the hoe. But, because of the stumps, and the fact that the seed could not be sown in rows, satisfactory tillage was impossible on lands where the crop grew everywhere following the alternative broadcast sowing. At every turn, conditions in the new colony frustrated developments. Difficulties which could scarcely have been anticipated were the floods, the droughts and the pests which rendered overnight the labours of a twelve months in vain. These were new problems to solve. In England men like Townsend and later Coke of Norfolk had taken a personal lead in improvements, testing for the benefit of their tenants the value of new arable methods, and encouraging them by long leases to follow their example, and by high rents making imitation compulsory. But in Australia the governors knew nothing of agriculture. The unskilled farmers requiring guidance were left to their own devices, thrust into the uncleared depths of the forests, penniless and alone in a strange land, to be criticised and importuned by turn, their very ignorance and helplessness never properly understood.



One result of these extraordinary changes in England was, however, the work of Macarthur in the new country. Alone in his time and with an amazing clarity, he was able to interpret and adapt the new science of Bakewell, to foresee the future development of the colony, and to clear by example the path for the later prosperity. And if the influence of Bakewell was extending so far as the new Australia, slowly but surely it was also making the way clear for the wool which the colony was to produce with such extraordinary abundance. Bakewell, in order to enable England to survive, had sacrificed its fine wool for mutton. The sheep were being bred heavier in size, and so the wool was losing its fineness. Before the end of the century, even the fine wool of the light, poorly-fed, short-woolled sheep of the commons had diminished so rapidly that the English market was lost forever. For a time and whilst the colony was growing, England depended on foreign supplies of fine wool imported from Spain and Saxony, but by the 40's of the following century, the new country had a firm grip on this trade—a grip which so far it has shown no signs of loosening.

### References.

- (<sup>1</sup>) Greenwood—Early Australian-American Relations up to 1830, pp. 39-61; Fitzpatrick—British Imperialism and Australia (1783-1833), pp. 29-68.
- (<sup>2</sup>) Fitzpatrick op. cit. pp. 35-39.
- (<sup>3</sup>) Bigge Report: Appendix: Second letter of instructions from Bathurst to Commissioner, 6.1.1819.
- (<sup>4</sup>) O'Brien—The Foundations of Australia; Fitzpatrick op. cit. et altera.
- (<sup>5</sup>) Cf. Instructions to Phillip H.R.A. 1, pp. 1-20.
- (<sup>6</sup>) Cf. Early Records of the Macarthurs of *Camden*, pp. 349 et seq.
- (<sup>7</sup>) A Statistical, Historical and Political Description of the Colony . . . . W. C. Wentworth, p. 113.
- (<sup>8</sup>) Sydney Gazette, 24th March, 1821.
- (<sup>9</sup>) Bigge Report of the Colony of N.S.W., p. 24.
- (<sup>10</sup>) Wentworth op. cit., pp. 65-69.
- (<sup>11</sup>) Ibid.
- (<sup>12</sup>) Ibid.
- (<sup>13</sup>) New South Wales Magazine, June, 1843.
- (<sup>14</sup>) Cf. Curtler: A Short History of English Agriculture, pp. 162-228; R. E. Prothero, English Farming, Past and Present (this is the best description), pp. 148 et seq.
- (<sup>15</sup>) Prothero op. cit., p. 149.
- (<sup>16</sup>) Fitzpatrick op. cit., p. 30.
- (<sup>17</sup>) Ibid. p. 49.
- (<sup>18</sup>) Report of the Committee of the Board of Agriculture (1795). Quoted Prothero op. cit. p. 149.
- (<sup>19</sup>) Young—Observations on the Present State of Waste Lands of Great Britain (1773)—quoted Prothero op. cit. p. 153.
- (<sup>20</sup>) Prothero op. cit. p. 154.
- (<sup>21</sup>) Quotations from Nathaniel Kent in "Hint to Gentlemen Farmers" in Prothero op. cit. p. 154.
- (<sup>22</sup>) Prothero op. cit. pp. 154-155.
- (<sup>23</sup>) Ibid. p. 154.
- (<sup>24</sup>) Ibid. pp. 155-156.
- (<sup>25</sup>) Ibid.
- (<sup>26</sup>) Ibid. p. 158.
- (<sup>27</sup>) Quotations from Contemporary Documents—Prothero op. cit. Ibid.

- (28) Prothero op. cit. p. 159.
  - (29) Ibid. p. 160.
  - (30) Ibid. p. 161.
  - (31) Ibid. pp. 163-168.
  - (32) Ibid. cf. Fitzpatrick op. cit. pp. 43-47
  - (33) Prothero op. cit. pp. 163-168.
  - (34) Ibid. pp. 195 et seq.
  - (35) See Curtler op. cit. for the best description of the post-war crisis and depression, pp. 229-270, and in particular pp. 262-270. Prothero op. cit. pp. 316-333, Fitzpatrick op. cit. pp. 46-51.
  - (36) D. G. Barnes, "A History of the English Corn Laws from 1660-1846," p. 118.
  - (37) Quoted Fitzpatrick op. cit. p. 46.
  - (38) G. D. H. Cole, "A Short History of the Working Class Movement (1789-1925), p. 39.
  - (39) Quoted Prothero op. cit. p. 206.
  - (40) Ibid. p. 169.
  - (41) Ibid. pp. 169 et seq.
  - (42) Ibid.
  - (43) Ibid.
  - (44) Ibid. p. 172.
  - (45) Ibid. p. 174.
  - (46) Ibid.
  - (47) Pope "*Horatian* Illustrations Bk. 11, Epist. 11, Lines 270-9." Quoted Prothero op. cit. p. 174.
  - (48) Prothero p. 177.
  - (49) Ibid. pp. 179 et seq.
  - (50) Arthur Young in his "Lecture on the Husbandry of Three Famous Farmers" (1811), pp. 10-11—Quoted Prothero p. 179.
  - (51) Culley's Observations on Live Stock (1786) p. 30—quoted Prothero, p. 180.
  - (52) Prothero p. 181.
  - (53) Ibid. pp. 195-206.
  - (54) Ibid. p. 198.
  - (55) Ibid.
  - (56) Ibid. p. 204.
  - (57) Ibid. p. 240.
  - (58) Ibid. p. 200.
  - (59) Ibid. p. 208.
  - (60) Ibid. p. 210.
  - (61) Ibid. p. 219.
  - (62) Ibid. p. 202.
  - (63) Ibid.
  - (64) Ibid.
  - (65) Ibid.
  - (66) Ibid.
  - (67) Ibid.
  - (68) Ibid. pp. 204-206.
  - (69) Ibid. p. 217.
  - (70) Ibid. p. 250.
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