PART I

The Foundations of Agricultural Economics
Chapter I

INTRODUCTION

Definition of Agricultural Economics; the place of agriculture amongst man’s activities; its natural and physical limitations; the agricultural complex; the many-sidedness of agriculture illustrated; economic divergences between primary and secondary industries; the Law of diminishing returns in its various aspects; demand and supply and their elasticity; prices and price-control; the meaning of money; fluctuations in the price-level; utilisation of labour, land and capital; factors in international trade; the position occupied by the agriculture of the British Isles.

If, in Marshall’s words, “Economics is a study of man’s actions in the ordinary business of life”, then Agricultural Economics is clearly the study of man in his relation to the land. This involves an analysis of many factors, of which the more important are the distribution and utilisation of the soil, the nature of the resultant social life, the interrelationship of a preponderant primary industry with numerous secondary industries, the contributions—both financial and economic—made to their States by agricultural interests, the physical and financial handling of soil products, and, finally, the demand for, and consumption of, the latter. These, then, may be termed the foundations of a subject which, in both its theoretical and practical aspects, is being increasingly studied in most countries of the world; a description of them, accordingly, occupies the bulk of this volume, but, as their evolution cannot altogether be omitted, its pages necessarily contain also a certain amount of economic history.

Agriculture, which, in its widest aspects, must always be assumed to comprise every form of soil production, from forestry to glasshouse culture, provides occupation for the vast majority of the world’s population. To paraphrase the findings of a recent International Conference: the various products of agriculture represent in value the greater part of human labour, and their exchange against those of industry forms the basis of world trade; agricultural population remains for humanity a reservoir of energy, capable of preserving the nations from the rapid human wastage which may result from any excessive growth of industry; the quantity of foodstuffs and of raw materials produced by agriculture is one of the factors which determine the maximum limit of industrial development, and
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the interdependence existing between nations is no less close between the main classes of occupations—agriculture, industry and commerce—and it is vain to hope that one class can enjoy lasting prosperity independently of others.

This, then, is the nature and position of the industry, adhesion to which has, ever since man’s first appearance on earth, formed his most vital duty. Indeed, it is no exaggeration to state that, for the millions of years in which he existed in a primitive state, the pursuit of food formed his sole activity and that, during all save a few hundred of the five or six thousand years in which he could be described as civilised, his entire energies have still been thus directed. Historically, it is only in quite recent times, and in a few countries, that any considerable proportion of the human race has been freed from this obligation, and, nowadays, out of a world population of just over two thousand millions, perhaps six or seven hundred millions are so situated. It has, however, come to be regarded as a sure indication of social progress when a growing proportion of any given race, released from labour on the soil, finds itself free to adopt other means of livelihood, yet, simultaneously, elsewhere a policy of “back to the land” may be in process of adoption—ultimately contingent, however, upon the willingness of those concerned to accept what they may perhaps stigmatise as retrograde conditions. A balance between primary and secondary industries is clearly desiderated, but, in the rapidly changing circumstances of the present day, it is hard to dogmatise for different countries. The pursuit of agriculture has also, upon occasion and in certain countries, come to be regarded as a method of life rather than as a means of livelihood, so that, again, social as well as economic influences obtrude themselves.

The intimate character of man’s association with the land cannot be better illustrated than by saying that the “typical” human being is the peasant farmer. Large scale undertakings may be dominant in some countries, but in the world at large they are as nothing compared with the family holding, which is the real “modal” farm; in fact, Chinese rural life, portrayed so admirably in Pearl Buck’s Good Earth, is more truly representative of world conditions than is any other mode of existence. Ultimately, too, four-fifths of the world’s secondary—or manufactured—products depend for their consumption upon the purchasing power of the agriculturist.

Economists are agreed that agriculture is “characterised by a high
Rainfall of the British Isles
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degree of economic uncertainty". In other words, unlike most forms of industry, it is a partnership between man and Nature, in which the former may propose, but Nature disposes. In so far as its practical aspects are concerned—was it not facetiously, but somewhat crudely, described by a man in the (urban) street as a “combination of cruelty, indecency and dirt”? A large number of physical factors impose limitations upon the venture, e.g. soil, temperature, precipitation, evaporation, latitude, altitude, accessibility, which in turn have resulted in vast areas of land surface being rendered permanently useless for any form of cultivation. If, however, due regard is paid to those phenomena—such as altitude and latitude—that exercise a uniform influence, as, indeed, man has in the long run been forced to do, then his dependence upon the others can be shown to rest upon a surer basis, for, during a length of years and over wide areas of the earth, fluctuations of rainfall, temperature and sunshine cancel one another and “average” conditions, which imply reliability, supervene. Nor must it be supposed that in any temperate country of the Old World natural conditions inhibit too severely the work of the cultivator. Take, for example, the case of the British Isles, which, in the matter of rainfall, possess a range from a precipitation of 20 inches (in parts of East Anglia) to one of over 200 inches (in Snowdonia and the Lake District); in a year when less than 12 inches fell in parts of the Eastern Counties, there was, in the same area, a record yield per acre of wheat. In temperature, the range, even in the Southern Counties, is 100° Fahrenheit, and effective sunshine may vary to the extent of plus or minus 30 per cent. of the normal. So far as altitude is concerned the most productive area, and that with the highest rate of yield, viz. the fenland, is at, or frequently even below, sea level and, while cultivation elsewhere extends up to a height of over a thousand feet, mountain sheep range in altitude at least as far again.

To a certain extent, also, man can ameliorate natural conditions; thus, it is possible to make good deficits of rainfall by means of irrigation—a device as old as civilisation—but this practice is apt to bring in its train peculiar troubles in the shape of alkali impregnation; glass-houses, too, are small scale, but expensive, methods of modifying ranges in temperature. Beyond these limited measures man cannot proceed.

Nature’s living organisms also place in jeopardy the practice of
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agriculture. For examples of this, one need look no farther than the destruction of growing crops in Africa by locust swarms, the ravages of rinderpest and of tsetse fly and the losses occasioned to such diverse products as bananas, cotton, wheat and timber, by a whole range of living pests, whose attacks man is at present unable fully to counter, although there are successful examples—as in the case of the prickly pear infestation in Australia—of natural enemies being set to war upon one another. Again, in the life cycle of cattle, losses pursue the breeder from the onset of contagious abortion, which robs him of his unborn calves, to the ravages of the warble fly that deprecate the value of his mature beasts’ hides. Indeed, the diseases that afflict domesticated livestock are more numerous and more potent than those common to man. In a brief space of time a poultry farm may lose its whole stock of birds from an outbreak of a particular infectious disease (bacillary white diarrhoea); the appearance of “big bud” on a fruit farm can necessitate the eradication of every black currant bush. Nor is man blameless in this respect, for, in numerous areas and during countless centuries, he has permitted his domestic animals not only to destroy the amenities, but completely to inhibit the pursuit of agriculture. In Classical times the shores of the Mediterranean were denuded of foliage by goats; the same thing is now happening over thousands of square miles in Africa, where excessive numbers of low grade native-owned cattle roam at will, and, in India, the sacred character attaching to the cow represents an annual loss of many millions of pounds.

It has become a habit to refer to the land as the “farmer’s raw material”, but a more accurate definition would be his “factory”, and, while it would be an exaggeration to describe his activities as confined to two-dimensional space, yet few agricultural operations call for the use of more than a few inches of soil—the complexity of which, incidentally, none but the micro-biologist can appreciate. Raw material the land certainly is not, for, although necessarily reinvested by man with certain properties otherwise liable to attrition, it is not in the aggregate subject to removal or wastage. The fact that the cultivator utilises merely the surface of his land affords one of the many examples that differentiate this industry from others, in that such action imposes a limit to the extent of his operations, based upon sheer physical incapacity of supervision and of personal movement; the urban factory, susceptible of wide expan-
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sion in the third dimension, inflicts no such restraint upon its owner. This same factor, incidentally, puts an effective limit to the use of land, for, in many areas, no cultivator can increase his soil commitments without inflicting a corresponding loss upon others—land is limited, air is not.

The next feature of agriculture to be emphasised is its many-sidedness, and here it is not only justifiable but preferable to regard it, not as a single industry, but as many; this is, indeed, one of the causes of the popular misunderstandings that exist concerning its nature, its relations to other human activities and its peculiar economic disabilities. The interests of those severally engaged in primary production are often diametrically opposed, for the products of one branch are very frequently the first requisites of another; oats present a case in point. State or other forms of assistance intended to benefit one type of producer may positively handicap his neighbour. A survey of the range in types to be found practised in one country alone will bring conviction upon these points. In Great Britain, while crop and animal husbandry are frequently practised together, the latter, in its various forms, accounts for nearly three-quarters of the value of the total output, and the food of these livestock is produced, partly on the same farms, partly from other home sources, but also to a great extent from numerous countries situated in every continent—North and South American maize is fed to pigs; cotton-seed, linseed, palm-kernels, raised in Africa, are turned into cake for cattle, so, too, are the soya beans of the East. Many of the animals themselves have been born in one part of the country, reared in another, and “finished” in yet a third. Compare, in this connection, the movements of cattle from Scotland to Norfolk and thence to the Midlands, or backwards and forwards between the Eastern and Western areas of England. Are those concerned in these trades likely to see eye to eye with one another in regard to price movements? Larger issues of the same character emerge when the introduction of Irish and of Canadian cattle—once more to be subdivided up into stores, beasts intended for immediate slaughter or for breeding purposes—is under discussion. Certain areas are noted for their production of cereal and of other seeds, which are distributed throughout the country, but none would claim that the interests of those who raise them are identical with those of their (farming) purchasers. Poultry husbandry is a type which depends almost ex-
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The produce of other farms, and its representatives are, therefore, the first to raise objections to any proposal aiming at an increase in the price of cereals.

Perhaps the most convincing exposition of the diversities in the agriculture of even this one small country can be obtained if a journey be made by air across the centre of England from, say, Yarmouth to Barmouth. One first traverses those coastal marshes, which, for two centuries, have fattened cattle as it is claimed no other district can do; then, after getting to the North, a glimpse of the famous Broads area, devoted to the new industry of black currant and raspberry production, one sees, in the heart of Norfolk, arable land irrevocably associated with barley and sheep. The soil changes again, and we are over those sandy brecklands, which, while forming one of the greatest game preserves in the country, have otherwise up to recent times been popularly credited with an agricultural output confined to rabbits and rye, but are now the scene of great activities on the part of the Forestry Commission—in the production of yet another form of primary commodity. The next transition is a sudden one, for we quickly find ourselves over the most fertile and valuable agricultural land in these islands—the fens—and see in turn below us square miles of fruit (mainly of the “soft” varieties), of vegetables, and of flower bulbs reminiscent of Holland, while, as far as the eye can reach, the heaviest crops of cereals and of roots are also raised as well as vast quantities of potatoes and much sugar-beet. Crossing the river Nene we have, to our right, the Lincolnshire wolds with their flocks of grazing sheep, and below us the backbone of England, that outcrop of jurassic rock that, from Dorset to the Yorkshire coast, determines soil and, therefore, not only the distribution of crops and of livestock, but that of the lesser life, e.g. insects and, therefore, nightingales! For the next fifty miles we fly across the “Shires”, which, oblivious of past times, when cereal prices were remunerative, nowadays provide pasture for countless thousands of beasts. Over Staffordshire we find ourselves surveying the activities of large numbers of relatively small milk-raising farms, whose produce is conveyed as far as London, and, if the day be clear, we see, far to the South, the Vale of Evesham, famous for its hard fruit, nor can we fail to observe the great number of poultry farms in this area. The lowlands of Wales, devoted to pasture, give place to its mountains, with their flocks of...
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hill-sheep, and we finally sight the sea again above the arable fields of Cardigan Bay. Who would claim that those numerous and diverse forms of crop and of animal husbandry represent anything but separate industries? Multiply them again by taking a similar journey across Europe, and then, finally, picture the races of the world—white, brown, yellow and black—in temperate, subtropical and tropical countries, toiling to raise the thousand and one commodities that, under the generic term of “agricultural produce”, minister to their own requirements and to those of the importing nations. Add an extraordinary measure of diversity in the actual practice of husbandry, in the very forms of crop and in the appearance of livestock; add, too, an almost infinite variety of social customs and habits and remember that systems of land-tenure are numerous. We have then a conspectus of agriculture, but it will convey an impression the reverse of that associated with a homogeneous industry.

The next outstanding difference to be noted as between this aggregate of primary industries and the secondary activities of the human species is what may perhaps best be termed the “immobility” of the former. Nearly all factory enterprises can adjust their organisation and their output in response to increased demands or in order to meet predilections that may change. In fact, the basis of many such undertakings is their ability quickly to follow—if not to anticipate—fluctuations in taste, fashions, and modes of life, taking immediate advantage, too, of altered economic and technical processes. To the farmer such actions are denied, for his partner, Nature, has placed such chronological restrictions upon their policy as to prohibit sudden change. The economic life of hard-woods may extend into centuries, that of even the conifers is equal to a human generation, while cattle mature at three years of age and the world’s most important cereal crop takes up to eleven months to produce. The latter is often inextricably associated with some lengthy rotation, while a balance between field crops and livestock must, in many circumstances, be observed: the production of milk involves a policy built up during the passage of several years and all forms of horticulture rest upon a non-remunerative period which ranges, in the case of some soft varieties of fruit, from two years up to one, or even two, decades for the bulk of Pomona’s gifts. Even the pig, that most prolific of domesticated animals, cannot be made to respond numerically to increased demands under six months. Here, then,