APPENDIX A:

The Western model

This commonly accepted model of agricultural development derives from the historical experience of Northwestern Europe (in particular the Netherlands and Britain where 'high farming', scientific methods and mechanisation made especially rapid progress) and of the grain-belts of the New World. In several respects it is a construct or an abstraction – there are those, for instance, who would question the very existence of 'capitalist farming' in Europe (e.g. Cooper 1978) – which amalgamates elements from different historical periods or geographic regions to form a coherent picture of increasing efficiency: the rationalisation of landholdings into large units of management goes hand in hand with the development of farm machinery, a reduction in the labour force and an increase in capital inputs (ranging from drainage systems to chemical fertilisers). Economies of scale are the keynote. The potency of this model's attraction can be seen from the alacrity with which it was adopted by the leaders of socialist states: communisation and tractorisation were accepted as the *sine qua non* of modern agriculture.[1]

If we look more closely at some of the factors which affected agricultural development in Europe, it is apparent that the path followed was closely related to the conditions of production specific to this region. Northern Europe has a short growing season, and the staple cereals, wheat, barley and rye, bear heads with relatively few grains – at best a few dozen, compared with the hundred or more grains in a panicle of rice or millet – and often a single head on each plant. This may seem a trivial point, but it affects yields and means that a much higher proportion of the harvested crop must be kept for seed-grain.[2] The climate of Northern Europe does not permit more intensive cultivation than three grain crops in two years, but even this is a very recent development which depends on the use of fertilisers and scientific crop rotations. Before the

seventeenth century the commonest method of fertilising grain-fields was to pasture livestock on the fallows; thus corn could only be grown one year in every two or three.[3] Under these conditions, the farming system of North Europe used land extensively and could not support high population densities. The size of a family subsistence holding was necessarily large: a feudal manse in the ninth century was often as big as 40 hectares (Slicher van Bath 1963: 42; Mukhia 1981: 278).

Livestock played a crucial role in this farming system. First they were the chief source of manure, and the right to fold the village flocks on one's fallow was hotly contested in medieval times.[4] Since yields were so low, draught animals were essential, for it was impossible to till sufficient land for subsistence by manpower alone. Though in some regions plough-teams consisted only of a pair or two of oxen, in heavier soils between eight and a dozen oxen might be needed for a team, and records from the French imperial estates in Carolingian times show that from an early date feudal landholders relied on their villeins to supply not only manpower but also a large proportion of the animal traction necessary for working the demesne (Duby 1962: 206; Slicher van Bath 1963: 67).

In the absence of scientific crop-breeding methods and inorganic fertilisers there was little scope for improving the productivity of land. '[This] could only be achieved in unusually favourable circumstances, namely, when the land could be more heavily manured or more cattle could be kept than was usual on the average farm. If cattle and manure were lacking, the possibility of increased production was practically non-existent' (Slicher van Bath 1963: 18). One way of increasing yields, provided draught animals were available, was simply to bring more land under the plough. A great deal of new land was cleared and brought under cultivation in the eleventh and twelfth centuries as population pressures increased, though it has been suggested that much of it had to be abandoned after a few decades as its fertility was rapidly exhausted (Bloch 1931; Abel 1935; Duby 1962; Neveux 1975). Improved farming techniques, also dependent upon increased use of human and animal labour, were an important factor in raising and maintaining land productivity: several ploughings and careful harrowing could improve germination rates and keep down weeds, contributing to higher yields and permitting the fields to be cropped more frequently. Modifications in both bovine and equine harness, which started to gain currency in Europe in the ninth and tenth centuries (Chaunu 1979), may have contributed to improved farming practice, facilitating, for example, the replacement of the light scratch-plough or ard by the heavy but more efficacious mouldboard plough. It appears that the admittedly slight increase in grain yields between the ninth and thirteenth centuries was

largely due to such factors as a more intensive working of the soil (Duby 1962: 193).

Where draught animals and heavy equipment like turn-ploughs and harrows play such a crucial role in agricultural production, it is clear that large farms, which can afford more animals and equipment and can organise their use more efficiently, will have a significant advantage over small holdings. Generally speaking, the larger the farm in medieval Europe, the more likely it was to produce a surplus. Manorial demesnes had varied enormously in size, the area of arable land varying from as little as 5 hectares to as much as 250 hectares (Slicher van Bath 1963: 44). But by the twelfth or thirteenth century urbanisation was providing an expanding market for agricultural produce, and many territorial lords, conscious that large consolidated estates were more profitable and easier to manage than scattered smallholdings, had begun to 'withdraw their demesne land from the village farms, to consolidate, enclose, and cultivate them in separate ownership' (Ernle 1972: 38). The transition to private ownership of land was directly related to the superior economic performance of large farms, for under feudal relations it was extremely difficult for the farmer to increase the quantity of land, or labour, at his disposal. By the twelfth and thirteenth centuries villeinage was dying out in many parts of Northern Europe: the peasants were freed from their feudal obligations but in many cases lost some or all of the land to which they had previously had hereditary rights, and were thus obliged to join the swelling ranks of wage-labourers.

The gulf between subsistence smallholders and successful farmers continued to grow throughout late medieval times. Rises in the price of land were, as one might expect, accompanied by increasing rates of tenancy, and the tenants that landlords preferred were not smallholders but well-to-do farmers who could afford to invest in animals and equipment, 'small capitalists' like the English yeomen, whose profit margins were higher and who could afford to pay decent rents (Duby 1962; Moore 1967). This was a period of land-hunger and widespread enclosures, during which many peasants found themselves unable to survive as independent farmers and were obliged to sell their labour.

Capitalist relations in agriculture were already apparent in many parts of Northwest Europe before the fifteenth century, by which time markets in both land and labour were well developed. Though agricultural technology was still at a primitive stage, the social relations necessary for the foundation of a 'modern', mechanised agriculture already obtained, even though the technical expertise was still lacking. Especially in the Netherlands and Britain, farming methods improved notably in the seventeenth and eighteenth centuries, and land productivity rose

accordingly. As effective drainage, scientific crop rotations and other improvements characteristic of 'high farming' were adopted, farmers continued to add to the size of their holdings wherever possible (all the agricultural experts were agreed that only large farms were efficient), and the labour force required on individual farms increased correspondingly.[5]

Throughout its development, the dynamic of the agricultural system of Northwest Europe was the superior performance of large, centrally managed units of production. Under such conditions, an immediate consequence of the expansion of the forces of production was the polarisation of rural society into farmer-managers and wage-labourers. This also had implications for wider patterns of economic development: because very few rural labourers had land of their own, they constituted a relatively mobile labour force, large numbers of whom sought work in the towns, facilitating the development of urban-based industries. Although many of these began as small workshops, run almost like a family enterprise, there were no obstacles to recruiting extra labour and increasing the size of the enterprise, and of course it was in the more sizeable units that mechanisation and the Industrial Revolution had their roots:

> Machinery can seldom be used with success to abridge the labour of an individual; more time would be lost on its construction than could be saved by its application. It is only really useful when it acts on great masses, when a single machine can assist the work of thousands . . . It is not called into use by a scarcity of men, but by the facility with which they may be brought to work in masses. (Ravenstone 1824, quoted in Marx 1976: I, 566)

Ever since the beginning of the 'Agricultural Revolution' in the seventeenth century, farmers in Northwest Europe had cherished the hope of substituting machines for at least part of their labour force, which as we mentioned earlier was relatively expensive during this period of conflicting claims for labour. But the agricultural tasks to be performed were complex, and the relatively simple skills of the early engineers were not adequate to the task. Many unsuccessful attempts were made to produce agricultural machines in the seventeenth and eighteenth centuries, and the need for such machines was felt more acutely as time passed. By the early nineteenth century engineers had at their disposal both the specialised materials and the expertise required to develop machines for agriculture (Fussell 1952). The first successful mechanical threshers came on the market in the 1830s, and agricultural labourers rioted all over England as they saw their livelihood threatened on a large scale (Hobsbawm and Rudé 1968). Reapers, combine-

harvesters, mechanical drills and horse-hoes followed. By the 1960s the proportion of the British workforce involved in agriculture had dropped from its 1800 figure of over a quarter to nearer 3.5 per cent (Mitchell 1974: 660), and by 1970 it had dropped by a further quarter to 2.7 per cent (Fream 1977: xxxii).

APPENDIX B:

The historical experience of China

The case of Southern China illustrates some of the more general changes in the economy and in relations of production which may accompany the development of rice agriculture. The most striking period of development of Southern Chinese agriculture began in the Song dynasty (960–1279), when the government initiated a series of development policies so sweeping in scope and result that they may well be compared to the so-called 'Green Revolution' of contemporary Asia (Elvin 1973; Bray 1979). The economic centre of China had first begun to shift from the northern plains (where dry grains, millets and wheat, were the main crops) down to the Yangzi rice-growing region during the eighth and ninth centuries. Fear of the Khitan and other nomadic invaders drove thousands of peasants to abandon their land in the north, and by the Song dynasty the greater part of the population lived in the southern provinces.[1] The Chinese government was faced with the double problem of feeding an increased population on a greatly reduced area, and of maintaining large armies to protect its borders.[2]

It was clearly necessary to increase agricultural production in the southern provinces, and the government undertook a series of measures to improve farming methods and yields. One of the most famous was the introduction to the Yangzi Delta in 1012 of new varieties of quick-ripening rices from Champa in Vietnam (see chapter 1). This transformed production patterns, allowing double-cropping of rice or the alternation of summer rice and winter wheat. Seeds of the new varieties were distributed to farmers through the district *yamens*, and written instructions on their cultivation methods were circulated. These were presumably intended not for the peasants themselves, most of whom would be illiterate,[3] but for the Song equivalent of an agricultural extension officer: 'master farmers', *nong shi*, were local farmers chosen for their skill and experience to fill a minor official post which carried the

duty of improving agricultural techniques in their village. They were to instruct their peers not only in new techniques such as improved sowing and fertilising methods or crop choices, but also in the organisation of mutual aid and so on. It was presumably these 'master farmers' who channelled to ordinary peasants the information contained in the agricultural books commissioned and printed on government order, which contained information on better cropping practices, new tools, machines, fertilisers and irrigation methods (*Wang Zhen nongshu*; Bray 1984: 55 ff). As well as providing information, seeds and often such infrastructural support as new irrigation networks, the Song government introduced financial incentives to invest in agricultural improvement, including loans to farmers at low interest rates, lower levels of taxation and tax rebates on newly reclaimed land (Golas 1980).

While the role of the government was crucial in stimulating agricultural development in Southern China in its initial stages, perhaps its chief success was the degree to which the rural population recognised the merits of the new technology and were willing to experiment and improve on their own initiative. There was some early resistance to innovation: for instance, some peasants objected to double-cropping because they feared the extra work involved would not be justified by the increase in yields, while landlords feared that it would erode the fertility of their soils; as more commercial fertilisers became available and varieties improved, these objections were silenced. Peasants bred locally new and improved varieties of rice and other crops, some of which travelled from hand to hand over vast distances. Landlord and lineage associations reclaimed lakeside marshes, building dyked and poldered fields, while land-hungry peasants opened up hillside terraces or migrated to the wide, fertile plains of the sparsely populated Middle Yangzi, taking with them improved seeds and advanced technology.

The Song 'Green Revolution' had its roots in the most populous, agriculturally and economically advanced areas of China, the Lower Yangzi provinces of Jiangsu and Zhejiang and the coastal province of Fujian. By the fourteenth century the changes had gained momentum and the new technology was spreading to less developed areas, until by the eighteenth century it had reached even such remote provinces as Yunnan in the far southwest.

The innovations brought about a rapid upsurge in agricultural productivity in Song China. Improved yields and the multi-cropping of staple grains produced unprecedented surpluses, and as a result it was possible for commercial cropping and rural industry to develop on a scale hitherto unknown. Rice was exchanged for charcoal, tea, oil, wine and other locally produced goods at the village markets which sprang up all

over the country, while a vigorous national trade in these and other commodities permitted intensive regional specialisation (Shiba 1970; Elvin 1973). Suzhou, near Shanghai, had already become a centre of specialised silk production by the twelfth century, and the local farmers devoted themselves entirely to raising silkworms and producing silk thread; rice they bought on the market. Another important commercial crop was sugar, which was especially popular in Fujian, Sichuan and Guangdong; in certain areas of twelfth-century Sichuan as many as 40% of the peasants were engaged in growing sugar-cane (*Tangshuang pu*: 3a). Sugar had totally supplanted rice in several districts of Fujian by the fifteenth century, and was exported not only to other provinces of China but also throughout Southeast Asia (Rawski 1972: 48). Other commercial crops included tea, vegetables, fruit, timber, oil-seeds, dyes and fibre crops, bamboos and (after 1500) tobacco. These were almost invariably produced by peasant farmers, though some landlords did possess large orchards or plantations (Shiba 1970).

There was also a very marked increase in manufacturing, most of which took the form of 'cottage industries'. The farmer's wife had traditionally been responsible for spinning and weaving, not only for her family's use but also to pay that part of the tax dues which was levied in cloth. The silk industry in pre-Song times had been small and predominantly urban-based, under official control, but during the Song it expanded rapidly, especially in the southeastern provinces and Sichuan. Some areas specialised in rearing silkworms or growing mulberry leaves, others in weaving a particular type of silk cloth. Much of the weaving was done in peasant households: brokers provided the silk thread, paid the women for their work and marketed the cloth (Shiba 1970: 111). The cotton industry, which first became important in the fourteenth and fifteenth centuries, was run along similar lines: there was a national market for raw cotton, which peasant women bought from traders at local markets, span and wove, and then sold back again. Other industries included paper-making, the production of lacquer wares, metal goods, charcoal, and comestibles such as wines, spirits, bean-curd, sauces and pickles. Again, almost all production was on a household scale, and most of the producers were farming families.

It has already been pointed out that wet-rice cultivation is not, like the farming system of Northwest Europe, subject to economies of scale, nor does it respond positively to the centralisation of management. It is therefore not surprising to find that as new techniques were applied in China and land productivity rose, the position of tenants vis-à-vis their landlords improved: they acquired more managerial and economic independence, and tenurial contracts were modified in their favour.

There were no legal obstacles to the sale of land in medieval China, and when the Song improvements brought about an increase in the value of land, many wealthy people invested in landed property and large estates were amassed. But these were not the consolidated, centrally managed holdings with which we are familiar from post-feudal Europe: they were almost invariably subdivided into small parcels leased to peasant farmers. Although a few consolidated holdings were established in areas of low population density, even in the early Song widely dispersed estates were typical of areas such as the Yangzi Delta; by the end of the Song few consolidated holdings survived (Golas 1980: 304).

During the Southern Song (1127–1279) all three forms of rental agreement known in later periods, namely sharecropping, fixed rent in kind and fixed rent in cash, are known to have existed. Significantly sharecropping[4] seems already to have been in decline in Southern China: fixed rents paid in grain were common on the large dispersed estates of the Lower Yangzi, where supervision costs on sharecropping would have been disproportionately high (Golas 1980: 308; McDermott 1978: 208). By the fourteenth and fifteenth centuries tenants in Fujian and most other parts of Central and Southern China always paid their rents as a fixed quantity, and the landlord played no part at all, even supervisory, in the process of production (Rawski 1972: 18). As cultivation techniques became more complex and the supervision of tenants more onerous, landlords took less and less direct interest in the way their land was farmed, and tenants acquired rights to greater security of tenure or even, eventually, to permanent tenancy. So secure were the rights of tenants in fifteenth century Fujian that, on payment of a fee called 'manured soil money', *fei tu yin*, the tenant received transferable and negotiable cultivation rights over the topsoil, and could sub-let or sell his rights without the landlord's consent. This system of 'two owners of a single field', *yi tian liang zhu*, was common in many parts of China right up until 1949 (Fei 1939; Rawski 1972: 190). The tenant had very strong customary rights, and often the landlord could only raise rents if the tenant agreed. Permanent tenancy rights were widespread in China even during the poverty-stricken 1930s (Myers 1982: 40).

Through the centuries there were considerable fluctuations in the distribution of landholding in China, but generally the majority of holdings in the economically advanced rice areas were either those of medium landowners, averaging 6 hectares or so (a minute area compared with the advanced farms of eighteenth- or nineteenth-century Britain, or even the size of a feudal manse), or of smallholders or part-tenants. In the eleventh century the latter constituted over 50 per cent of the registered population of Southern China and held a quarter of the land

(Golas 1980: 303). In the seventeenth-century Yangzi Delta really large landowners were rare and probably three-quarters of the land was owned by medium landowners or smallholders (Huang 1974: 158). Though landlessness did occur, and became more frequent as population growth increased the pressure on land, most peasants eventually acquired access to land at least as a tenant, and under the system of fixed rents, skilled tenant farmers could hope to save enough to buy some land of their own (Myers 1982). Fei (1939: 177) reports that even in a crowded twentieth-century village near Shanghai he met no one who had been landless all his life. Thus there was no proletarianisation of labour, and the basic unit of production remained the family smallholding.

The expansion of agricultural production appears to have kept pace with population growth in China until about 1800 when, for a number of reasons, the situation began to deteriorate rapidly. Landlords were affected as well as tenants, who quite commonly withheld payment of rent temporarily or even permanently if harvests were bad. Absentee landlords had few institutional forms of redress against defaulting tenants in China; as a last resort they would hire bands of strongmen to recuperate the rents due to them. Moore (1967: 180) and Ash (1976: 43) see this simply as evidence of the ferocity of landlord exploitation, but it also offers proof of their financial desperation and their relative helplessness in the face of village solidarity.[5]

Significantly, even though landlessness increased under such conditions, the transition to capitalist relations of production, whereby landowners evict their tenants in order to run large, consolidated farms using cheap wage-labour, did not occur in China. In fact it can even be shown that despite the huge growth of the population and the rather small increase in arable land between 1700 and the 1930s, the land tenure situation did not worsen (Myers 1982: 43).

Land reform under the People's Republic first took the form of simple redistribution: land, livestock and other capital assets were taken from the landlords and 'rich peasants' and redistributed among the 'middle' and 'lower peasants'. There were no absolute criteria for these categorisations, but in general 'rich peasants' had more land than they could cultivate with family labour alone and so they hired extra hands, 'middle peasants' worked their land themselves, and poor peasants had little or no land and had to hire out their labour. According to surveys made in the 1930s, full tenancy was not very widespread in the northern provinces, and was most widespread in the rice-growing regions of the centre, east and southeast (Myers 1982: 40). But even in the rice regions poor peasants in fact benefited only marginally from land reform since the amount of resources available for redistribution, that is to say owned

by landlords and rich peasants, in fact formed a relatively small proportion of the land and a very small proportion of the other capital assets (Wong 1973). It was only with collectivisation that the gap between poor and middle peasants was closed.

In the twenty years following the formation of the People's Communes in 1958–9, while wheat production rose by 180%, rice production rose by only 107%.[6] Wong argues that while the Mutual Aid Teams (which derived from pre-existing peasants' cooperative organisations and were the first stage in the process of collectivisation) were the optimally sized unit for efficient agricultural production and decision-making, the Agricultural Producers' Cooperatives (the second stage in collectivisation) 'had clearly reached the limit of an optimum size beyond which productivity growth could not be further increased . . . It can thus be seen that the decision to collectivise Chinese agriculture could only be rationalised on macroeconomic and ideological grounds!' (1982: 6). It is perhaps significant that Wong's studies were carried out in Guangdong, a region of rice multi-cropping.

In regions such as Manchuria, the large-scale mechanisation of wheat and maize production permitted by the reorganisation of land use has proved successful. But the chief advantage offered by the reorganisation of agriculture in rice-growing areas lay not so much in land consolidation or mechanisation as in the communal purchase of electric or diesel pumps for water control. One of the advantages is that while these pumps free humans and animals from the concentrated drudgery of irrigation work, they also often increase the frequency of cropping and the area of irrigated land, thus absorbing labour more evenly over the year rather than simply displacing it (T. Rawski 1979: 85).

But this particular advance in irrigation technology corresponds to a rather low level of social organisation, namely , the brigade or commune. Where major irrigation networks are concerned the improvements have often been rather minor, largely because the responsibility for organising water control is decentralised, and competition for the scarce resource between communes, districts and even provinces has continued unabated (Gustaffson 1984: 129). So much for Wittfogel's notions of the all-embracing powers devolving to the centralised, totalitarian state. The latest shift towards decollectivisation under the 'responsibility system' is, not surprisingly, proving particularly advantageous in areas where intensive rice cultivation is combined with the production of commercial crops or livestock (Dumont 1984).

The recent liberalisation of agricultural production under the 'responsibility system', combined with large increases in prices for agricultural products, rapidly led to an impressive increase in crop

production (see chapter 5), and to greater diversification into the cultivation of industrial and other economic crops, and rural industrialisation (see chapter 4). There has been a significant and welcome reduction in the gap between urban and rural incomes as a result. A new problem is now surfacing, however. During the sixties and early seventies 'grain was taken as the key link' and regional self-sufficiency was given priority, a policy which often resulted in inefficient use of local resources and reduced yields even of food-grains. Now the low price of food-grains relative to other agricultural products has led many peasants to reduce the proportion of their plots used for grain to the strict minimum required to fulfil the official quota, and there are fears in some quarters that this will eventually lead to national grain shortages. At a special conference of the Chinese Communist Party held in mid-September 1985, the veteran economic planner Chen Yun complained: 'Some peasants are no longer interested in growing grain. They are not even interested in raising pigs and vegetables because in their opinion there can be no prosperity without engaging in industry' (Bonavia and Lee 1985).

APPENDIX C:

The Japanese experience

An interesting example of the way in which a long-established tradition of rice-cultivation can affect economic patterns is to be found in Japan. It has often been claimed that Japan is the unique example of an Asian state which has followed the European path from feudalism to industrial capitalism. As Japan was the first, and for a long time the only Asian nation to threaten Western domination of the world market in manufactured goods, it is not surprising that many people have tried to explain Japan's success in terms of its basic similarity to Europe. It has even been suggested that over the two centuries leading up to Japan's early phase of modernisation, tenurial relations underwent basically similar changes to those which preceded the Industrial Revolution in England (Yamamura 1979), though since farms, that is units of management, became generally larger in England as they became smaller in Japan, one might question exactly where the similarity lies. But many Japanese economists, equally familiar with their own economy and with those of neighbouring East and Southeast Asian countries (which once formed part of the 'Greater Co-Prosperity Sphere' and now are seen as crucial trading partners), see significant parallels not between Japan and Europe but between the rice-growing economies of this region. Agriculture in these countries uses both land and labour intensively, and many of their common problems derive from this fact. In the case of Japan the problems have been encapsulated in the term *shōnōsei*, 'smallholder system', which is regarded by many Japanese today as a burdensome relic of an agrarian past which they believe to have been significantly shaped by the development of irrigated rice cultivation.

Tokugawa Japan underwent an agricultural and economic expansion in many respects similar to that of Song China, indeed many agricultural innovations were probably based on Chinese precedent (Furushima 1963). In an effort to consolidate their power and increase their

revenues, the first Tokugawa rulers organised cadastral surveys to tighten their control over the land-tax, and encouraged agricultural development and the expansion of manufacturing. They opened up communications networks and promoted agricultural innovation as well as the development of industry and commerce, promulgating edicts urging the peasants to work harder, drink less, engage in handicrafts and so on. Treatises on improved farming methods were published, such as the *Nōgyō Zensho* of 1697 and the later *Nōgu Benri Ron*; these were based on their authors' wide experience and intensive practical research in Japan itself, though their debt to the great Chinese treatises is immediately apparent. These works were widely read by Japanese farmers, some of who went on to write their own agricultural tracts.

In Japan, before the agricultural improvements and commercial development of the Tokugawa period (1600–1868), rural society consisted of landowning families and various categories of bondsmen. Some (the *genin*) were hereditary or indentured servants who lived with the landowner's family, but the majority were in a category more akin to the serfs of medieval Europe. These serfs had a number of regional names, the most common being *nago* (Smith 1959: ch. 5). The *nago* lived separately from the landowner but depended on him not only for land and loans of tools and animals, but often (since their allotments of land were small and unproductive) for food (Yamamura 1979: 285). The landowner's status vis-à-vis his *nago* was that of 'master', *oyakata*; he guaranteed their survival in return for labour services. *Nago* had only customary rights to their land (the landowner was legally responsible for paying the land-tax, though in fact a *nago* might be obliged to make the payment, in his landlord's name), and were thus not considered to be proper members of the village community. They had no rights to common land or water, and could not hold office or participate in the village assembly (Smith 1959: 10, 25).

But whereas Japanese peasants had previously produced rice chiefly to pay their taxes and feudal dues, and had themselves subsisted on the produce of their dryland fields (buckwheat and barley), the technical improvements under the Tokugawa allowed them to start to extend the cultivation of irrigated crops to produce rice both for their own consumption and for the market. The number of rice varieties increased dramatically; one record gives 177 names for rice in the early seventeenth century and 2,363 by the mid-nineteenth century, while a nineteenth-century agricultural diary states that between 1808 and 1866 the breeding of improved rice varieties permitted an extension of the growing period by 17 days (Smith 1959: 95). New irrigation works were built on official and private initiative, and new tools and fertilisers

became widely available. As in Song China, there was a rapid increase in the production of commercial crops. Cotton-farming in the Kinai is perhaps the best-known example, but in the mountains of Honshū sericulture became important, and sugar-cane was widely grown in Kyūshū and the islands (Smith 1959; Furushima 1963; Hauser 1974).

As agriculture progressed in Tokugawa Japan, so too the economy expanded in other spheres. The basic unit of production, as in China, was the individual household, responsible for the management of its landholding and supplementing its income by cottage industries such as the weaving of silk or cotton, wine-brewing, or the manufacture of bean-curd or pickles. The rapid expansion of textile and other commodity production was based largely upon the increased participation of peasant families in manufacturing on a household scale. Some highly specialised industries, such as the silk-brocade manufactures of Kyōto, now found they had serious rivals in the villages, where labour costs were rated on a very different scale. As in medieval China, the scope for direct investment in production was severely restricted, but there were fortunes to be made as merchants or middlemen, providing the link between local producers and the national market. A class of village entrepreneurs emerged, capable of challenging their urban counterparts (Yamamura 1979: 291), but despite the rapid growth of petty commodity production and inter-regional trade there were few instances of what we should recognise as capitalist development either in manufacturing or in agriculture.

The expansion of the rural economy was accompanied by marked changes in relations of production. The social and legal status of the dependent rural classes improved rapidly. The servant classes decreased in number while the lower echelons of the landholding class grew, and tenants who had previously been obliged to provide their landlords with various free labour-services acquired a far greater measure of economic independence. With the expansion of agricultural production and the growth of non-agricultural sources of income, labour became a marketable commodity. Hereditary servants on the large feudal farms gradually acquired greater freedom, until at last the transition to wage labour was complete; under these conditions tenants too demanded payment for any work undertaken on the landlord's farm.

The increase in labour costs made the large holdings of the formerly privileged landowners uneconomic. They could no longer compete effectively with smallholdings for 'since the one type of holding was prone to buy and the other to sell labour, the competitive positions of the two as farming units ... were drastically altered. Circumstances now favoured the family-size farm and strongly penalised any larger unit' (Smith 1959: 125). But it was not merely the growth of a market in labour which led to the demise of the old feudal system. As Smith remarks (ibid.: 92), most technological innovations of the period tended to strengthen the solidarity of the household farm. Technical improvements in rice cultivation, being closely related to the intensification of skilled labour inputs, tended to increase the tenants' degree of independence from his landlord.

During the eighteenth century there was a shift from rents paid in kind to fixed cash rents, and throughout the nineteenth century rents actually fell (Yamamura 1979: 297). But despite falling rental shares landlords continued to lease their land to tenants, and their incomes 'tended to rise, because the total value of output was larger when tenant farmers worked the land than when hired labour cultivated commercial crops for the landholders' (ibid.: 298). The gradual improvement of tenant status continued in Japan through the nineteenth and early twentieth centuries, when landlords found to their dismay that their investments in irrigation and other improvements, by increasing their tenants' financial security, brought them not more but less respect and influence in the village (Waswo 1977).

The *shōnōsei* tradition of family farming made many Western innovations in agriculture quite unsuitable for adoption in Japan. In the late nineteenth century, the period of the Meiji Restoration, Western agronomy and agricultural technology were greatly admired in Japan: officials and students were sent abroad to study, and foreigners were hired as advisers by the newly established Ministry of Agriculture. Many Western breeding techniques and some new crop varieties proved successful and were widely adopted, but Western machinery and farming methods often proved quite unsuitable. After 1880 the government decided to emphasise 'improvements within the framework of Japanese agriculture, by developing new strains of traditional crops, and by diffusing more widely the best practices of particular [Japanese] regions' (Dore 1969: 99). It was not simply that peasant farmers were incapable of adapting to the new Western technology, rather, Western technology and centralisation of management, though appropriate to capitalist farming, were fundamentally unsuited to wet-rice production. A number of capitalist entrepreneurs set up as farmers in Japan in the late nineteenth century, and those who ran livestock farms or grew industrial crops often prospered – indeed wealthy farmers producing industrial crops on large farms, using wage-labour drawn from neighbouring rice-farms, were not uncommon even in the eighteenth century (Yamamura 1979: 299) – but capitalist entrepreneurs who set up in rice-farming invariably failed (Dore 1969: 110).

In Meiji Japan the resident, cultivating landlords (*tezukuri jinushi*) were often instrumental in improving the agricultural methods of their tenants. These well-educated farmers were in the vanguard of technological advance (Waswo 1977: 33, 38). Francks argues that one reason for the success of the *tezukuri jinushi* was 'a function of their role as village leaders, hence their contact with the outside world and their participation in and leadership of agricultural societies, discussion groups and so on . . . the need for access to such non-market information sources was characteristic of the new technology of this period' (1983: 66). But their role as village leaders also enabled them to improve their tenants' performance as well as their own:

> It was an accepted part of the landlords' role that they supervise their tenants' farming – as an old saying put it: 'The trail made by landlords [through their tenants' fields] is the best fertiliser yet devised'. Given the authority landlords possessed, simply commanding their tenants to change farming techniques was often sufficient. Where innovations required greater labour or involved some degree of risk, however, economic incentives were important. A landlord in Gifu Prefecture promised to cover all losses if the advice he gave his tenants on ways to increase yields proved unsuccessful. Others gave prizes of money or tools to tenants who produced superior crops. (Waswo 1977: 39)

These landlords were active members of the local community, farming part of their land but renting the rest to tenants with whose methods they were intimately familiar and over whom they exerted both social and economic influence, such tenurial relations being quite typical of intensive rice cultivation. But although their role as instigators of technical change brought them immediate financial rewards in the form of increased rents, in the long run it undermined their position in rural society: the increased security experienced by tenants as a result of the innovations reduced their economic dependence upon their landlords, who thus lost much of their influence (Waswo 1977: 5).

But the Japanese government was ready to take over the responsibility of promoting innovation among small farmers. For this it relied not only on trained extension officers but also sometimes on police enforcement. Farmers in Japan and the Japanese colonies resented what Japanese historians sometimes refer to (in allusion to Frederick the Great) as 'extension by the sabre method', and clashes with agricultural officials or with the police were frequent, but in general the ingrained respect of peasants for their superiors prevailed: 'the incidence of compliant submission [can] be inferred from the fact that the improvements recommended did in fact become standard practice' (Dore 1969: 104).

An official report of 1910 stated that tenancy in Japan was then on the increase, and that in 1908 full-and part-tenants together constituted

66% of all farmers (Ag. Bureau 1910: 9). Increasing landlordism was in part a response to the Meiji tax reforms of 1870 which fixed land taxes at about 9% of the gross value of the land (Nakamura 1966: 160). While tenants' incomes were largely unaffected, landlords' incomes rose, and their profits were mostly invested outside agriculture in, for example, the national banks or in government bonds.

It had always been felt by Japanese statesmen that fostering agriculture was not only to the economic benefit of the state but also to its political and moral advantage. In the Meiji period these beliefs were encapsulated in the philosophy of *Nōhon shugi* (literally 'agrarian fundamentalism'): 'The principal *Nōhon shugi* beliefs included a faith in agricultural economics, an affirmation of rural communalism, and a conviction that farming was indispensable to those qualities that made the nation unique' (Havens 1974: 8). 'The ethics textbooks used in the national school system after November 1936 conferred official recognition on agrarianism as a major source of civic virtue' (ibid.: 11). In its official, bureaucratic form, *Nōhon shugi* justified a number of government programmes intended to improve agricultural productivity as a necessary part of industrial expansion. These programmes generally kept rice prices low and did not contribute to the well-being of tenants, but they held a great appeal for landowners.

Conditions for tenants and smallholders gradually deteriorated as Japan invested ever more resources in industrialisation, and their plight grew especially serious after the great crash of 1929; popular forms of *Nōhon shugi* took on anti-establishment overtones and led to several political incidents. Throughout the 1920s and 1930s landlord-tenant relations grew steadily worse, but no attempts at legislation to improve the position of tenants could be effective, for the political role of the landlord class was much too strong (Ogura 1967). A successful policy for defusing popular resentment was found in the state-supported schemes for the agricultural colonisation of Manchuria, introduced in the 1930s under the ideological influence of a private schoolmaster, Katō Kanji, whose nationalistic and expansionist ideas managed to fuse popular and bureaucratic *Nōhon shugi* (Havens 1974: 11). The colonisation of Manchuria was a crucial element in Japan's preparations for war.

By the end of the war Japan's economy was in ruins. In 1945, 46% of Japan's farmland was cultivated by tenants, most of whom were then on the brink of starvation. General MacArthur, the chief of the American occupation forces, was determined to reconstruct Japan as a healthy democracy, and the political opposition of the landlord class cut no ice with him. In 1945 the Americans set in motion Japan's First Land Reform. This provided that any farmland exceeding 5 ha leased by a

resident landlord, and all farmland leased by an absentee landlord, should be surrendered to the tenants at the latters' request within five years; that the system of rent in kind should be completely replaced with that of rent in cash; and that contracts could not be cancelled without the approval of the Agricultural Land Commission. Adjustments were made in 1946 during the Second Land Reform which went still further: the government was to buy up all absentee landlords' land and all resident landlords' land over 1 ha (4 ha in Hokkaido), which was to be sold to tenant farmers within two years of the promulgation of the law. It is estimated that 80% of tenanted land, totalling 2 million ha, fell under this provision (Ogura 1967: 145). By 1950 tenancy had fallen to 10%, and continued to fall thereafter (ibid.: 70), since the reform relieved former tenants of the heavy burden of rent which had hampered capital accumulation and limited agricultural diversification and the growth of commodity production.

Independent smallholding was thus institutionalised in Japan.[1] Since the 1950s, sustained by heavy government investment in irrigation, R & D and other development programmes, and more particularly by the rice price support policies mentioned in chapter 5, Japanese rice-farming technology has advanced steadily and has now reached the stage of integral mechanisation (see chapter 2). Increased rice yields have provided farmers with the financial basis for the successful diversification of agricultural production, and they have become increasingly prosperous. Although a large part of their income is derived from other economic activities, to the point where many of them have become part-time farmers,[2] they have not abandoned or converted their rice-fields: apart from their deep-rooted emotional attachment to rice-farming (Shimpo 1976: 45), rice production is heavily subsidised and continues to be lucrative, to the farmers, if not to the national economy. In some regions rice-farming is still expanding (ibid.: xxvi).

Compared to most other Asian nations Japan's development of agriculture appears outstandingly successful, and indeed has often been invoked as a model. But it is not without its problems. The economic inefficiencies of over-investment in capital goods, especially machinery, have been mentioned in chapters 2 and 5; rice production is at present only economically viable on farms where the rice area exceeds 1 ha (Matsuda 1982: 449). Given the increasingly heavy dependence of Japanese farmers on expensive machinery, Shimpo (1976: ch. 5) sees as a solution either the concentration of holdings into 'American-style' large, mechanised farms, or the survival of family farms owning machinery in common and working together as 'cooperative villages'.

Farmers' organisations for the joint use of machinery became common in the 1960s and are still in existence today. But the increase in part-time farming has caused organisational problems within these groups, as well as making it difficult for many farms to manage with family labour alone. For instance in the Yamaguchi City area in 1975, of 5,925 farmers all but 520 were part-time (Morio 1982). Such circumstances provide an opportunity for small groups of four or five what one might call 'professional farmers' to offer their services as contract farmers. They jointly hire or purchase larger-scale machinery and contract individually to other farmers for various stages of rice production, hoping eventually to contract for the full process, in which case they will have complete control of management over the land in question. Such organisations are described by Morio as being highly profit-oriented. But although from 1972 to 1976 the number of contract farming groups increased nationwide from 2,481 to 3,493, and in Yamaguchi from 42 to 58, the area of land under full contract was not large: in the organisation studied by Morio the four individual members had full contracts on only 11.0 ha of rice-land by 1978, a figure which had fluctuated continuously over the previous five years (Morio 1982: table 5).

Another serious problem is that heavy subsidies have resulted in overproduction of rice and constitute a heavy financial burden to the government, which is in no position to alienate the farming lobby. Many observers feel that Japanese agriculture faces a bleak future, having reached the limits of development. Many economists believe that the present organisation of rice production should be changed and greater emphasis given to diversification, for example into wheat and animal husbandry. The influential agricultural economist and adviser Ogura sees a reform of the agricultural structure as the only hope for survival, short of the disbanding of smallholder farming through government purchase. In the Japanese tradition, Ogura believes that 'the marriage of man and land is spiritually essential for the existence of a nation' (1980: 587). He feels that the necessary agrarian reforms should have as their objectives not only a higher degree of self-sufficiency in all foods, but also a reduction in the gap between rural and urban incomes, increased social justice and the strengthening of grass-roots organisations. The policies adopted should aim to foster viable family farms and cooperation between them, in part through legal reforms to ensure the inheritance of land by a single person (ibid.: 596–642).

The chief problems of Japanese agriculture today seem largely to be caused through Japanese farmers' reluctance to abandon growing rice. It was through the development of rice that Japan was able to achieve rapid industrialisation and spectacular growth in all sectors. Has rice-farming now outlived its usefulness?