

Giuliana Biagioli

Agrarian changes in
Nineteenth-century Italy

The enterprise of a Tuscan landlord,
Bettino Ricasoli

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Introduction to the Research Paper Series

Dr Giuliana Biagioli's study of the agricultural activities of a nineteenth-century Tuscan landowner is the first research paper to be published by the Institute of Agricultural History at the University of Reading. Dr Biagioli originally read the paper at a seminar in the Institute in April, 1969. In its published form her contribution inaugurates a series of separate papers - of which the second and third are already in the printing stage - which the Institute intends to make one of its permanent features. A series of seminars which were held in Lent term, 1968, preceded the formal opening of the Institute, but were published in book form as E. L. Jones and S. J. Woolf (editors), *Agrarian Change and Economic Development: The Historical Problems* (Methuen, 1969).

Future publications will be selected, like Dr Biagioli's, from papers given during the annual Lent term seminar programme, or from research completed by Institute members, or be items commissioned from scholars connected with the Institute of Agricultural History. This Research Paper series will be paralleled by a series of bibliographies, the first of which will be on Roman agriculture by Mr K. D. White, Reader in Classics in the University of Reading.

The Institute of Agricultural History has a tripartite structure, the first part being the Museum of English Rural Life, the second the Documentation Unit and the third the research and teaching wing. It was set up in 1968 as the culmination of the concentration of activities and library and archival resources in the subject at the University of Reading. The closest equivalents among scholarly institutions are the specialist research institutes within agricultural universities or attached to national agricultural institutes on the continent of Europe. Descriptions of the Institute's facilities and services are to be found (for local readers) in the Reading University Staff Journal, Number 8 (1970), (for other English readers) in *Area*, number 1 (1969), and (for European readers) in 'Die agrargeschichtliche Forschung in Grossbritannien und Westeuropa', *Zeitschrift für Agrargeschichte und Agrarzociologie*, 18 (1970). It is to be hoped that the publication of Dr Biagioli's paper signals our intention to publish a wide range of research work in the subject, unrestricted by considerations of place, period or theme.

E. L. Jones

Agrarian Changes in Nineteenth-century Italy: the enterprise of a Tuscan landlord, Bettino Ricasoli

Italy, in the first half of the nineteenth century, was still a collection of states which differed greatly in their levels of economic development, social organisation and class structures, and in most aspects even in their systems of taxation and weights and measures. Many of these economic and social differences survived until long after Unification. As a result, research into nineteenth-century Italian economic history is almost always carried out on a regional basis, covering at most the territory of a single pre-Unification State. In the present state of research more comprehensive surveys still prove difficult.

However, at times it is not enough even to stop at the level of the pre-Unification State. This is not only because of problems of sources. Official documents and the press provide certain types of information on a State level, such as on prices and external trade; but they are not complete in other fields, such as productivity, the growth of population, the diffusion of new techniques, or internal marketing. It is no mere chance that many of these questions are among the most debated of Italian historiography. Frequently, the most precise, if not always the most readily accessible information can be found in private archives, in which Italy, and perhaps Tuscany in particular, abounds. The evidence which can be gained from such sources is so valuable that one cannot but be surprised at the limited amount of research that has so far been carried out on them.

The documents presently used are from the Ricasoli Archive, located at Briola, in the province of Siena. At the beginning of the last century, the Ricasoli family, one of the oldest in Tuscany, drew all its income from a still considerable hereditary estate.

The documents examined can be divided into three main groups:

1 Books and documents relating to the Estate as a whole

These comprise the Ledgers, which detail the annual income and expenditure of the Estate; several Registers of Debtors and Creditors, and innumerable files of documents concerning purchases, sales, valuations of the property made when successive members of the family inherited it, wills, divisions of the Estate, and mortgage deeds.

2 Books and documents from the dependent estates ('Fattorie'*)

One or more registers contain information about the annual sowings, harvests and sales and purchases of produce and the stock found on the farms, or that bought on and sold off during the course of the year. Another section concerns financial dealings with the peasants, and the produce or sums of money which changed hands. The final pages contain the income, expenditure and annual balance sheet of the estate. In one group of documents - in books or on separate sheets of paper -

* Fattoria - farm (translator's note)

there are occasional descriptions of new sowings which had been carried out; of inspections of the holdings and the farmhouses; and of the tools provided as part of the equipment of the holdings.

3 Letters, Diaries, Instructions, etc

These can be divided into three main groups:

3.1 Letters from the landowner to the agent of the central estate and to the farm bailiffs. These contain the landlord's instructions on all financial and agricultural matters.

3.2 The landowner's diaries and notes about the condition of the inherited estate and the landed properties.

3.3 Letters from the agents of the central estate and the farm bailiffs.

I

The wealth and continuity of the above-mentioned documents, and the generosity with which they were made available for study, were among the reasons for the choice of the Ricasoli Archive as a first basis for research. A further reason, however, was the family's considerable political importance, particularly during the nineteenth century. From 1830 to 1880, the property was owned by Bettino Ricasoli, whose political career, both before Unification, when he was dictator of Tuscany, and afterwards, when he was twice Prime Minister of the Kingdom of Italy, is well known. His financial activities, however, while not unnoticed by his contemporaries, are less frequently remembered today. Here, Ricasoli was often guided by another famous political, or even more famous political figure, Bastogi. He was a Leghorn banker, the son of a merchant family which had amassed a fortune at the time of the Napoleonic blockade. Both the political friendship of the two men and their business relationship dated back to before Unification but it was only after Unification that their association became more critically important. Bastogi, who had been Minister of Finance under Cavour, retained this position under Ricasoli; as president of the Southern Railways* Bastogi appointed Ricasoli as vice-president and one of Ricasoli's own right-hand men as secretary. Ricasoli and Bastogi speculated in buying and selling Italian Government Stock. This involved not only the conversion of real estate into liquid capital,* an aspect which scholars have already pointed out, but also, if one of lesser importance, the purchasing of land by Ricasoli and Bastogi in partnership at the time of the liquidation of the Church property taken over by the State. This was bought not only for speculative purposes - land prices were low - but also to put to good use Baron Ricasoli's passion for, and experience of, agriculture. In fact, even when he no longer invested money solely in land, Ricasoli remained faithful to it as far as his personal activities were concerned. It must not be forgotten that just after Unification he

* 'Strade Ferrate Meridionali' (translator's note)

* The English terms 'landed interests' and 'moneyed interests' are used in the original alongside the Italian 'capitale fondiario' and 'capitale finanziario' (translator's note)

brought Chianti wine to such a standard of perfection that the formula for the mixture of grapes for this wine has since remained the one with which he had experimented and which he had adopted.

Baron Ricasoli's varied interests and spheres of activity were common to many other well-known Tuscan politicians of his time: Ridolfi, Cambray Digny, and Peruzzi are three of the most important examples. All were landowners and before Unification were interested in improving their lands: but they also had taken part already in commercial speculations and had interests in railways. After Unification, this second aspect came to the fore, to such an extent that these men were often regarded as representatives of the financial rather than the agricultural world. However, except in the case of bankers like Bastogi, the wealth which the others invested in the financial sphere had been amassed in the agricultural sector. This fact is not unimportant in determining the part played by agriculture in the economic development of Italy.

In the modern period, Tuscany experienced a kind of cyclic movement of capital: from the end of the sixteenth to the eighteenth century manufacturing and trade, which at one time had flourished, were in slow but constant decline. The capital accumulated in these spheres was gradually moved into investment in land: the wealth and population of the cities decreased. In the first half of the eighteenth century, the rural population was on the increase in Tuscany. Landed property became the most reliable source of both income and power inside the state - economic power, which, to the nobility, was becoming a substitute for their diminished political power in an absolutist state. In the second half of the century, lands belonging to the State and to many ecclesiastical bodies were put on sale at a time when agricultural prices were high; other capital was moved into land and used to expand cultivation for the growing population. In the thirst to buy more land and in the attempt to maintain what they had already bought many noble families resorted to borrowing.

These included the Ricasoli family. In the second half of the eighteenth century, mortgages on their property accumulated swiftly. The greatest effort, however, was made not to buy new lands but to maintain those they already owned, in the face of the threat represented by the dowries needed for an unfortunately large number of daughters. As the interest on money was low, but the return from land high, the payments were deferred by the usual system of mortgaging the lands and paying the sons-in-law the income on the dowries. It was a sensible economic policy but contrary to expectation the debts increased rather than decreased as prosperity continued. At that time the estate was in the hands of Luigi Ricasoli, Bettino's father. No details of his public or private life have survived apart from one constantly-recurring feature: in ten years of administering his land, he always managed to spend more than his annual income, however high it was. Like all the Florentine nobility, he used to spend two or three months of the year in the country, devoting most of his time to hunting and so increasing the expenses of the estates, because of the cost of maintaining his servants and friends. After his death in 1816 his widow was unable to reduce the expenses of an over-extravagant standard of living, so that when the eldest son, Bettino, came of age in 1830, the

estate had come perilously close to economic collapse. Bettino's first concerns were to find himself a rich wife and to reduce the family's cost of living as much as possible. Before a few years had elapsed, both aims had been achieved. The palace in Florence was closed, many servants were dismissed, and the Baron moved to the country, accompanied rather reluctantly by his young wife.

Ricasoli had a further reason for going to live on one of his estates, and in particular on the most isolated and backward. His plan was to reorganise its production, changing the systems of cultivation so as to increase the income. At that time - around 1835 - the prices of several important agricultural products had fallen again. For more than fifteen years, the landowners had been struggling against the post-Napoleonic depression of the agricultural market to keep their income at the same level. Even an unchanged level of income could, in effect, mean a loss. Until just before the depression, much capital had been invested in land, in new plantations or reclamation schemes, for example. The money often yielded no interest: production was increased, but as prices were lower, the total income remained the same. At other times, in order to bring in the same amount of money to the coffers of the central estate, expenses had to be reduced on the farm. But neither the increase in production nor the cut in costs acted as a positive counter-measure to the fall in prices. The old agricultural systems were shown to be inadequate.

II

The basic features of these agricultural systems had been laid down many centuries earlier, even before the decline of the towns. From the beginning, the Ricasoli estates had been organised on the system of 'mezzafria', or share-cropping, the system most widely found in central Italy, from Emilia in the north to the central valley of the Tiber in the south. The land was divided into a number of sections, to form 'poderi', or holdings, each of which was farmed by a family of peasants. The size of the holdings varied according to the type, extent and intensity of cultivation. According to the contract of tenancy in force in much of Tuscany - many important clauses varied not only between State and State, but also within a State - the landowner provided the farmhouse, the holding in a good state of cultivation, the livestock, and often part of the seed. The tenant ('mezzadro') was responsible for providing his own and his family's labour, which sometimes, though not always, included compulsory work in the fields for the women as well. In addition, he provided part of the seed and fertiliser, and the tools for working the soil. These were still rudimentary, even in the nineteenth century - ploughs made on the estate, scythes, hoes and spades. The wood to make them was provided free by the landlord, as was that for the tenant family's fuel, if there were woods on the estate. The tenant family's payment consisted of half of all the crops and of the earnings on the livestock.

Theoretically, it was the landlord who decided the type of crops to be grown but as he was almost always absent the tenant had come to have 'de facto' freedom. The cropping systems, the techniques used to care for the crops, and the timing of the harvests were decided

according to local custom, in the setting up of which the tenant farmers had played an essential part. Very often, neighbouring holdings belonging to the same landowner were combined in an administrative unit called the 'fattoria' under the supervision of a bailiff, the landlord's agent. He rarely inspected the fields. A peasant was sure of not being bothered, and of being regarded as a good worker, as long as he did not build up debts with the estate. However, he rarely escaped falling into debt, as only in particularly fertile districts was half the harvest enough to support a tenant family for a year.

Much of Tuscan agricultural land, except for the Maremma and other areas of plain, was under so-called 'mixed' cultivation. The chief crops were wheat, maize and legumes. However, the additional wealth of the hills lay in vine and olive cultivation, which had been carried on there for centuries; and often also in mulberry-cultivation. Cattle-raising was concentrated on the plains. The hills supported the oxen necessary for ploughing the land and also a few calves bought for fattening for a few months. Each holding was provided with a small flock of sheep and a herd of pigs, the latter being the most profitable where there were oak woods producing an acorn crop.

At the beginning of the eighteenth century, woods probably still covered a large part of the hills. The plains were often marshy and barren. The eighteenth century saw an increase in the extent of cultivated land and of the existing crops. There was both deforestation and drainage of the marsh-lands. Capital was largely invested in land reclamation: new houses were needed for the growing population; and the hills had to be terraced and the plains drained so that the new land could be cultivated.

From what little is known about the home market for cash sales it is probable that the volume of trade was small. The only urban market of importance was that of Florence. Nor did the foreign market offer many prospects. At one time the wine trade had been thriving, but by the second half of the nineteenth century it had given way to French competition on the European markets, while there was no demand for it on the Italian markets. The period of the Revolutionary and Napoleonic wars and the Continental System produced a further expansion of agriculture even in Tuscany, but it did not result in the traditional types of cultivation being changed. First of all cereals and then fruit trees spread further up the hills; the number of livestock probably decreased because of the loss of many natural pastures; and the rotations increasingly exhausted the soil. Because of the cultivation of the crops, the old holdings were sub-divided or new ones created.

By the end of the eighteenth century, the custom of letting land lie fallow had been almost completely abolished on the Ricasoli estates. A three-course rotation was practiced, in which wheat was grown in the first year, wheat or lesser cereals for the second, and legumes, especially broad beans, in the third. During the period of high prices, not less than 65-75 per cent of the arable land was given over to cereals. Sown pastures was known only in the literature of agronomics, while natural ones were becoming fewer. Organic fertiliser was scarce and the productivity of the wheat-fields low.

In the system of mixed cultivation, agricultural work was spread more evenly over the year. During this time, there were three peak

periods for the main crops: cereals, grapes, and olives. The trees, and particularly the vines, demanded constant attention throughout the year. Furthermore, the estates were concerned not only with the growing but also with the processing of agricultural produce. On the large ones where there were olive presses (as in the case of the Ricasoli estate) many weeks were spent in making oil, all estates made wine from grapes, which in itself was no small task; and silk-worm rearing was widespread on the hills. There were also all the other farm tasks - sowing, storing the produce, corn-winnowing, threshing and so on. A large labour force was needed all through the year.† The share-cropping system was maintained and strengthened by the extension of the traditionally mixed cultivation for the needs of a predominantly rural population.

About 1820, when trade picked up and prices stabilised the Tuscan landowners found themselves in a difficult situation. Relying on an income higher than the level of prices around 1820 allowed, they had invested much of their money in land and extended cultivation and they now found themselves short of working capital. On the other hand, the production of crops exceeded home demand and no outlet was seen for them on foreign, particularly European, markets, for these were often experiencing similar difficulties.

The wheat situation was satisfactory. Wheat was not overproduced in Italy. Indeed, it seems that on average imports exceeded exports. The re-opening of the ports brought its price down, but not dramatically, because of the high cost of transporting it from the coast, and because of the effective monopoly enjoyed by the landowner in the countryside. They were able to give the peasants part of their harvest, in exchange for top quality wine and oil. The problem then lay in selling these two products, which could no longer be absorbed by the rural or the urban market. The financial investments in plantations, farmhouses and irrigation of the hills were not convertible. The labour force needed on the small-holdings could not be reduced, at least not substantially. The only hope lay in the possible expansion of stock-rearing, for this market was brisk and prices encouraging; but the increases in cultivation of fodder crops beyond a certain limit would have come into conflict with the peasants' attachment to the production of wheat for family needs.

Many Tuscan landowners, faced with these new problems, became attentive to discussions about resolving the crisis of adaptation elsewhere in Europe. They thought about how to improve Tuscan agriculture and tried out the changes suggested. Great landowners like Ridolfi, Ricasoli and Pucci now spent much of the year in the countryside, took an interest in agriculture and sought for more efficient assistants than their usual bailiffs. Given the market situation for the major home-produced agricultural commodities, to which reference

† On the Ricasoli estates, the arable land under cultivation on every holding was on average 30 acres. The average size of a tenant family was ten people, of whom three or four were men of working age. On the arable lands of England, an average of two men were employed for 25-30 acres in the nineteenth century, according to data from contemporary enquiries quoted in J. D. Chambers and G. E. Mingay, *The Agricultural Revolution* (London 1966) pp 133-4.

has already been made, the landowners remained more or less united in the agricultural policy of defending free trade. Their ideal was an essentially agricultural Tuscany, exchanging its farm surplus for manufactured goods and machines from other European countries. Their best allies in this policy were the contemporary English free-traders and the memory of Tuscany's own glorious period of free trade under Leopold the Great.

But the more they counted on an agricultural future for Tuscany, the more they had to try and make agriculture competitive, by cutting the unit costs of production. The easiest way was to bring down the total costs, by reducing the maintenance-expenditure on their estates. As a result, they did not repair the farm buildings or the hydraulic systems and did not replace dead trees. At the same time they reduced the working capital used on the estates now that interest charges were lower, for example, they dispensed with buying fertilisers from outside their property, as they had done when the high price of wheat justified the expense. An increase in wheat production now had to be obtained by other means, as another way of solving the problem of reducing unit production costs more efficiently. In fact, the system of reducing expenses described above was effective in the short term, but not in the long term. If it had continued, sooner or later the landowner would have felt the loss from the rapid depreciation of real estate and the decline in the productivity of the land.

In the present state of research, it is difficult to say to what extent annual maintenance costs were reduced. The phenomenon was noted in the press, where, however, another phenomenon is also referred to: at the time of the price crisis, some landowners carried out as many maintenance jobs before on the small-holdings. The paradox is easily explained in the Tuscan context. The tenant farmer ('mezzadri') had different ways of reducing the debt they accumulated with the estate for their provisions. They gave the landlord their best wine and oil, as has been said, plus the profits on the stock. In addition, they worked on the estate as day-labourers for all the works of land improvement or important repair jobs which were not included in the contract of 'mezzadria'. If the owner decided to cancel these jobs to save money, an important source of the peasants' income disappeared. Often, this resulted in effect in a loss, instead of a saving, for the landlord. If, in fact, the crops were poor and the tenants very much in debt, without the maintenance jobs their debts increased further and there was no hope that they would ever be repaid. This is perhaps the reason for Ricasoli's different behaviour on two of his farms. In the richer one of Terranuova in Valdarno, maintenance work could be reduced without the tenants increasing their debts. At Brolio, in the hills, this was not possible. As a result, the landowner, recognising the situation at Brolio as more urgent, introduced new techniques there as soon as possible, so as to increase production while keeping costs at the same level. Ricasoli's tenants marked time at Terranuova for twenty years - while the productivity of other farms in Valdarno became greater. When Ricasoli realised this, he decided to modernise the system of cultivation and the situation improved at once.

The plan of increasing production without commensurately increas-

ing costs necessitated a reorganisation of the agricultural system. Discussion and experiment were concentrated in three main directions:

1 Improvement of methods of crop-growing and a new equilibrium for mixed farming

Livestock prices were the first to show clear signs of recovery, soon after 1830. For some years discussion centred on the possibility of a new crop rotation which would allow space for growing fodder without sacrificing too much wheat. The four-course system suggested by Ridolfi, which left half the arable land for cereals, was the most popular. It was none other than the Norfolk system adapted to Tuscan conditions. Ridolfi had introduced it on to his lands at Melto, and following his example Ricasoli made it compulsory first at Brolio, and then at Terranuova.† The expansion of cattle-rearing was an important development in Tuscan agriculture because it marked a further step away from the closed circle of a natural economy.

Together with the rotation experiments went attempts to introduce crops which were not then widely grown in Tuscany. Attempts were made to extend the cultivation of potatoes, beet-root, turnips and carrots, but their success cannot be gauged at the moment. Meanwhile, Ridolfi and Lambruschini concentrated on improving cultivation techniques, studying new types of ploughs and other farm implements: at Meleto Ridolfi opened the first factory in Tuscany for making such implements, and Ricasoli was one of his customers.

2 Improvements of industrial work on the estates

The main challenge was to produce wines of superior vintage which could capture a new market. Much interest was also shown in silk worm eggs. In the early part of the century, the manufacture of straw hats increased in the hills around Florence and the lower Arno valley, bringing in a considerable income to the peasant families.

3 Expansion of internal and external trade

At various times all the great landowners were interested in the opening of new roads, the building of bridges over the main rivers, and in railway construction. In the last case, they cornered shares and fought to obtain the royal patent for one particular route rather than another, not only as a matter of financial speculation but also in the hope of favouring agricultural development in particular areas.

It is very difficult to say precisely how many Tuscan farms were affected by such processes of modernisation. Many names can be found in the agricultural journals of the period, but for the most part reference is made only to large estates. It is not known whether small

† When he replaced the old rotation system, Ricasoli consulted Ridolfi (cf 'Carteggi di B. Ricasoli', edited by M. Nobili and S. Camerani, Vol. I, pp 128, 135, 143). Afterwards, the four-year rotation spread over a wider area. In Chianti many landowners adopted it, following Ricasoli's example. Even more significant is the fact that after Unification, when Ricasoli asked for information about the cultivation of the Val die Chiana, he was told that the four-year rotation was one of the systems practised there.

and medium-sized farms were affected. Certainly Ricasoli was not the most important innovator among the great landowners. Except for his prudence in changing things. He was not unaware of what was being written in the new treatises on agronomics but he attached greater importance to practice and the financial results of innovations. Apart from one or two articles about the improvements he had introduced on his estates,† and of which he was very proud, he was most reluctant to write about agricultural matters. Only an examination of all his notes and instructions gives an exact picture of the modifications he introduced year by year.

As has already been mentioned, his early activity was mainly on the Brolio estate. In 1842, Ricasoli summed up the five-year period of experiment there in a remarkable 'Agricultural Code', which laid down the rules for all the tasks of the farm. The tenant farmer's freedom in matters of cultivation was suppressed and all resistance was in vain. The tenant farmer, still officially described in the press as a 'colleague' of the landowner, was reduced to the status of a permanent worker, paid in kind.

The main innovations can be summed up in this way:

(a) Rotation of crops

The type of four-course system introduced at Brolio worked as follows:

1st year Dung was spread on the land which had previously been hoed and dug. Then the seed was sown and kept free from weeds. On the hills the crop was mainly beans, which had been grown previously. On the plain, in Valdarno, beans, beetroot and a few potatoes were sown. Maize and flax were forbidden as being too exhausting for the soil.

2nd year wheat

3rd year Artificial grasses (clover and sainfoin on the hills).

4th year Wheat, or cereals like oats or (on the hill-tops) rye.

The tenant farmers were opposed to this plan for two reasons. To begin with, a 20 per cent reduction in the area devoted to cereals made them fear that their already insufficient share of wheat would be further reduced. In addition, the new rotation demanded more work than the old, because they were now expected to dig and hoe a quarter of the area of the holding every year. The landowner was right in thinking that, in the then current state of agricultural technique forks and spades were more efficient than new ploughs for working the thin soils of the hills, with their narrow terraces and dense cropping. However, the peasants saw that their work load was increased, without adequate compensation. Only in Maremma, where manpower was scarce, did Ricasoli experiment on a large scale with labour-saving agricultural machines, like sowers, reapers and threshers. The most modern ploughs then available were also bought for the Maremma

† See B. Ricasoli: 'Relazione sopra i miglioramenti agrari e morali della Fattoria di Brolio' in 'Continuazione degli Atti dell'Accademia dei Georgofili' XXII, Florence, Vieusseux (1844), pp 93-105; dem., 'Di alcuni miglioramenti intr dotti nella fattoria di Brolio' in 'Giornale Agrario Toscano', ns. II, Florence, Vieusseux (1855), pp 373-9. This second article deals with silkworm-rearing.

estate. Ricasoli cultivated the lands by direct management with hired workers for some years until, after working out how much the machines and labourers cost him, he decided that all this was more expensive than the labour force of tenant farmers. Many of the machines were sold and the system of 'mazzadria' was set up.

The new rotation had been beneficial both on the hills and in the plain. It enabled a larger number of cattle to be kept on the farms. Wheat yields at Brolio increased from an average of seven bushels an acre to 11 bushels and at Terranuova from 13-14 to 18-19 bushels per acre. Productivity was low, nevertheless, compared with that in England in the same period, but in Valdarno it was not less than the level of the formerly more advanced Lombardy.

(b) **Forestry**

Since stall-feeding of the animals had been made possible by the new rotation, the wood of long-trunked oaks on the hills of Chianti was largely put to use as fuel. This made it possible to take advantage of the increased demand for firewood and charcoal on the Florentine market, now made more accessible by the opening-up of new roads. The peasants continued to receive the wood they needed, but the stall feeding increased their work. They did not derive any cash benefit from the increased profits on the wood, for the income was reserved solely to the landowner.

(c) **Viticulture and wine-making**

Particular attention was devoted to wine on the Brolio estate. The rules for wine-making were scarcely different from those of traditional methods, except that the number of grapes from each plant was reduced. The aim was, in fact, to produce a better quality of wine: the quantity produced was important only for the tenant farmers, who could not see the problem in the same terms as the landowner. The Baren's experiments in wine-making lasted decades. During this time, at about 1850, prices had begun to rise again, after twenty years of stagnation. One short-term cause was the disease of 'oidium', the mildew which attacked the French vineyards some years before the Italian ones. But after Unification, even after the disease had been overcome wine prices remained at a fairly high level, because of changed market conditions. After 1850, not only wine but also olive oil prices rose, as also did livestock prices. Wheat experienced short periods of recovery, but did not rise much in the long term.

The recovery of wine prices was particularly advantageous for Ricasoli. Around the 1860's, his Chianti wine began to gain a wide reputation in Italy. On the other hand, attempts to capture the foreign market were still in the experimental stage at the Baron's death twenty years later.

(d) **Stock rearing**

While in Chianti the greatest profits continued to come from pigs, in Valdarno the greatest numerical increase occurred in cattle. In the second half of the century, every holding on that estate was provided with 8-12 head of cattle, with a high proportion of Swiss milch cows. Butter and milk production increased substantially, and these commodities probably found their way to Florence. About 1870 the profits on stock at Terranuova were triple their value at the beginning of their century, though the estate was still the same size.

(e) **Silk growing**

Around the 1850's Ricasoli began a series of experiments in silkworm farming. The estates sold cocoons and eggs. The profits became high just before 1860, when Northern Italian farms were decimated by disease. The Tuscan ones remained immune from it for some years. Ricasoli went himself to the North to sell his silkworm eggs, which he said were free from disease thanks to the rules of hygiene observed on his farms. It cannot be said whether this claim was completely well-founded since someone protested that Ricasoli had sold him diseased eggs, but fortunately everyone was now close to defeating the infection.

Tuscan agriculture remained generally prosperous from 1850 until just before the 1880's. Since his income was increasing, Ricasoli was encouraged to carry out the maintenance work on his farms which had been neglected during the period of stagnation in agricultural prices. So it is that an examination of the income and expenditure of the estates reveals that the proportion between them remained more or less constant over the period, in spite of innovations in cultivation methods which should have reduced the costs per unit area. Invariably when incomes began to rise Ricasoli allowed more money for the replacement of old plantations, re-afforestation projects, the embankment of streams and land drainage works. The expenditure on repairing the farm buildings rose again. In addition to such voluntary increases in expenditure there were others independent of Ricasoli's plans, like the increased tax burden immediately after Unification, or the cost of the sulphur needed to fight disease in the vines. The result of the increased productivity of the soil and of modernisation was to keep costs in the same proportion to gross income. The landlord's position and the income of the estates were further increased by another invisible gain. With the increase in production per hectare, the tenants' debts were reduced (on the Terranuova estate, the tenants were instead in credit with the estate after 1860). Since tenants' debts were almost irrecoverable, the estates were now relieved of one source of loss. Admittedly, the tenants had been compelled to achieve this by supplying a larger labour force on the holding. For example, it was more usual now to see the women of the tenant family employed full-time on farm work or on agricultural work like silk-growing, while domestic activities like spinning had been curtailed and employment outside the estate, like wet-nursing, was forbidden.

On Ricasoli's property, the return on fixed capital invested in land remained at an average of seven to eight per cent from 1850 to 1875. The net value of his hereditary estate, after subtracting debts, was estimated at 850,000 lire in 1850. The money saved between 1850 and 1860 went to pay the debts and to buy the Maremma estate, and for the early purchases of railway shares. After 1860, land and railways remained the spheres of investment, but with the latter clearly predominant. The land bought in conjunction with Bastogi brought them a nine to ten per cent return on capital. The exact yield of the southern railways' shares is not known. Soon after 1880, the estate was estimated at a net value of almost five million lire (using the value of the lire after deflation). The debts had disappeared. The properties at Valdarno, Chianti and Maremma, and shares and debentures to the

value of over two thousand lire, were all showing a profit. The lands bought after Unification had been re-sold. The registers of the central estate have been lost, and it is not easy to establish exactly which sector of investment contributed most to the increase in the value of the property. Several considerations, however, can help to solve the problem. During the thirty years 1850-1880 a net income of just under four million lire came to the central estate from the other lands. From this must be subtracted the Baron's household expenses (his wife had died and his only daughter had married). If we consider such expenses at the same level as in the first half of the century, even before the move to Brolio, we must deduct from the four million lire a little less than a million and a half lire. Even so, in thirty years agriculture would have provided a net income of two and a half million lire for re-investment. Thus the contribution of the agricultural sector to the increase in the estate's value as it appears in 1880 seems decisive, particularly because the maintenance costs should not be subtracted simply from the income from the farms.

III

Agricultural prosperity was not destined to last long after the Baron's death. He had been dead for only a few years when, in 1885, his old friend Cambray Digny fought in the Senate against the proposal to protect the corn trade. He quoted the case of his own estates in Tuscany where the reaction to the crisis in grain prices had been to extend the cultivation of fodder crops and the rearing of livestock, with the result that income had increased. On the Ricasoli estates, too, the area devoted to wheat had been reduced below the 50 per cent of earlier years, and already Ricasoli had planted several specialised vineyards. It is impossible to say what would have happened in Tuscan agriculture without protection for the corn trade, and whether it really had the flexibility necessary to adapt itself to the new market conditions. Certainly protectionism was not conducive to any re-adjustment. And soon there came another blow to the agricultural economy of the region with the appearance of phylloxera, the most formidable enemy ever to have attacked the vine, the wealth of the hill lands. The stimulus to and the opportunity for further innovation was lost. It is significant that from then on Tuscan agriculture increasingly lost ground, and remained unchanged for a long time. In the present century, Fascism encouraged the survival of traditional agriculture, with its cultivation of corn on the hill-terraces, at a high cost for both the landowner and the tenant farmer. Only after the industrial boom of the 'fifties, when the labourers began to leave the land 'en masse', were the landowners forced to revise the post-Ricasoli system of cultivation.