

→ Conf. de Kithochxida (cf. ROSC, 15, 2002-2003 : 25-29)

I am very grateful to have been invited to speak at this conference, all the more so since it provides a good opportunity to discuss research in an European perspective. For as I shall try to show, it is in such a perspective that agricultural history can best be understood, even when the questions to be answered seem limited to within the borders of one particular country.

Since I have been asked to speak on « Farming and rural history in Europe, late 18th to late 19th century », let me propose two specific dates which seem to me to be the best possible landmarks for the beginning and close of that period : 1786 and 1878.

What happened in 1786 that was so important ? My students in Paris are usually at a loss for an answer, if only because 1789 looms so large in their history handbooks that everything else is dwarfed by comparison. Here in Scotland, you all know that it was in that year, in the vicinity of Edinburgh, that Andrew and George Meikle completed the first successful threshing machine. And you also know how, from Scotland, news, drawings and models of the new machine quickly reached countries as far away as Russia and North America. You know, for example, that Thomas Jefferson had a threshing machine set up at Monticello as soon as 1793. At the time, events in France were not favourable to this kind of innovation. But as soon as peace returned, in 1815, threshing machines were brought into the country, and it was not very long before they began to be made there. Unfortunately, the development of what was to become a whole new branch of industry has not been properly studied¹. From old machines found in local museums or from advertisements found in old newspapers, however, it is obvious that the industry grew pretty quickly, especially after 1850. And of course, the French case was by no means especially remarkable. The same development occurred everywhere in Northern Europe, with only some differences of chronology between countries.

This very success shows that the threshing machine was not an isolated invention. To my knowledge, the first proposal of a machine for threshing grain to be publicly made dates back from 1722². Other projects soon followed, so that in a book published in 1769, *L'Art des battre, écraser, piler, moudre et monder les grains*, The author, Bellepierre de Neuvéglise, was able to record a dozen of (usually unsuccessful) machines, and that from four countries only : Sweden, Denmark, Italy and France. Now since there is no reason to suppose that the other countries were less active, it means that a complete list of inventions contrived in the 18th century would plausibly be in the order of fifty, or more. Obviously, the threshing machine was the outcome of many prolonged efforts by a lot of people all over Europe. And if the Meikles were the first to be really successful, their success had been well prepared by the half-successes and failures of others. The threshing machine is a fact of civilization.

There is no need to belabour the point further.. You also know that as soon as the threshing machine was completed, inventors turned to the mechanization of harvesting. The story, again, began in Scotland, but it found its ending in the United States, between 1835 and 1840. So that when the first World Exhibition opened in the Crystal Palace in 1851, it offered the most splendid opportunity for agricultural machinery to make its début. Thus, agricultural machinery may be said to have come of age in 1851, after being borne in 1786.

At first view, what happened in 1878 does not seem to have much to do with what happened in 1786. No invention of special significance is recorded for that year. What happened was something of a quite different order. It was in 1878 that cereal imports from North America began to overflow the European markets, a dominance that was to continue for the next sixty years.

At the time, very few people were able to understand the full significance of the event. Typically, landlords and farmers saw it as another case of unfair economic competition (unfair because coming from abroad, of course), and they reacted by demanding protective tariffs. After some years, they got them (in France, I mean) and the grain imports were reduced, but that only in good years. In bad years, nothing could stop them, which had a very important result : the age-old recurrence of price hikes due to shortages was put to an end. My argument here is that 1878 was not just the beginning of an economic crisis. It was much more than that, it was the beginning of the end of the economic *ancien régime* . This *ancien régime* has been adequately described by Malthus, and I do not intend to add any further comment here. The only point I want to make concerns scarcities or famines.

Scarcities recurred irregularly, but pretty often - say, one year in three or so - and they played a crucial rôle in keeping open the gap between the rich, who made extra profits from high grain prices, and the poor, who each time lost a large part of what they had been able to spare in better times. Since shortages could not be helped, poverty was deemed by everybody, including the poor themselves, to be a fact of life, as inevitable as rain or wind. Nobody, even the most imaginative utopian, could dream that things could ever be otherwise. And as I shall try to show, ideas had not changed much by the 1870s. Scarcities had been made a little less severe by a number of causes , the main one being the development of imports from the Black Sea countries. But important as they were, those imports were not enough to break the cycles of plenty and scarcities. Until the 1870s, scarcities were still very much there, and they were a concern for every government not oblivious of what had happened in 1789, in 1793, in 1830, in 1848, etc. Until the 1870s, the Malthusian mechanics of recurring scarcities was still fully operating throughout Europe, including, I would argue, Britain.

Indeed, the harvests of 1878, 1879 and 1880 were bad all over Europe, and in the normal state of things, grain prices should have skyrocketed. They did not, because they were prevented to do so by an unprecedented rise in imports, mainly from America. A few people began to realize what was happening, for example A. Ronna, who in his introduction to his book on *Le blé aux Etats-Unis d'Amérique* (1880), wrote the following :

...it has taken two successive bad harvests in Europe, extending not only to wheat but to its substitutes rye, barley, maize and potatoes; it has taken enormous cereal imports from America to wake up the public attention toward a country with sufficient resources to make good a deficiency of one hundred million hectolitres of grain in two years , and *to close alone the era of famines and of scarcity prices.* (My italics.)

Ronna was not one of the most famous agricultural writers of his time, and I did not manage to find his biographical data. But he was among the very few who saw clearly the magnitude of what was happening. He was right on two accounts : 1°, The avalanche of American cereal

imports was no accident, it was the results of developments that had begun many years earlier in America, but that had been overlooked in Europe ; and 2°, the scale of the phenomenon was unheard of, it would make the recurrence of scarcities impossible.

Ronna's conclusions were completely borne out. Between 1878 and 1894, French grain imports peaked at 2 200 000 tonnes (in 1879) and only twice went down below 900 000 tonnes (in 1885 and 1886), whereas in the preceding years, they had exceeded 900 000 tonnes only twice (in 1861 and 1871). In other words, the low points of the curve of imports between 1878 and 1894 were about where the peaks had been during the thirty years before. It was only in 1895, after several tariff increases, that the inflow was stemmed, but in plentiful years only. In poor years, imports peaked as high as before, reaching the 2 000 000 tonnes level twice, in 1897 and in 1911. As Ronna had rightly understood, famines and scarcities were not to come back again.

What happened in the 20th century is beyond the limits of this paper. It must be stressed, however, that the course of events was a direct consequence of the destruction of what may be called the Malthusian regulation system. Real wages (that is, the quantity of food people were able to purchase with one workhour) began to rise, meaning that with the same quantities of grain produced, landlords and farmers could buy less and less manpower. Therefore, if they did not want to go out of business altogether (many did), they were forced to spare labour by every means they could think of. One of those means was to invest in machinery and similar devices, which lead to further increases in labour productivity, and, again, in wages ... A virtuous cycle of growth, as we know it today, replaced the vicious cycle of Malthusian Economics.

I am aware that many objections can be made to this way of looking at things. I would fully agree, for instance, that economic growth was not unknown before 1878, and that it sometimes halted afterward. But what is meant by «growth» ? My point is that as long as food production is not directly concerned, the basic ratio of food resources against population cannot change, so that the Malthusian mechanism remains in force. This is perhaps what happened in Britain during the High Farming period. The rich and the well-to-do increased widely in numbers and wealth, but the poor remained as poor as before. So that in a society where wealth had become so prevalent, poverty was increasingly seen as some mysterious sort of plague, which was renamed «pauperism». But it is not impossible that poverty may have been a necessary condition for High Farming itself, as was suggested by Naomi Riches in her chapter on «starvation wages» in Norfolk³. Be that as it may, the sudden rise in American imports caused as much concern and trouble in Britain as in France. And exactly like the French, the British sent experts to America to investigate. At the time, Britain was universally regarded as being economically far more advanced than continental Europe, but it does not seem to have made much difference. The shock of American imports was the same on both sides of the Channel, and the consequences were similar.

Another question must be answered. Is it true that nobody had foreseen what would happen, and if so, why ?

Again, I must agree that to say «nobody» is to say too much (or too little). America was steadily travelled by a flow of European experts, some of whom were quite capable to perceive the consequences of what they saw. Indeed, Ronna quotes one such expert in his book (p. 323) :

Hardly ten years ago, when the influence of American corn on our markets was still in doubt, M. Foucher de Careil, coming back from the United States, stirred up movements of incredulity among our farmers by telling them of the incomparable fertility of North American soils, of transport and commerce facilities, of granaries being continually rebuilt, and of machines always on the move for harvesting the products of American agriculture.

This is, it can be said, just another example of Cassandra's Law : experts are only believed insofar as their warnings can be put to some immediate use. At the time, neither French farmers nor anybody else had anything practical to do with Foucher de Careil's warnings. So they just ignored them.

But I believe that there is more to the point than just public disbelief. I would argue that then as now, the public debate was obscured because it was dominated by economists, and that then as now, economists were not really interested in technology.

In the 18th century, economists, beginning with the Physiocrats, thought of one miracle solution : *laissez-faire*. The idea was that if only commerce was allowed a complete freedom of action, it would suppress famines and gluts by taking grain from where it was abundant and cheap, to carry it to where it was scarce and dear. Freedom of commerce would naturally result in a natural or automatic compensation system.

On the surface, the idea was bright . On a closer look, it was easily shown to be all but worthless (see for instance the *Dialogues sur le commerce des bleds*, by Abbé Galiani, 1770). Among the many reasons why it could not work, I shall select only one : uncertainty. Commerce needs a reasonable degree of previsibility. That degree could exist for products like Bordeaux wine, Galiani explained. For grain, notwithstanding some important exceptions like the Baltic-Netherlands connection, it did not exist and could not be expected to exist anytime soon. In an age where railways, steamers and the telegraph could not even be dreamed of, it was all but impossible to tell exactly when a boatload of grain would reach its destination and what price it would fetch there. So, commerce was possible on two conditions only. 1° That grain would be sold at a minimum, settled price, which meant a government intervention to guarantee that price. Or 2° that grain could be expected to sell very high, to balance the ever present risk of loss. In the first case, commerce was no longer free, but subsidized. In the second, commerce needed the very scarcities it was supposed to alleviate (to the point of trying to produce them, when it got a chance). In one word, commerce was not the simple and neutral mechanism for transferring goods that most economists fancied it to be. The levelling off of bad harvests by good ones was not a realistic idea. And the fact is that it did not occur before the late 1870s, at least not in France. Until then, price fluctuations remained very large. Grain imports increased considerably, mainly from the Black Sea area (Rumania, Ukraine). But those imports took place in bad years only. In good years, France

imported no grain at all, and even exported significant quantities. In a way, the episode going from, say, 1815 to 1875, shows what commerce according to the Physiocratic model was able to achieve : a significant improvement of the situation, but no fundamental change. Average grain prices remained high, and price fluctuations remained large.

Now, the point I want to make is the following : if economists put so much emphasis on so poor an idea - the levelling off of shortages by gluts - it was because they were unable to think of anything better. Progressive-minded as most of them were, they simply could not imagine anything more than marginal improvements in a sector like agriculture. As late as 1885, another agricultural writer rather more famous than Ronna, Eugène Risler (1828-1905), was still unable to propose anything else than the century-old programme of Arthur Young (more fodder crops, etc.). If that programme was finally implemented, he argued in a paper on « La crise agricole en France et en Angleterre »⁴, average cereal yields would increase by 2 to 3 q/ha, enough to put French farmers on a par with their American competitors ! Risler was not unaware of the spectacular development of machinery in America, for nobody could be at the time. But strangely enough (for us), he seems to have been unable to take it into serious consideration. And in that, he was not alone. Machinery is also conspicuously absent from Lord Ernle's *English Farming Past and Present*, issued in 1912.

A further example of this kind of shortsightedness (I shall qualify the terme later on) can be found in the discussions concerning colonization. By the first decades of the 19th century, boundless expanses of land were open to European colonization and began to produce increasing quantities of grain. What could be expected from these «new» countries ? Not too much, warned most economists. New countries had all the advantages of being new indeed : virgin soils of high fertility to be had for nothing, no taxes, a scarce and frugal population, etc. But with time, all those advantages would disappear. Soils would get exhausted and need manuring. Population would increase and claim a larger share of the harvests. The value of land would increase, governments would establish taxes, etc. Finally, new countries would become like the old. The Malthusian situation would reestablish itself worldwide. Good and bad harvests would continue to alternate, and the only thinkable way to mitigate the hardships due to price fluctuations would still be commerce as the Physiocrats had understood it. In his *Cours complet d'économie politique pratique* issued between 1828 and 1833, Jean-Baptiste Say, a great believer in industry and mechanical progress anyway, did not foresee anything else. In his opinion, the future of mankind was in tropical countries, with their seemingly inexhaustible fecundity.

These dismal forecasts were not entirely baseless. Toward 1830, North America beyond the Mississippi was still considered an uninhabitable desert. On the other hand, countries like India or Egypt were included in the list of «new» countries, which implied that the needs of their native populations were more or less negligible. But the main cereal exporting area of the 19th century before the 1870s conformed pretty well with the Physiocrats' model. Rumania, Ukraine and Southeast Russia were truly «new» countries. They had been recently open to colonization. And they were colonized by East European peasants who more or less reproduced the agricultural systems they were used to. So, the Black Sea countries had all the advantages of being new, but they had no other. They were able to send large quantities of

grain to West Europe in times of scarcity. But in times of plenty, their competitive advantages fell to zero, and they could sell little or nothing at all, which was certainly not a proper incentive for modernization. In other words, the Black Sea countries just joined the West European Malthusian system. They loosened it somewhat, they did not break it.

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Finally, I shall argue that if American exports achieved what exports from other countries did not - pulling down the old Malthusian system - it was not because America was a «new» country, it was because America was a new *and* a mechanized country. We have seen above that agricultural machinery was born in Europe in 1786. Its subsequent development there is not to be underestimated. But it was gradual, because it had to adapt to existing structures, structures so deeply rooted in everyday reality as to appear immutable to most minds. In America, mechanization was not constrained by preexisting structures. In agriculture especially, it progressed by leaps and bounds, until a level of efficiency was reached which was far beyond what the most enlightened Europeans had been able to anticipate. The story of agricultural mechanization in Northern America has been told many times. It is a story of ploughs and drills, of harvesting and threshing machines, of elevators, railways, canals and steamships, of mills, of stock exchanges, etc. When the system was completed, in the 1870s, wheat from the Middle West could travel all the way to Europe and be sold there with a handsome profit, even when native wheat was at its cheapest. Unlike the other «new» countries which joined the age-old European pattern of physiocratic commerce without disturbing it, America undercut it and finally destroyed it. With wheat prices today at probably less than 2% of what they were in the 1870s (expressed by the ratio of current wheat prices against salaries), it is no exaggeration to say that we live in another universe. But it took time to perceive the magnitude of the change, and from that viewpoint, it was unfair to charge people like Risler or Lord Ernle with shortsightedness. They were not especially shortsighted, they just belonged to their universe, as we belong to our own.

Let me add a last concluding remark. Agricultural machinery was born in Europe, and I proposed 1786 for its birthdate. But it was only after a detour by America that it came back to revolutionize its native continent, and I proposed 1878 for the date of this coming back. It is now quite clear, I think, that 1878 is a direct consequence of 1786. The two dates belong to the same historical process.

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¹ With one exception : R. Bourrigaud, *Le développement agricole au XIXe siècle en Loire-Atlantique*, Nantes, 1994.

² F. Sigaut, « Y a-t-il eu des innovations techniques en agriculture avant le XIXe siècle ? », *Bulletin de la Société d'Histoire Moderne et Contemporaine*, 1999, 1-2, 82-96.

³ N. Riches, *The Agricultural Revolution in Norfolk*, 1937, 133-142.

⁴ *Revue des Deux Mondes*, 1885 (3) : 531-567.