DEBATES

History and Tithes *

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The subject before us which has attracted some controversy in recent years is one of the most important in history, because the majority of the human race – at one time, from 80 to 90% – were engaged in agriculture for their survival, and also because the Third World countries nowadays place great hopes in the possibility of development through agriculture, hopes which have for a long time appeared justified by the European example, and more particularly by England's success in the XVIIIth and XIXth centuries. We are then right to take the problem seriously and to study it with the utmost caution and scientific rigour. In my view the general report of the group on agriculture, despite its merits, overlooks much of the richness of the individual communications and pays insufficient attention to methodological problems, while the interpretation shows the same lack of accuracy and precision which marred the report of the first conference in 1969. Above all, it narrows the breadth of the subject down to a restricted and inflexible range of problems, so making it impossible to tackle a number of related issues. I shall develop my argument along two lines: firstly, remarks relating to questions of method and sources and, secondly, some consideration on the nature of the problems posed by this topic and their potential breadth. Of course I shall remain as objective as possible.

A. Questions of method and source

The documentary sources available for the study of agricultural production before the appearance of contemporary statistics often conceal many pitfalls,

* Report for the 7th International Economic History Congress at Edinburgh (1978). Section: History of Tithes (Reporter: Emmanuel Le Roy Ladurie).

as several of us demonstrated as early as 1969. Most of the published papers go to great lengths to define the degree of reliability of the sources they have used and the conditions in which their argument was developed. Joseph Goy drew up a catalogue both of these sources and of the methods of analysing them, which was on the whole very comprehensive and satisfactory.[1] However the presentation of the report in two sections which separated the documentary basis of the project from its conclusion (the latter being the work of Le Roy Ladurie) is essentially mistaken. It suggests, and the second part of the report does not belie this impression at all, that once the nature and the limitations of the source are known, once its representativeness has been defined, there are no further obstacles to its interpretation and so the study can move ahead without any further consideration of the problems posed by the sources. This is wrong, and leads to a mistaken procedure which is likely to produce incorrect conclusions and imaginative fictions.

The accounts kept by Widow Couet, which Emmanuel Le Roy Ladurie used in the final report after the first Paris conference provide us with a good example. I shall devote some space to this because it is a very typical example. First of all, some brief description of the importance which these accounts have in Le Roy Ladurie's argument is needed. He wanted to disprove Georges Frêche's claim that tithe records alone were an inadequate base for assessing agricultural production, especially cereals. Georges Frêche's reservations were indeed sensible and encouraged him to use the sources with great care. However he did not believe that these reservations rendered the material useless and he himself used them widely. But this qualified guarantee did not satisfy Le Roy Ladurie. Exaggerating his opponent's thesis almost to the point of deforming it, he then confronted him with Widow Couet's accounts which he discovered after the conference and which in his view proved that "the low level of receipts for tithes during the Wars of Religion for example corresponds to an effective drop in real agricultural production". (The accounts cover the years from 1552 to 1572). In this way he is supposed to have demonstrated that tithes are faithful indicators of the state of agriculture.[2]

The allegation and challenge are themselves strange, for Widow Couet's harvests came from a vineyard that she farmed and they could only be used in a study of tithes if they could be compared with an accurate series of tithe statistics for the region where the lady's vineyard was situated. One would also have to show that the type of farming was representative of local agriculture. The vineyard in question covered an area to two *arpents* — *less than an*

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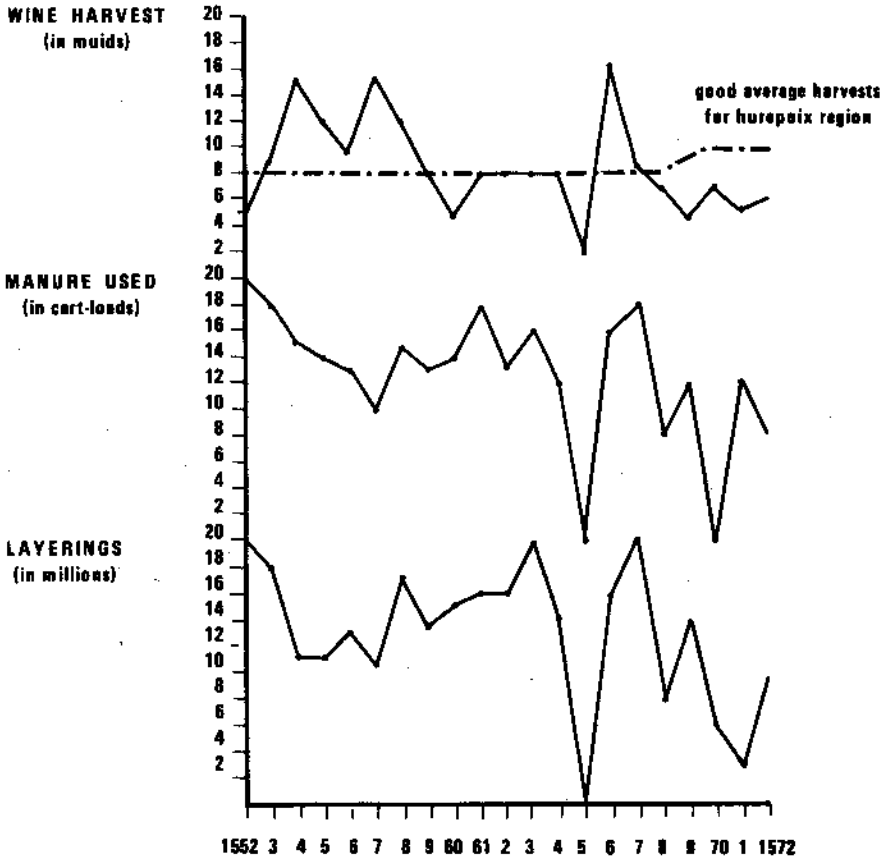
[1] **Joseph Goy** in the first part of the general Report. In dealing with the accounts of the **producers and landowners** he overlooks the widespread fraud in XVIIIth century France.

[2] EMMANUEL LE ROY LADURIE (with the collaboration of J. GOY): 'Première esquisse d'une conjoncture du produit décimal et domanial. Fin du Moyen Age-XVIIIe siècle' in *Les Fluctuations du produit de la Dîme*, pp. 350-351.



WIDOW COUET'S 2 ARPENTS OF VINEYARD
1552 - 1572

hectare — at Antony near Paris and 5 km from Sceaux. In any case, this is a very small sample to support any claim for representativeness for the area around the capital or even for Hurepoix alone. But it is absolutely inadequate as a demonstration of the development of tithes *in the whole of France*[3] and especially for tithes on corn, since vine yields have a variability of their own which is further affected in this case by their situation in a relatively northern latitude. In short, the example is inadequate for the case it purports to prove. But worse is still to come; developing his argument, Le Roy Ladurie links the results of the harvest with the manuring operations carried out on the Widow's behalf. He goes on to make the apparent discovery that the timing of manuring operations relates directly to the size of the grape harvest! It was after 1568 that the use of fertilizers declined and, at the same time, the produce of the vineyards... and to explain why fewer cartloads of manure were emptied around the vines than before he refers to the civil war: — " the worst years of the League ". The whole thing is sewn up. The war caused good agricultural practices to be abandoned, it eventually meant that less manure was used, and without it the grape harvests were reduced... the fall in Widow Couet's harvests determined and explained the reduction in tithes — in all tithes: — at the end of the XVIth century. Le Roy Ladurie " is amazed that (his) adversary had not thought of this ".

But what do we learn from the graph showing simultaneously applications of manure and the size of grape harvests? Simply that the two series of events cannot be linked. In 1552, with a maximum amount of manure (20 cartloads) the vine produced almost a minimum amount of juice (5.5muids). In the following years, and until 1557, there was no obvious definite correlation between the amount of manure applied and the amount of wine obtained. From 1557 to 1564 the situation was reversed: the quantity of manure used was high, comparable in cubic terms to that of the preceding period, but the volume of the harvest fell to a level that was slightly lower (7.2 muids on average between 1559 and 1564 against 12.8 muids from 1553 to 1558, to compare two equal periods of time). *The decline in the vines came before the reduction in the applications of manure.* The " chronology of the use of manure " has, then, no relevance to the vines at Antony. In fact it was only after 1568 that a vague parallel could be seen between the two curves, and even then for an observation period that is much too short (four years) and in a very imperfect way (cf. the year 1571). As a whole, if there is a conclusion to be drawn from the graph, it is not that reached by Le Roy Ladurie. The chronicle of wine doesn't reflect the chronicle of manuring operations; any real correlation between the two sets of facts is either lacking or else short-lived.

[3] ' Absolutely inadequate ' was the term used by some authors to describe my own examples: Taques of Onnaing and Quarouble, the complete reconstruction of the quantities of American gold and silver reaching Europe from the XVIth to the XVIIIth centuries, and so forth...

As Widow Couet's accounts were very well kept, it is certainly worth exploring further the history of her vineyard. She made note of everything that happened there. Let us look at the damage done by the military, to which Le Roy Ladurie attributes the deterioration of both cultivation and production. We already know, if we have read the record for the Paris region in this period, that only two serious alarms arose — one in 1562, and the other in 1567. Jean Jacquart, the historian of the Ile de France, speaks of a " relative truce " after the latter date, which is consequently quite the opposite of Le Roy Ladurie's claim that there was " a savage renewal of hostilities ". Widow Couet refers to two incidents that occurred in twenty years on her estate at Antony that were related to the troubles: in 1566 some windows were broken in her house and in 1569 some gendarmes (who were perhaps billetted on her) consumed a third of her wine harvest ($1\frac{1}{2}$ muids out of $4\frac{1}{2}$). The vines themselves seem never to have suffered any direct damage.[4]

Can we then assume that one indirect effect of the war might have been a scarcity of manure supplies in the area following the disappearance of the cattle, or a rise in price that made it prohibitive for the widow, or a fall in her income that made it impossible for her to buy any? Don't crack a joke. A full cartload of manure was worth 5 to 6 *sols* between 1552 and 1572 without any additional rise; with transport, it cost between 7 and 8 *sols*. In relation to the total expenditure of the vineyard, outlay for manure (7 *livres* at most in 1552) never represented more than one eighth. It was an expense that was not beyond the means of Marie Gohory, widow of Philbert Couet, her lively advocate at the court of the Parlement and *maître des requêtes ordinaires* of the Queen! We need not shed any tears over her poverty. Her accounts, including those for the vineyard, are accounts of guardianship. For her children she had an annuity from the Hôtel de Ville in Paris of 100 *livres* (1 livre = 20 sols), paid quarterly at Easter, on the feasts of Saints John and Rémy and at Christmas. She also owned other goods and properties notably at Amboise; she received gifts from relations and godparents for her children's education and on occasion even from Catherine de Médicis, who will be pardoned much for this good deed. Had she had to bear the farming costs out of the proceeds of her grape harvest alone she would still not have been hard up, even though her average profits were mediocre and in some years were even in deficit. In an average year the sale of wine brought her about 100 *livres*, without any marked decline between 1552 and 1572, but rather the reverse, the rise in prices compensating at the end of the period for the smaller quantity, and the best financial result came in 1571 with a net profit of more than 60 *livres*. Dame Couet took a liking to viticulture,

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[4] The information is taken directly from the document: Bibliotheque Nationale, Nouvelles Acquisitions Françaises n. 12,396. We shall soon publish it in full. The figures on the wine harvest and the quantities of manure used are given by E. Le Roy Ladurie in his 1969 publication.

and enlarged her vineyard by three *quarterons* of land in 1569. Emmanuel Le Roy Ladurie was right when he said that she was not a masochist.[5]

A careful study of the accounts does, therefore, absolve these two *arpents* of some of the responsibility which the author of the final report of the 1st National Conference of French Economic Historians in Paris in 1969 somewhat inconsiderately laid upon them. But if their fortunes may now seem rather less epic and dramatic, they are no less interesting. Jean Jacquart claimed that a well tended *arpent* of vineyard should have yielded between 2½ and 5 muids in Hurepoix in Widow Couet's time. This figure provides a valuable yardstick when comparing production in different years, and Jean Jacquart's guide proves well suited to the Antony vineyard — he may even have come across the *vigneron* Fauveau who worked for the good lady.[6] Against this base, the yield per *arpent* of the vineyard was exceptionally high between 1554 and 1558, and again in 1566 (over 6 muids, with a record of 8), while the level between 1559 and 1564 was low (average 3.6 muids), and that of the other years fairly low (about 2½ muids), 1569 being poor (2¼ muids) and 1565 bad (1 muid). But the chronology of the fluctuations in wine produce needs to be re-examined, and it is no longer possible to attribute the last figures to the effects of the great national catastrophe.

How can the pattern we have demonstrated be explained then? Le Roy Ladurie's explanations — the effects of the wars and the shortages of manure — are to be discounted for the reasons already given. Of other factors, the first that comes to mind is sensitivity to changing weather conditions. This is a highly plausible factor, and even someone with no experience of wine production will be aware that changing degrees of exposure to the sun, wind and rain will affect the nature of the vintage. As Le Roy Ladurie is himself something of an expert on grape harvests, I am sure that he will not have any difficulty in agreeing with me. In the accounts, however, there is only one explicit reference to this factor: the very poor crop of 1565 was blamed on the severe frosts of the previous winter, and Antony was not the only place to suffer.[7] But given that this is the most likely major determinant, we must hope that one day either chronicles or parish records will furnish sufficient complementary evidence to establish the nature of the relationship in both general and particular terms, so providing us with a more general interpretative framework.

There are several other factors which should be examined as well. The yield of the estate should have varied in proportion with the age of the vines,

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[5] 'The Widow did not go on strike against herself'. *op. cit. loc. cit.* p. 351.

[6] JEAN JACQUART, *La Crise rurale en Ile-de-France (1550-1670)* on p. 140, mentions that Gilles Fauveau worked 2 acres of vineyard and 6 of ploughland, together with another 4 acres of vineyard. There were 68 *vignerons* at Antony.

[7] Cf. F. BOURQUELOT, *Ménoires de Claude Haton (1553-1582)*, Paris 1887, Témoignage sur la Champagne et la Brie.

for vines live, die and need to be replaced. When young the vine produces a large crop — when it is old the harvest is smaller, but the wine gains more body and is therefore more sought after on the market, so fetching higher prices. Such considerations partly fit Widow Couet's vineyard well. Notwithstanding up to 1567 layering was carried out quite regularly (about 1500 layerings per year), and there was not a little falling off thereafter with only some 1000 layerings a year between 1568 and 1572. But the track has not been followed in vain, since it reveals some interesting information — for it becomes clear that the quantity of manure applied in each year was roughly proportional to the number of layerings carried out, on average one cartload (or a little under) for every hundred layerings. This then solves the mystery of the timing of the manuring operations, and it is obvious that no direct correlation can be drawn between layerings and the size of the grape harvest or between manuring and wine produce.[8] By a process of elimination, then, the central importance of the weather is confirmed. To complete the picture, one should also add that in 1570 Widow Couet also complains that Fauveau had profited from her absence (she normally lived in Paris in the Parish of St. André des Arts) and had neglected her vines, tilling the ground only once instead of three times. As a result he was only paid for the one operation — but nonetheless the harvest was still fairly good.

A great deal about the fortunes of the Antony vineyard can, then, be learned from a careful study of Widow Couet's accounts for these twenty years. As well as the general information regarding manuring and the harvests, one can also detect the type of decisions made, the problems involved in their implementation, and also see that the two events related to the wars had no effect whatsoever on potential production. It also becomes clear that no peasant, nor even a XVIth century Parisian, would ever have taken the harvest for granted right down to the moment when the grapes went into the presses. The whole thing becomes very straightforward, and few mysteries are left surrounding either the entries in the accounts or the process of farming itself. But of that interpretation from which we set out, barely anything is left — as we said at the start, this is a prime example of a style of interpretation which is capable, even when working from a document of undoubted intrinsic value and richness, of reaching totally mistaken conclusions. Given that our main concern is with methodology, it is worth analysing epistemologically how this error was committed both to prevent it being repeated and also to liberate the remaining conclusions drawn in the conference report from their dependence on the totally unrepresentative data drawn from this tiny vineyard of scarcely two acres.

[8] It took several years for a layering to take or fail. One should also note that the procedures recorded in the XVIIIth century by the Physiocrats for vine cultivation were identical to those used in Widow Couet's time. Cf. M. DE BUTRÉ, *Loix Naturelles de l'Agriculture et de l'Ordre Social* (Neuchâtel 1781).

Everything then *seems* to result from an over-hasty interpretation of one fragment of the document — the last four years covered by Widow Couet's accounts.

It is on this basis that Ladurie claims to have detected a firm correlation between the amount of manure applied and the size of the harvest. Such a conclusion would appear to reflect an implicit and perhaps even unconscious effort to demonstrate that the tithe series were closely correlated to fluctuations in production. Since we know that tithe yields did vary during the Wars of Religion, the case of the Antony vineyard seems to prove the correlation. Then without any further reservation or checking, he happily applies this conclusion to the whole twenty year period covered by the accounts, whereas a more careful and critical analysis would quickly have revealed that this correlation cannot be extended beyond the chronological limits of his quite inadequate fragment of the whole document.

But well before the report on the 1969 conference was written, my own research on agricultural production had indicated that conclusions drawn from a single isolated estate that had not been carefully related to its immediate environment and neighbouring context were at best captious and unconvincing. It is unfortunate that Le Roy Ladurie did not see fit to profit from the experience of others, or from the methodological suggestions made in my own *Faux-semblants d'un démarrage economique.*[9] But the mistakes made over the two acres at Antony are not dissimilar from those which previously marred the interpretation of the Coussergues estate accounts in his *Paysans de Languedoc.*[10] In both cases an over-rapid analysis, an unduly superficial grasp of the data, and dismissal of inconvenient evidence mean that the documents become mere pretexts for conclusion that they will not bear.

In fact, the consequences are less serious for Antony than for Coussergues. Le Roy Ladurie did admit to Georges Frêche, after the publication of the report, that tithe strikes could disrupt yields, so that one would have to eliminate such factors if contemporary readings were not to be proved distorted, although he did not make much of an issue of this. But one cannot help wondering whether the irritation expressed at any attempt to question the Coussergues findings, which were quite inadequately demonstrated, does not stem from a certain desire to prove at all costs that there was a ' genuine growth ' in both France and Languedoc in the XVIIIth century. Despite the fact that these efforts have so far been met with little success, they have not thereby been discouraged if the preliminary debate in Paris in 1977 and the report for the Edinburgh conference are anything to go by.

What Coussergues' ' agricultural revolution ' amounted to was that some changes occurred in the area of cultivated land and a fertile strip near the river

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[9] *Op. cit.* (note 3) pp. 60–63.

[10] E. Le Roy Ladurie, *Les Paysans de Languedoc*, (Paris 1966), pp. 533, 849–52.

bank was put under the plough. But if we wish to draw a comparison with an example from two centuries earlier, the yields achieved on the banks of the Libron between 1789 and 1793 were relatively similar to those obtained on the banks of the Siagne in the Provostships of Grasse in similar soil and climate in the XVIth century.[11] But after a fleeting admission that there did not seem to have been any effective take-off, Le Roy Ladurie took up the issue again in slightly different form after the 1st Conference on Tithe History, when he claimed that there had been ' genuine growth '. But to do this he had to change his line of attack and abandon Languedoc. Most of the tithe curves produced by the participants at the conference proved to be disappointingly ' flat ' and were quite inappropriate to justify any claim for a triumphant take-off. But sifting through the papers he hoped to discover something more useful, and he hit on four regional dossiers which revealed the Botticelli Venus rising not from the waves but from the earth to herald that the agricultural revolution had completed its first steps.

The four regions were Hainault, Cambresis, the Paris region, and the Auvergne. Amongst my colleagues at Clermond-Ferrand there was some disagreement over the last region: Pierre Charbonnier argued for stagnation while Abel Poitrineau held that there was some progress. But let us leave the Massif Central aside for a moment. Elsewhere tithe curves did rise in the XVIIIth century, especially in northern France. But the examples of Tacques of Onnaing and Quarouble have already demonstrated that this upsurge did not imply that the good average yields obtained on these soils in the Middle Ages had in fact been surpassed. And Hugues Neveux's research on Cambresis, which our own findings confirm, indicates that production in the region in Louis XVI's time did not surpass the high levels achieved in the XIVth century. Now ' real growth ' has a meaning which Le Roy Ladurie seemed to accept during the discussions in 1969. It has to mean an increase in both production and also in *per capita* production. This is the meaning of ' development ' in the sense that François Perroux uses the term. Therefore any increase in production which did not also embrace an increase in output *per capita* cannot be considered ' real '. Ernest Labrousse, for example, has always posed the problem in these terms and did so again in Paris in 1977.

In Cambrèsis the *per capita* quota of wheat production fell from 7.8 hl at the beginning of the XVIIIth century to only 4.6 hl in 1778, and was to fall further thereafter as we have already shown.[12] And such a result is to be expected if one takes note of the fact that the population of nearby Quarouble almost tripled in the course of the century while production in Tacques was far from able to keep pace with this population growth. For the Paris region the data render the analysis less accurate, yet despite a demographic expansion of about 30% *per*

[11] *Les Faux-Semblants*, *op. cit.*, appendix iv, pp. 275–288.

[12] M. MORINEAU, ' La Rose et le Vert ', *Annales E.S.C.* 1976, pp. 407–410.

capita cereal production remained stable and did not increase. And even for the Auvergne, an authority of immense intellectual integrity, Abel Poitrineau, has denied that there was any increase in production over and above population expansion. In the paper delivered at the Edinburgh conference he described the problems of the mountain people who in the second half of the XVIIIth century found themselves caught in the widening gap between the prices of their own products (livestock and by-products) and those of the cereals that they had to buy outside their area, so that they were forced to emigrate in increasing numbers in order to escape the threat of destitution.[13]

In fact none of the examples provided by Emmanuel Le Roy Ladurie in 1972 will support his cherished notion of ' real growth '. This, following his interpreting the accounts of Widow Couet and the Coussergues estates, is not very encouraging. Unfortunately this erroneous interpretation was to be repeated yet again using the same examples in his contribution to the 2nd volume of the *Histoire de la France rurale*. Now this is a textbook with a very wide circulation, which means that together with the prestige enjoyed by the author it is likely to lay down the law of orthodoxy in French schools and universities for some time to come.[14] Even in the general report delivered at Edinburgh he managed to avoid any reference to the counter-evidence. He did modestly avoid any reference to the disastrous performance of Cambrèsis, although he shows a considerable predeliction for this tiny region and refers to it four times in his text (making it the most frequently cited region). Wouldn't it have been safer to gamble with Languedoc? But to overcome his previous checks he is now pushing forward yet another new candidate for the ' agricultural revolution ' — the Aquitaine in the Southwest of France.

This time his case is based on the evidence provided by the feudal estates and properties of the Order of Malta, which were managed by the Grand Priory in Toulouse. Divided up into *commanderies*, and scattered between Perigord and the Pyrenees, they cover in all a very sizable area. Now the income which the Order drew from these properties has also been studied by Gérard Gangneux, one of whose remarkable studies was amongst the communications read at the conference. The revenues were given in cash, and they have been scaled

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[13] Abel Poitrineau, ' Productions animales et végétales dans les montagnes d'Auvergne au XVIIIe siècle ' (conference paper).

[14] Cf. E. Le Roy Ladurie's, contribution to the *Histoire de la France rurale*, vol. 2. For some reason other than mere unlucky accident, the author of the chapters on the XVIIIth century in the *Histoire des paysans français* (Paris 1974), who has clearly not read my *Faux-semblants* (since he accuses me of not mentioning the potato or buckwheat), or else had only read a resumé by someone who had not read my article in the Annales on *La Pomme de Terre en France au XVIIIe siecle*, mentions me only to attack me. So the ' lessons ' which will be handed on to future generations will only be the ' good ones ' of ' well meaning scholars ' who have worked on our ' splendid rural history '.

down by Marie-Jeanne Tits-Dieuaide on the basis of the Toulouse price index drawn up by Georges and Genevieve Frêche.[15] From these findings Emmanuel Le Roy Ladurie has drawn a series of conclusions which purport to confirm his thesis, and these he has now put forward in a commentary. He claims that the Aquitaine estates of the Order of Malta reveal a truly exceptional dynamism. Even when scaled down, their revenue surpassed 'in the second half of the XVIIIth century the highest records achieved in Colbert's time.... the famous multi-secular ceiling had finally been broken.... The yields for 1789 were on average 18.5% above those of 1678', a year previously considered to be an economic high-spot. The revenues of the Grand Priory of Toulouse were, therefore, he concluded a much truer reflection of reality than the tithes of St Sernin (studied by Georges Frêche).[16] Henceforth 'the modest but undeniable break-through in the XVIIIth century can be measured quantitatively.... Its existence.... (is) beyond doubt'.[17]

Let us examine this claim a little more closely. Apart from the percentage quoted above, Le Roy Ladurie produces no figures to substantiate his claim. From any scholarly point of view this is regrettable, and some frustration has already found its way into print.[18] But this unfortunate omission can be rectified with a pencil and paper, thanks largely to the primary data published by Gérard Gangneux.[19] What follows is the result of my own re-examination of the case which seeks to be objective and subject to checking and testing.

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[15] GEORGES AND GENEVIEVE FRECHE, *Les prix des grains, des vins et des légumes à Toulouse (1486-1868)* (Paris 1967).

[16] GEORGES FRÊCHE, *Toulouse et la région midi-Pyrénées au Siècle des Lumières vers 1670-1789* (Paris 1974). The dossier on the tithes of Saint Sernin was presented to the 1969 colloquium: cf. *Les Fluctuations de la dime* etc. pp. 214-144: Dime et production agricole; Remarques méthodologiques à propos de la région toulousaine.

[17] E. LE ROY LADURIE, General Report for the Edinburgh Conference, p. 12.

[18] The 'Dupâquier dossier' on the Paris region was used, without being fully published, by E. LE ROY LADURIE in his report and in his conclusions at the colloquium in Paris 1969. Cf. *Les Fluctuations...*, pp. 373 & 382-4. For evidence of frustration see: CLAIRE BRÉTÉCHER, *Gais propos de table avec mon Président* (Editions du Bonnet du Nuit, Paris 1977).

[19] GÉRARD GANGNEUX, 'Les rentes seigneuriales et domaniales dans les Commanderies de l'Ordre de Malte de la Langue de Provence: XVIIe et XVIIIe siècles', in *Les Fluctuations*, pp. 273-293: 'Dimes et seigneuries de l'Ordre de Malte en France Méridionale aux XVIIe et XVIIIe siècles: Problèmes de production et de Productivité agraires' (Edinburgh conference paper). The curves and the graphs of the revenues of the Grand Priories of Toulouse and Saint Gilles have been published in two studies (the second is slightly the better, as the first contains some confusion). These studies form only part of the thesis prepared by Gérard Gangneux. Note: the figures are taken from the published studies, not from the thesis because we are writing during the University vacation and the thesis is not to hand. I would also like disassociate Gérard Gangneux entirely from the criticisms which follow which are directed only at the

The agricultural production which can be studied on the basis of the revenues of the Grand Priory of Toulouse amounted to some 2% of the total regional production. This percentage has been calculated in the following manner. First we expressed the revenues for the period considered in wheat-equivalents, using the previous ten-yearly averages on two local markets, La Réole and Toulouse, taken in turn.[20] This produced a total of 30-35,000 hl. Now total cereal production in Aquitaine at the end of the *Ancient Régime* can be calculated in two ways — either on the basis of consumption, provided we know the size of the population and that their needs were met locally; or by working backwards from the production figures for 1840 on the basis of the demographic changes which had occurred in the meantime. The result comes to 9 million hl, which means that the revenues of the Order of Malta amounted to 0.3% of the total.[21] But the peasants of the region did not only grow wheat. There were important areas of vineyards (notably Bordelais), arboriculture (plums in Agenais, walnuts and chestnuts in Perigord), as well as tobacco cultivation around Tonneins and various forms of livestock rearing (cattle, geese, sheep and pigs). Taking all these into account we should reduce the percentage position of the revenues of the Grand Priory in Aquitaine's total agricultural production and would put it at 0.2%. If we accept that the Order received on average one tenth of the incomes of the territories of its ' members ', then these can be put at 2% of the total production of the region. And this figure must be treated as an absolute maximum, which means that this is very little to go on to reach any conclusions about what was happening in an area as vast as Aquitaine. This is not an insurmountable problem if the sample is sufficiently well composed — but let us leave that aside for a moment and press on with our challenge.[22]

' personal ' interpretation of these figures by E. Le Roy Ladurie. Gérard Gangneux's studies themselves are quite excellent.

[20] The price for wheat in La Réole, according to the *Archives Municipales*, H H 1-10. We were referred to this series by Georges Frêche who drew on it, among others, for his communication to the 22nd conference on regional studies of the *Fédération Historique du Sud-ouest* (Langon 1970). It will no doubt figure in the study of prices which he is preparing.

[21] In 1789 Aquitaine's population was about 3 millions adding together the population figures for the localities of Bordeaux, Montauban, and part of Toulouse. Average *per capita* consumption has been put at 3 hl. For production in 1840 see: *Ministere de l'Agriculture*; Statistique Agricole de la France. This takes account of the lack of coincidence in the administrative boundaries of the local administrative districts and the changes in the property of the Grand Priory of Toulouse.

[22] Tithes were raised in Aquitaine on varying percentages of the harvest, frequently on an eleventh. But they were not the only factor in the revenues of the commanderies. Of the seigneurial dues, the *agriers* often amounted to a fifth of the harvest. In addition there were quit-rents (*censives*) and gabelles on sales and purchases (*lods et ventes*) etc. That is why we feel that 2% represents a real maximum for the share

First of all, the revenues of the Priory of Toulouse must be treated as what they were — that is, as cash revenues for a community which needed them in order to live, which kept a careful eye on them and had a direct interest in increasing them whenever possible. This means that we must examine both their structure and the way in which they were managed. Gerard Gangneux has shown that the greater part of the revenue going to Toulouse (80%) was in the form of tithes and seigneurial dues, the remainder being from the 'home farms' or sharecropping tenancies. Tithes and, of the seigneurial dues, *agrieres*, were in theory raised as a proportion of local production. For this reason they should provide information on the latter, but unfortunately they are not listed separately in the figures available nor in the original source, the records of the general visitations carried out by the Order of Malta.[23]

The Order's administrative policies were set out in its Costitution. This encouraged the priors and commanders to protect their common patrimony and to recover, wherever the occasion arose, such properties or assets as had been appropriated by others. They were also instructed to show meticulous care in the collection of their different revenues: does this then mean, as Le Roy Ladurie would have it, that they reflected real production more faithfully than the practices of the chapter of St Sernin? Clearly these instructions were not always implemented by the different priors and commanders in the same manner. The revenues of the Grand Priory of St Gilles on the Rhône, whose estates were next to those of the Grand Priory of Toulouse and some of which also lay in Aquitaine (at Quercy and Albigeois) were between 1669 and 1789 made up much like those of the humble canons of the Languedoc cathedral: they did not go beyond the Colbertian 'paradigm' or break through the ceiling it had established.

Revenues of the Grand Priory of Saint Gilles [24]

	1669	1789
In cash	405,330 livres tournois	1,101,647 livres tournois
In wheat	79,700 Toulouse *setiers*	74,400 Toulouse *setiers*

taken by the Order of Malta. It would also be valuable to know exactly what products were affected by these exactions: corn and wine certainly were, but what about maize, fruit and animals...

[23] 'In practice, when either an entire commandery or only a part of it was leased, the revenue from the lease was given as a single total figure, making it impossible to identify the contribution of the component parts'. GÉRARC GANGNEUX, in *Les Fluctuations...*, p. 274.

[24] Cf. Gérard Gangneux's communication at Edinburgh which shows that the expansion curves for Albi and Quercy closely followed those for the properties of the Grand Priory of Toulouse.

This is worth noting. Gerard Gangneux has also described the successes (and the failures) of the enterprising commander of Poet-Laval in the XVIIIth century, although this was outside Aquitaine.[25]

What emerges from all this is that there is a certain 'management' factor which has to be taken into account when interpreting the accounts of the Great Priory of Toulouse. One must also remember that the upswing was noticeable virtually everywhere between 1760 and 1789, and that this was related to the well explored question of land rents: was the increase due to increased agricultural production, or was it rather the result of that villain of the piece the over-exploitation of the peasant by the landowner and the seigneur? And in looking at these increased revenues one must also take into account the fact that part may have been due to the revival in segneurial dues, again not related to production — and the Aquitaine Priory of Neuffons (Benedictine) and the chapter of Saint Sernin both provide examples of this. There is also the problem of changes in the properties..[26]

Let us now take a look at this famous rise in the scaled-down revenues which was to break through into 'real growth'. In the period chosen by Le Roy Ladurie, between 1678 and 1789, and following the method adopted for the scaling down (ten yearly averages?) the rise is indubitable. Our calculations produce a similarly optimistic picture, but they do also reveal that there was a major difference between prices in Toulouse and in Reole, with the result that

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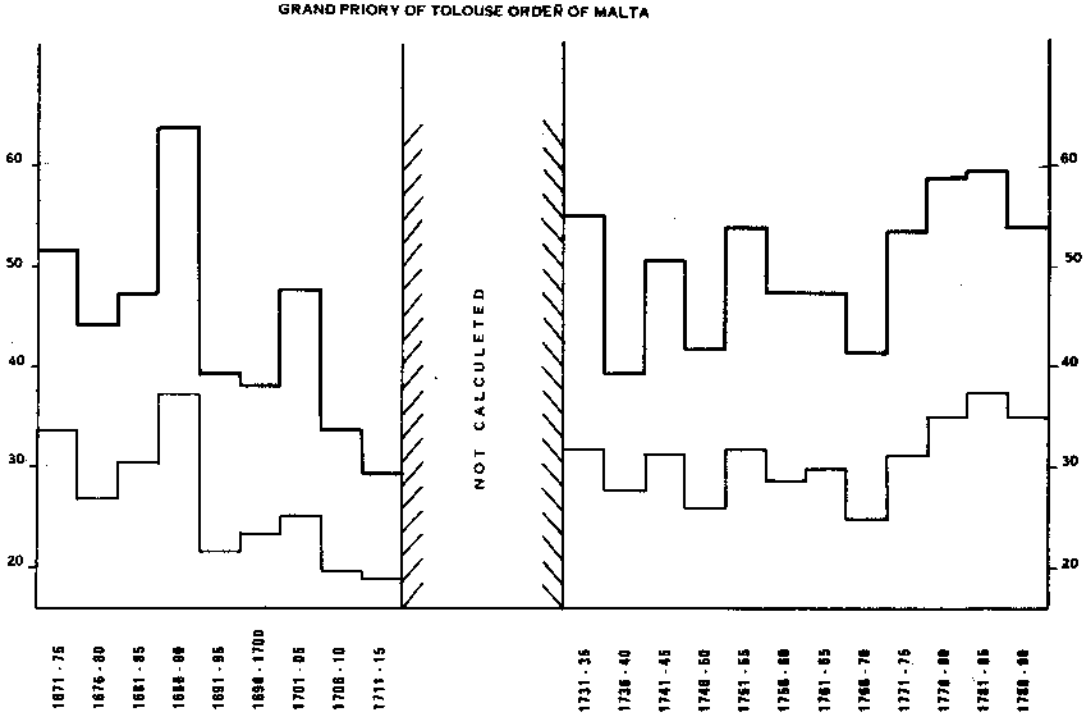
[25] GÉRARD GANGNEUX, 'Une Commanderie de l'Ordre de Malte aux XVII[e] et XVIII[e] siècles: Poët-Laval en Dauphiné', in *Cahiers d'Histoire*, Lyon, 1964, pp. 355-383.

[26] PHILIPPE LOUPÈS, 'Le Prieuré de Neuffons à la fin de l'Ancien Régime', in *Actes du XXII[e] Congres d'études régionales de la Fédération historique du sud-ouest* (Langon 1970), p. 65: 'In view of the apparent scarcity of new land coming under cultivation in the parish of Neuffons in the second half of the XVIIIth century it would not seem that tithes were responsible for the spectacular increase in the tithe-owners' revenue: on the other hand, seigneurial dues, although relatively limited in extent, proved to be a remarkable field of investment for both the prior and his agent. Jean Baptiste Barberet's efforts were directed towards three objects: creating a feudal *terrier*, increasing the number of feudal tenancies, and above all the meticulous exaction of gabelles on sales and puchases...'

For the incomes of the chapter of Saint Sernin, Georges Frêche has succeeded in identifying and separating tithes and seigneurial revenues (which are inter-mixed in the accounts of the Grand Priories of Malta). During the XVIIIth century revenue from seigneurial dues increased much more than those from tithes, rising from an index of 30 in 1713-16 to 431 in 1784-90, as against 82 and 208 respectively for tithes. Like Philippe Loupés he also singles out gabelles on sales and purchases as the key factor in the rising seigneurial exactions. G. FRÊCHE, *Toulouse et la région Midi-Pyrénées...*, *op. cit.*, pp. 505-12, and the table on p. 532. With regard to the increase in the seigneurial revenues of the Grand Priory of Toulouse, this alone, if it could be shown that these gabelles were being increased, would seem to be all that is needed to explain the different degree of increase experienced by the two Toulouse corporations.



REVENUE (DEFLATED) IN WHEAT

A BASED ON PRICES IN LA REOLE (in poigneres)

B BASED ON PRICES IN TOULOUSE (in setiers)

} QUINQUENNIAL AVERAGES

there was a gap of 27%, and at best of 21.4%. The gap is revealed by the successive use of the two deflators and was due to the fact that prices rose in an unequal manner on the two markets — respectively by 149% at Toulouse and by 204% at Reole. Now there was nothing at all unusual in the dissimilarity in the behaviour of these prices. As we have demonstrated elsewhere, this sort of unevenness was the rule and determined the directions in which trade took place. Let me give an example to make this more clear: a hectolitre of wheat which had exactly the same price throughout the length and the breadth of the Garonne in about 1680 (6.4 livres tournois) and in 1760 (12.7 livres tournois) cost more at the end of the period in Reole (18.3 l.t.) than it did in Toulouse (15.8 l.t.). Now this last difference leads one to consider the role of the deflator in the mathematical calculations we have been examining. It is the fall in the Toulouse prices at the end of the period which provides the bonus in revenues. But could it not be the case that the prices in Réole were more closely synchronised with those of Bordeaux and with those of Bergerac in Perigord, or with Marmande and Agen in the mid-Garonne valley given their proximity — and if so, would they not constitute a more accurate deflator than those of Toulouse? But this is not the main point.[27]

Revenues of the Grand Priory of Toulouse [28]

	1678	1789
In cash	155,879 livres t.	582,290 livres t.
Deflated		
a) on the basis of Reole prices	47,100 *poignères* (25,200 hl)	57.200 *poigneres* (30,600 hl)
b) on the basis of the Toulouse prices	29,400 *setiers* (27,400 hl)	37,300 *setiers* (34,800 hl)

The main point is that as soon as one uses a subtler technique for deflating

[27] The La Réole prices were for December. The series does not start early enough for our purposes, nor does that for Bordeaux. The variation between the December figures and the annual figures for La Réole is not large enough to make any major difference to our conclusions. But it is worth pointing out in general that when using statistics the best data is not always provided by the yearly average. One always needs to keep a degree of flexibility when interpreting the consequences of deflation. As for the criss-crossing situation of prices on neighbouring markets and its significance see my *Histoire sans frontières. Prix régionaux, prix nationaux, prix internationaux* (this originally appeared under a different title in *Annales E.S.C.*, 1969, pp. 403-423).

[28] The *poignère* at La Réole contained 53.5 litres and the Toulouse *setier* 93.2 litres. This will help those who wish to translate the subsequent figures into hectolitres where the equivalent is not given in the text.

the cash revenues, and as soon as one abandons 1678 as the *terminus a quo*, a place obtained purely by accident, the great increase just disappears.[29] Let us take a glance at the next table which employs an admissibly low number of extrapolations to demonstrate the movement in the revenues of the Great Priory of Toulouse in classical five-year groupings covering a little over a century. One will immediately be struck by the fact that the revenues for the last decade of the XVIIIth century included (1781-1790) are only very slightly above those for the best decade in the previous century (1681-1690) — between 1% and 7% depending on the city from which you choose your deflator. On a five-year break-down, the best performance may even go to the earlier century — 1686-90 on the Reole calculation. Given the margin of error present in any price series it was then both wrong and incomprehensible to have claimed the existence of a breakthrough in production comparable with breaking the sound barrier, never mind describe it as 'plurisecular'.[30]

Le Roy Ladurie has been led astray by his passion for Colbert. Although the decade 1669-78 was pretty good, it cannot be taken as the best in the XVIIth century, partly because wheat shortage in southern France in 1676-7 upset the averages of both prices and harvests. But once again Le Roy Ladurie has repeated the error that he made with the Coussergues data, and he has not bothered to check on the climate of the decade. And as all contemporary evidence goes to prove, the time of the greatest abundance came after Colbert's death. Once again the 'agricultural revolution' vanishes like a mid-summer night's dream.[31]

The pattern and the chronology which is revealed by the following figures is again different from those of Le Roy Ladurie. The first twenty years (1671-1690) seem to have been good, with an average of 51,000 *poignères* on the La Réole base (27,000 hl). The next 25 years were badly troubled by poor harvests which caused food crises and upset the averages. In between there must have been good years too (a rudimentary deflation using current prices suggests that the harvest for 1705, 1706 and 1707 were 70,000 poignères or 37,000 hl [32] which put them in the running for the final prizes. Then one runs into the rather

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[29] An accident — but caused by the source or arbitrarily? See below.

[30] Multisecular? Emmanuel Le Roy Ladurie's sample only provides evidence for a bi-secular generalisation. However, research on Cambrésis (H. Neveux) and on Hainaut (M. Morineau) demonstrates that much higher levels than those of the XVIIth century had already been achieved much earlier. On various occasions Le Roy Ladurie has himself stated the same, so why over-look it when it comes to Aquitaine? Is he saying goodbye to the cows, bullocks, pigs, the 'over-crowded world' and all the rest...?

[31] Evidence: the district Intendents, the Marquise of Sévigné etc.

[32] Deflated crudely by the average yearly price the 1707 harvest amounted to 74,900 *poignéres* and that of 1784, 75,400 — an this was an absolute record. We are not unaware of the anecdotal nature of these examples.

Changes in the Revenues of the Grand Priory of Toulouse

A. Deflated on the basis of prices at La Réole

Quinquennium	Cash Revenues (in brackets: year of the Visitation)	Deflator	Deflated revenues (quinquennial averages)	Ten-yearly Average
1671–75	158.899 (1678)	3,1	51.200	46.700 (1671–1680)
1676–1680	158.899 (1678)	3,6	44.100	
1681–1685	165.000 (extrapolated)	3,5	47.100	55.300 (1681–1690)
1686–1690	171.817 (1693)	2,7	63.600	
1691–1695	171.817 (1693)	4,4	39.040	39.500 (1691–1700)
1696–1700	186.300 (1705)	4,9	38.000	
1701–1705	186.300 (1705)	3,9	47.700	40.500 (1701–1710)
1706–1710	170.839 (1709)	5,1	33.400	
1711–1715	170.839 (1709)	5,9	28.900	
1731–1735	251.535 (1737)	4,6	54.600	46.900 (1731–1740)
1736–1740	251.535 (1737)	6,4	39.300	
1741–1745	251.535 (1737)	5	50.300	46.600 (1741–1750)
1746–1750	310.242 (1752)	7,4	41.900	
1751–1755	310.242 (1752)	5,8	53.400	50.600 (1751–1760)
1756–1760	326.068 (1760)	6,8	47.800	
1761–1765	326.068 (1760)	6,8	47.800	44.600 (1761–1770)
1766–1770	368.758 (extrapolated)	8,9	41.400	
1771–1775	496.828 (extrapolated)	9,3	53.300	55.600 (1771–1780)
1776–1780	496.828 (estimation)	8,5	58.400	

1781-1785	582.208 (1789)	9,9	58.800	56.100 (1781-1790)
1786-1790	582.208 (1789)	10,9	53.400	
	B. Deflated on the basis of prices at Toulouse			
1671-1675	158.899	4,7	33.800	30.100 (1671-1680)
1676-1680	158.899	6	26.400	
1681-1685	165.000	5,4	30.500	33.500 (1681-1690)
1686-1690	171.817	4,7	36.500	33.500 (1681-1690)
1681-1695	171.817	8,1	21.800	22.400 (1691-1700)
1696-1700	186.300	8,1	23.000	
1701-1705	186.300	7,5	24.800	22.400 (1701-1710)
1706-1710	170.839	8,8	19.400	
1711-1715	170.839	9,2	18.500	
1731-1735	251.535	7,9	31.800	29.800 (1731-1740)
1736-1740	251.535	9	27.900	
1741-1745	251.535	8	31.400	28.700 (1741-1750)
1746-1750	310.242	11,9	26.000	30.100 (1751-1760)
1751-1755	310.242	9,7	31.900	
1756-1760	326.068	11,5	28.300	
1761-1765	326.068	11,1	29.300	27.800 (1761-1770)
1766-1770	368.758	15,1	24.400	
1771-1775	496.828	16	31.000	32.800 (1771-1780)
1776-1780	496.828	14.3	34.700	
1781-1785	582.208	15,5	37.500	35.900 (1781-1790)
1786-1790	582.208	16,9	34.400	

mediocre figures for the decade 1731-40, when the revenues of the Priory regained the level of 1671-80 where they were to stay until 1770, or more accurately perhaps 1775. In fact the restoration of the post-Colbertian splendour was only to occur in the last ten or fifteen years of the Ancien Régime, and even then without any guarantee that it would last....

We have not needed to use any special effects or cunning to produce these figures. Even if we take the Toulouse prices as the deflator, in place of those of La Réole, the picture does not differ much. The very slight increase in the size of the harvests of 1781-90 over those of 1681-90 is quite inadequate to warrant raising the banner of the agricultural revolution. Nor is the chronological picture altered. If we want to identify the best five year period for production in Aquitaine in the XVIIIth century, both the La Réole based figures 1783–1787) and the Toulouse based figures (1784–88) give much the same answer. From the former, the overall peak goes to the XVIIth century (58,800 *poignères* as opposed to 63,600), and in the second is the other way around, but there is only 7.5% in it (39,200 *setiers* as apposed to 36, 500) and it should also be remembered that here we are coming very close to the margins of uncertainty.[33] Nor is the

[33] There is a degree of uncertainty for both the harvests and the prices, especially when using annual averages. It is on account of the influence exercised by major harvest failures (or major price rises) on incomes which have been deflated by ten-yearly averages terminating either in the year of visitation or in the previous year that we decided to use a more sensitive analysis based on the classical five-yearly groupings. The following table shows the variations:

Year of Visitation	Total income	By ten-yearly averages 1		2		By yearly averages 1		2	
		a	b	a	b	a	b	a	b
1678	158.899	3,3	48.100	3,37	47.100	4,6	34.500	3,8	41.800
1693	171.817	3,2	53.600	3,6	47.700	4,1	41.900	6,5	26.400
1705	186.300	4,5	41.400	4,4	42.300	4,2	44.300	2,6	71.600
1709	170.839	4,2	40.600	5,7	29.700	6.5	26.200	10,3	16.500
1737	251.535	5,3	47.400	5,5	45.900	6	42.200	6,3	39.900
1752	310.242	6,7	45.900	6,8	45.500	9,5	32.600	6,5	47.700
1760	326.068	6,3	51.900	6,4	51.200	7,3	44.600	6,8	47.900
1789	582.207	9,6	60.700	10,2	57.100	11,5	50.600	13,3	43.700

Ten yearly average: 1) ending a year before the visitation (e.g. in 1677 not 1678); 2) ending in the year of visitation (giving the income figure.

Yearly average: 1) year before the visitation; 2) year of visitation;

a) deflator; b) income deflated in La Réole *poignères*.

The distortion of the decade 1700-1709 is particularly spectacular. Does one need to add that 1708 had been an expecially bad year? By the way, an examination of the yearly averages in comparison with the ten-yearly figures indicates an interesting scale of catastrophes ranging from one-third in 1677 to a half in 1693, some three-fifths in 1709, about two-fifths in 1751 and a third in 1788-9. But these are mere pictures, since the ways in which prices reacted to harvest failures were different in the XVIIIth century from the XVIIth century given the better transport facilities and a more careful administration. Although using five-yearly averages does not entirely remove the distortions caused by bad harvests it does reduce their influence over time.

For a fuller discussion of the problems involved in deflating revenues see: Antonio

comparison upset by any marked change in the quality and quantity of the harvests. The five years 1686–90 were remarkable for the quality of the harvests, but so too were the years 1783–7 in the south of France. So there are no subsequent distortions.[34]

We should not overlook the reservations made about the increase in the revenues of the Priory at the end of the period. A table showing the comparative development of receipts and prices from 1678 to 1789 will again show how difficult it is to be optimistic. Between 1678 and 1760 the former normally ran behind the latter, with the result that total revenues rose pretty much in parallel with prices, or by 1.2% per year as against 1.1%. Between 1760 and 1789, however, they increased much more rapidly than prices (2.6% per year against 1.5%). And it was this final lack of synchronism which lasted for thirty years which created that mirage of a 'secular' break-through which was to take in Le Roy Ladurie. It also leads on to some scepticism with regard to the effectiveness of peasant resistance to the payments of dues (although the author of the report does not refer to this resistance when discussing the Toulouse case), and this is further heightened by the figures for the Priory of Saint Gilles — with regard to which, just as for Saint Sernin, there were all kinds of people ready to cite the existence of tithe strikes as evidence that the data was unreliable and unrepresentative.[35] Now the wild increase in the farm rents of the Order and the growing seriousness of the monetary situation all happened at a time, in so far as we can judge from independent evidence on the state of the harvests in southern France, in very difficult circumstances, following a serious and prolonged cereal crisis (between 1764 and 1773) which had brought about a brutal increase in prices — over 40% in La Réole and in Toulouse: now this is very probably the deflation factor which should be applied to the pretended break-through — which would mean that it shrivelled up to nothing.[36]

Eiras Roël 'Dimes et Mouvement du Produit agricole en Galice 1600-1837'. We have at various times also referred to the fantasies based on mobile average with regard both to agrarian incomes and the effects of the American treasures in Spain and Europe.

[34] On the other hand, the good harvests in the decade 1779–1788 meant that the effects of the shortfall of 1788 is not very evident (and was carried over to 1789), but this was probably exceptional. French tithes do not indicate that there was a decade in the XVIIIth century as bad as 1691–1700, but 1791–1800 must have come very close to it.

[35] Cf. E. Le Roy, Ladurie's report for the Edinburgh conference, p. 12: 'The Toulouse tithes (Frêche, In Goy-Ladurie 1972, cit., p. 222) were upset by the passive and even active resistance which met the tithe-collectors, and so do not reveal either this increase or the records achieved...'. One should note that Emmanuel Le Roy Ladurie does not seem to be aware of the existence of Georges Frêches' thesis, since he does not cite it.

[36] The Saint-Sernin tithes, once seigneurial revenues are deducted, did however

Comparative Development of the Revenues of the Order of Malta and Prices [37]

A. Revenues of the Grand Priory of Toulouse and prices at La Réole

Period	Revenues Total Growth	Annual Growth	Prices Total Growth	Annual Growth
1678–1760	106%	1.2%	88%	1.1%
1760–1789	78%	2.6%	46%	1.5%
1678–1789	266%	2.3%	204%	1.8%
B. Revenues of the Grand Priory of Saint Gilles and Toulouse prices				
1681–1762	69%	0.8%	98%	1.2%
1762–1789	62%	2.5%	25%	0.9%
1681–1789	149%	1.4%	146%	1.3%

Let us then try to look at Le Roy Ladurie's thesis in the most favourable light. Let us take the highest percentage figure for the increase in the revenues for the period 1678–1789, which is 27% if we take the Toulouse deflation indicator. Now is this figure greater or smaller than the increase in the population of Aquitaine in the same period? The demographic data for the region are certainly not amongst the best. It seems to be the case that there was not much increase in population in the Bordeaux region in the XVIIIth century, although in the areas around Auch and Montauban there were increases of 50% between 1698 and 1789. The average for the whole region settles down somewhere around 27%, and this figure can probably be used to cover the period 1678–1789 at least as a minimum. The result therefore is that there was absolutely no increase in *per capita* production — at very best, then, Aquitaine remains on a par with the Paris region.[38] Once again 'real growth' proves

increase by 108% between the mid-XVIIIth century and 1789, thereby exceeding prices (increased 85%).

[37] We have omitted the phases between 1678 and 1760. The revenues of the Grand Priory of Toulouse were sometimes ahead of and sometimes behind the La Réole prices. The position in 1760 was due to the price rises of 1747–51 which had been absorbed in new leases. These kept their high level until prices fell again in 1760.

[38] Population figures for 1698:

			in 1789
Bordeaux district	1,482,000		1,439,000
Montauban	789,200	Auch	887,371
		Montauban	542,439
Total	2,271,400		2,868,810

(In the XVIIIth century the Montauban district was divided into two)
Cf. M. Morineau, *Les Faux-Semblants...*, *op. cit.*, pp. 294–295.

to be illusory and vanishes like a ghost into the cloudy green skies of Elsinore.[39]

Is there any point in taking other examples? In the foothills of the Pyrenees where the revenues of the Order of Malta were well below their regional average, the demographic growth was greater and the documents reveal that pauperisation was taking place.[40] The same was happening from Albi to Dauphiné, on the vast estates of the Grand Priory of Saint Gilles (which covered southern Languedoc). The incontrovertible nature of this evidence must make one question whether tithe strikes had any effective influence on revenues. In fact, if we insist that these mean that revenues under-estimate real production we are likely to be drawn into quite absurd conclusions. For if this saving benefice is extended to one of the ' members ' of the Grand Priory of Saint Gilles, then why not to all? And if the 'agricultural revolution' cannot be traced in Cambrésis, then why shouldn't we look for it in Rouergue, or in Larzac or in the Gévaudan: it would not be without a touch of nonsense.[41] But in Languedoc there is no sign of our hero, and once again the evidence for ' real growth ' falls apart.

The manicheeist view of the past is now out of fashion. What the historian discovers in the history of agriculture is very much what Marc Bloch taught — that is the slow and gradual process by which the peasantry adapted to circumstances that natural and human catastrophes such as wars were permanently

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[39] ' Green: that which is unripe. When referred to fruit-green grapes: green apples ' (Petit Larousse Illustré).

[40] These are the deflated figures, region by region, for the revenues of the Grand Priory of Toulouse (ten-yearly averages at La Reole: 1669-78 and 1780-89)

Région	C 1678 Revenue	Poignères	1789 Revenue	Poignères
Bordelais	16,786	4,980	63,874	6,200
Périgord	9,300	2,750	36,000	3,500
Moyenne Garonne	95,091	28,200	385,051	33,800
Pré-Pyrénées	34,702	10,200	113,950	11,100
Total	155,870	46,130	558,875	54,900
Résidu	3,120	970	24,024	2,200
Total	158,999	47,100	582,209	57,191

A calculation of deflated revenues in the region near the Pyrénées using the Toulouse deflation index (wheat and rye averages), which is the most favourable, gives the following results: 7,800 *setiers* in 1678 and 8,800 in 1789 — that is about a 12.8% improvement, which has then to be set against a demographic expansion of nearly 50%.

[41] At Rouergue, according to the figures published by Gerard Gangneux, revenue increased from roughly 30,000 *livres tournois* in 1678 to 89,000 l.t. in 1789, and those at Larzac from 32,000 to 95,000, those of Gévaudan from 13,000 to 40,000.

throwing into crisis. But he was obstinate and persistent, and in the end was, to a large extent, to triumph. The examples of this in Western Europe are so well known that one wearies of recounting them: the adoption of the cultivation of buckwheat, which had come from Asia, in XVth century Brittany; the conquest of the Po Valley by rice in the XVIth century; the success of the artichoke which, originating in Sicily, had reached Hyères and Montpellier and then spread throughout France and was by the end of the XVIIth century to be found in the gardens of Guéret and Amiens; then that American trump, maize, whose fundamental importance for Galicia and the Basque provinces has been pointed out by our Spanish colleagues, and the first price series for which in Aquitaine and Languedoc has been discovered by Georges Frêche at Castelnaudary in 1640; the potato which probably came first to Ireland and then spread to Europe at the time of the Thirty Years War, since it was a crop that could be hidden from the rapacity of plundering soldiers; the development in the Netherlands of techniques of livestock rearing using colza oil or brassica-based cattle cakes. These innovations nearly all date from the XVIIth century, and during the XVIIIth and XIXth centuries were to spread as far as Poland, Hungary and Russia. But is there any need to recall what are after all very well known facts, or to point out that Western European agriculture did not have any monopoly over innovation and adaptation and that the peasants of Guinea, Greece, Turkey, China and Japan did just as well in their own terms and in their own ways? [42]

But in the general conference report there is scarcely any mention of maize or potatoes (there is one reference, for Hungary). Emmanuel Le Roy Ladurie is concerned only with the noble cereals, and as a result completely misses a vital contact, because, in fact, the real progress which took place in Aquitaine's agriculture during the XVIIIth century probably slipped through the hands of the commanders of the Order of Malta, since it resulted from a greater degree of specialisation in wine production and also maize cultivation in Armagnac, Quercy and Perigord. This can be compared with the progress made in the same period in Lorraine and the Netherlands due to potato cultivation. And it was due to maize production that the needs of the population of Perigord could be fully met by the 1840s. Le Roy Ladurie's failure to mention this is all the more strange since Perigord does in fact provide us with one of the very rare examples of an increase in *per capita* cereal production.[43]

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[42] See among others the communications by Antonio Eiras Roel, Jaime Garcia Lombardero Vinas, Luis-Maria Bilbao and Emiliano Fernandez de Pinedo.

[43] The 1840 Agrarian Statistical Investigation put *per capita* consumption in the Dordogne at 1.5 hl of wheat, 0.26 hl of maslin, 0.49 hl rye — that is 2.25 hl of 'quality' cereals, as opposed to 0.75 hl of secondary cereals, mainly maize. But in the Atlantic Pyrenees region and in the Landes the dependence on maize was much greater, between 1.49 hl and 1.11 hl of secondary cereals being consumed *per capita*.

But one grain of maize or one flower of buckwheat does not constitute an agricultural revolution. And there is still no sign of 'real growth'. For this, real *per capita* growth has to be shown – and, to be more precise, this *per capita* growth must be sufficiently broad and firmly established, sufficiently endowed with possibilities of further development, so that it is not swallowed up by over-population, pauperisation and super-human toil.

II. *The Nature of the Problem and the Implications of the Issue*

The discussion which started from a number of methodological questions has unconsciously now come to touch on the nature and the scope of the problems under consideration. This is a result of the close connection between the two. But in order to avoid confusion let me try to clarify the issues.

What emerges from the sad history of the use that has been made of the accounts of Widow Couet and the Grand Priory of Toulouse is that we must both bear constantly in mind the limitations imposed by the sources and make these evident throughout our interpretation. The raising of the tithe was a social action which sometimes ended in tragedy and sometimes in comedy. In 1618 the inhabitants of the Ile de Ré massacred a royal sergeant who dared to carry out his duties.[44] Happily such extremes were not always resorted to, but reading the great inquest conducted in 1744 by the Paris Parlement one becomes aware of the endless conflicts that could arise.[45] It was not only the size of the impost which was at stake (after those who insisted that it should be 'at will' had been silenced), but the ways in which it should be raised. If the tithe was assessed 'on the furrow', what land could the tithe collecter chose on which to base his assessment? What was the position of the *cheintres*, the strips of land of varying size which the peasants of Bourbonnais and Nivernais set aside at the end of their fields for turning their oxen, and which were only ploughed later and at right angles to the rest of the land? Should the *cheintres* be included in the area subject to tithe, and if not how could their extent be delimited? In those cases where the tithe was raised on the sheaves of wheat there were similar problems of selection, to which there were various solutions; the collector could take one bundle of sheaves from all bundles in the harvest, or he could take one sheaf from every bundle, or the first sheaf from the first bundle, the second from the second and so forth... When the tithe was compounded, what size should the sheaf be? Near Corbeil it was 3 *pieds* and 8 *pouces*, near Dourdan it was 4 *pieds*, near Orléans it was 4 *pieds* and 2 *pouces*, and near Nemours 6 *pieds*. And how should it be measured? At La Ferté Alais the priests insisted that it should be measured from the point 'directly above

[44] *Bibliotheque Nationale de Paris*, Recueil de factums Thoisy, n. 16.

[45] *Bibliotheque Nationale de Paris*; Fonds Joly de Fleury, n. 1128 – all the examples which follow are from this source.

the tie and below the ears, since this makes the sheaves much bigger ', or ' from above and below the tie which crosses it and runs through it ' as the landowning peasants who made up their flock retorted? And what sort of ties: two stalks of wheat? Two stalks of rye grass? And how should it be tied? ' ...With a peg, so that a finger can barely passed between the tie and the sheaf ' (in the Chartres region)? And what about the problems involved in raising tithes on wine? Should it be based on the vine, on the grape, or on the liquor? Hence the Homeric debates on the ' unpressed wine ' in the Berry province, which were the equivalent of the question of the ' *vin de semé* ' in the Lyon area.[46]

The research on fraud in the Lyonnais and in Savoy carried on by Marie Thérèse Lorcin and Jean Nicolas should then be welcomed, even though one might feel unhappy about certain unjustified generalisations, such as the statement that ' the tithe was no longer what it had once been ' which are applied to the whole of France. In many areas of France the tithe had become part of customary behaviour without causing problems. The replies given to the inspectors of the Procurator general of the Parlement of Paris during the inquest we mentioned often ended with statements such as the following: ' it is a long time since we have received any complaints about this ' (Abbeville)... ' moreover, things are quiet with regard to the collection of the tithe ' (Auxerre)... ' we can detect neither abuses nor quarrels between the farmers and the tithe collectors ' (Gannat). When there was conflict in this period, it was normally concerned with fairly trivial issues (the *cheintres* or the ' unpressed wine '), with the exception of the tiny Beauce region. Nearly 20 years later in 1761, among five hundred Lorrain *curés* not one accused his parishioners of lowering their tithes — they all blamed a drop in *production*.[47] And since the tithes were often farmed out to individuals who were themselves peasants, it is difficult to believe that they would easily have allowed themselves to be cheated by men who were not only poorer than themselves but also often in their employment.

Conflicts over the tithes were not always the result of the ill-will of those being taxed. The inspector for Orléans, at the centre of a ' red ' area in 1744, was not so rash as to make a judgement between ' the ill-faith of the peasants

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[46] When the grapes were picked, they were tipped into a tub placed on a cart. Since they were packed in tight, in order to fill the tub as full as possible, some juice inevitably oozed out and this was collected in little pails placed on either side of the tub in the cart. It was this that was known in Berry as the ' *mere goutte* ' or unpressed wine. Should it be tithed or not? A similar case in the Lyonnais was mentioned in the communication by Marie-Thérèse Lorcin ' La fraude des décimables — mouvement court ou mouvement long? '

[47] JEAN NICOLAS, ' L'enjeu décimal dans l'espace rural savoyard ' (Edinburgh conference communication) and also his excellent thesis, *La Savoie au XVIII^e siecle: Noblesre et Bourgeoisie* (Paris 1978). For lorraine, see M. MORINEAU, *Les Faux-Semblants*, *op. cit.*, appendix III, pp. 162-231.

and the greed of the priests'. At times when there were problems with the wheat harvest, as in the last 25 years of the *Ancien Régime*, disagreements quickly arose. This situation however suggests explanations which run counter to those which the authors of the report seem to favour — the speculations regarding the price rises which Jean Vogt has described in Alsace and of which T.J.A. Le Goff has provided a 'primitive' example for Surzur in Brittany in 1777.[47] The price rises caused other values to rise as well, and we have already seen that it was this, in all probability, which caused the revenues of the Order of Malta in Aquitaine, Languedoc and Provence to rise. That revenue from land should have been influenced by the rise in prices is fairly self-evident, and serves to qualify the glee with which the physiocrats and post-physiocrats greeted these increases in the late XVIIIth century. For example, at Bourganeuf in the Marche the seigneurs, their tithe farmers and agents insisted that those tenants who were unable to pay their obligations in grain because of the dearth should pay in cash, at the highest rates recorded during the year — 12 *livres* per *setier* in 1769 and 15 *livres* in 1770. So not everything that rises causes happiness.[49]

Something else which becomes clear is that there is an imperative need to define both the aims and the terms of this research. On this Emmanuel Le Roy Ladurie has proved disappointing. On several occasions in his written works he has clearly defined what should be understood by the term 'real growth' — namely, an increase in production which exceeds that of population growth. But in his Report he goes back on this, without totally abandoning it, and swaps the sensitivity of a scholar of peasant history for the mentality of a mountaineer of tithe curves. But everything hangs on this fundamental concept. The static vision of history plays a doubly bad trick on us, for it blinds us to the significance of those hidden and marginal but often essential (as in the case of the potato)changes, while focussing our attention on those achievements which are in fact false-achievements — I would not say 'false-seemings' — since they did not in any sense lead to 'real growth' or bring about the historical development of the populations involved.

Let us not beat about the bush any further, The reason that we have become so interested in the evolution of European agriculture in the modern period is because the interpretation which we find repeated in nearly every history text book teaches that the triumphant economic take-off of the West in the XVIIIth and XIXth centuries and the achievement of economic development occurred because the West — and this conviction has become so firmly entren-

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[48] T.J.A. Le Goff, *Autour de quelques dîmes vannetaises (XVII^e-XVIII^e siecles)*, p. 9. A lease for 1777 at Surzur contained a clause introducing an inclease of 150 livres to be followed by a similar increase in 1780 'should afore-mentioned corn hold the same price in the 3rd and the 4th years'. The leaser was not all that 'naïve', but the degree of speculation and the correlation with prices is clear.

[49] *Bib. Nat.*, Paris: Fonde Joly de Fleury, n. 1157.

ched that it is hardly even discussed any more — was able to do it alone, by itself and for itself, and that it was its agriculture, and the development of its agriculture, which acted as the primary motor of this take-off. This is shown in the way in which our experts were careful to emphasise, in the device they handed out to the peoples of the Third World in the 1950s and even in the 1960s, the importance of developing agriculture, and to take as their model the mechanism which Europe itself had previously pioneered, etc... But the whole issue has clearly been proposed by the results of our own research: did Europe really experience this form of autonomous growth based on agricultural development?

Emmanuel Le Roy Ladurie is not unaware of the challenge which this poses, since it provides a guiding theme in his *Paysans de Languedoc*.[50] But if he was prepared to discuss it in the context of the XVIth century, when it comes to the XVIIIth he does not want to know about it, obsessed as he has become with his 'real growth' and his concern for Coussergues.

Le Roy Ladurie's periodisation is also very ill-voiced, and there are two reasons for this. By not siding openly with the realistic interpretation and by narrowing down the perspective he has set aside a number of explanatory factors of major importance. It creates over-weight amalgams drawn from distant and unrelated phenomena which are thrown together into a single chronological mill without any respect either for their origins or circumstances (Galicia and Cambrésis, Hungary and Ireland). The oversights mainly concern those factors which are relegated without any justification to the rank of 'secondary causes'. These include: the deterioration in the climate at the end of the XVIth century, for example, the effects of which were to be much more widespread than those of the Wars of Religion which did not affect the whole of Europe at this time, and the similar deterioration at the end of the XVIIIth century, is completely neglected; the humble innovations of maize and potato cultivation, which we have already mentioned; and above all, the demographic explosion which ran parallel with agricultural production. The neglect of many of these factors is disconcerting, especially those relating to climate change since Le Roy Ladurie has himself written an excellent and refreshing book on this very subject. One fails to understand why he does not see a closer relationship between the depressions coming from the West (which brought heavy rains in the spring and summer) and rotting harvests. He has done so elsewhere — so why not here? [51]

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[50] '... the reproduction of human beings was not accompanied at the same pace by the increase in the "production of the means of subsistence". In many respects, XVIth and XVIIth century Languedoc reflected the situation of many of today's Third World countries'. The quotation comes from the introduction to the *Paysans de Languedoc* in the little booklet entitled *Titres et Travaux de Emmanuel Le Roy Ladurie* (Limoges 1972) by the same author.

[51] I am not against citing this study by E. Le Roy Ladurie: *Histoire du climat*

To a very large extent, the level of agricultural production in Europe in the modern period was a function of population levels. Herman Van der Wee and Eddy van Cauwenberghe state this clearly in their report, and this justifies (with some reservation as to the margins of error) the method adopted by those scholars who have attempted to calculate the volumes of cereal production on the basis of population figures (Phyllis Deane and W. Cole for England, Jerzy Topolski and Andrej Wyczanski for Poland).[52] This means that falls in agricultural production should be related to the accidents which led to the decline in population in certain areas — as occurred in Hungary during the wars with the Turks in the XVIth century, or in Spain following the great epidemics of 1596 and 1654, in France and Italy after the plague of 1630, in Germany during the Thirty Years War, in Hainaut and Cambrésis during the Franco-Spanish war, or in Poland after the Swedish ' descent '... And behind these human and biologically induced catastrophes, rather than search for the totally unconvincing threads of an explanation which reduces everything to the cost of precious metals one should attempt to reconstruct the pattern and shape of the great cyclonic and anti-cyclonic movements which determined Europe's weather and hence were the cause of both good and bad harvests. The fourth factor, any survey which claims to be either systematic or comprehensive, should be that of the peasants' patient and obstinate victories over their fields: buckwheat, cauliflower, artichokes, maize and potatoes were the essential basis not of an agricultural revolution but of a persisting evolution. Once this has been established, then each one will be in a position to judge for his own particular region or period the degree of real progress *per capita* that had or had not been attained, the situation on the eve of industrialisation, and the gap that still remained to achieving ' real growth '. Any broad synchronic generalisations will only be valid so long as they remain sensitive to both similarities and differences.

The approach outlined above has the advantage that it demystifies the present false economic trends and periodisation, it permits each sector of economic life to be studied with a degree of autonomy, and hence the responses of the individual sectors to prevailing economic conditions may also be studied; it also means that the research becomes less fully determined by the progresses suggested by the documentary sources. In other words, it means that we would no longer have to gasp every time we came across some indication that production had increased and at once assume that an ' agricultural revolution ' had of ne-

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depuis l'an mil (Paris 1967) — it has also been translated into Russian (Leningrad 1971) and English (New York 1971).

[52] PHYLLIS DEANE & W. A. COLE, *British Economic Growth* (Cambridge University Press 1964). J. TOPOLSKI & A. WYCZANSCKI, *Les Fluctuations de la production agricole en Pologne aux XVI^e-XVII^e siecles.*

cessity been accomplished.[53] The picture that should replace this is one of 'sequences' of varying durations when demographic expansion and population growth occurred without there being any real 'development', in the sense that there was improvement in *per capita* incomes — there were also sequences or moments when it is possible to detect some real improvement in *per capita* incomes, but for a series of reasons, mainly concerned with technological problems and the context within which this growth was occurring, these did not lead to the long awaited take-off. As an example of one such 'temporary growth sequence' I would cite the extremely typical case that has been described by Christian Vandenbrocke, W. Vander, Pijpen and myself (following pointers given by Henri Guitton and Louis Marie Cullen) as 'the Irish style of growth' — and this was not something peculiar to that Island of the Saints, and I shall come back to it shortly.[54] To explain accurately the causes of the various falls and declines in population back to the period when the force of the Black Death had finally exhausted itself is in fact to return to reality. But the misfortunes of the era of Jean Chrysostome Pasek, of Simplicius Simplicissimus, of Till Uylenspiegel, Bishop Cauchon and pope Clement VI have been known for ages.[55] As long ago as 1892 the late Alfred Leroux in his master-piece, the introduction to the G series of the Haute-Vienne Archives, described the very high population levels attained both in the Limousin and in France as a whole by the beginning of the XIVth century. A few years later Mallet and Isaac were to confirm this. And recently other historians have been rediscovering these same facts.[56]

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[53] CATACHRESIS: 'Secondly, Tropes can be described as catachreses as this perfectly expresses their nature and use, since it means *abuse* and the *over-extention* of meaning is a form of *abuse*'. PIERRE FONTANIER, *Les Figures du Discours* (Paris 1977).

[54] CHRISTIAN VANDENBROCKE & WILLY VANDERPIJPEN: *The Agricultural Revolution in Flanders and in Belgium: Myth or Reality?* The authors were kind enough to let me have a copy of this text before the pre-conference colloquium of 1976 (which enabled me to take account of it) and it has been published in a collective work edited by Herman VAN DER WEE and EDDY VAN CAUWENBERGHE, *Productivity of land and agricultural innovation in the Low Countries (1250–1800)* (Louvain 1978), pages 163-170; L. M. CULLEN, 'Irish history without the potato' in *Past & Present* 1968, pp. 72-83. H. GUITTON, *Fluctuations et croissance économique* (Paris 1964).

[55] Of course there is absolutely no connection between these persons, be they real or imaginary, and the misfortunes of their age – as we willingly concede to E. Le Roy Ladurie and to Colbert.

[56] It would be a good thing if historians began asking questions about the uncertainties and the impediments which face the development of their discipline, and about their consequences. In my view it contains too much disagreement on basic issues, too many holes, too many omissions, and too many 'flashy' rediscoveries. All this must damage the establishment of a genuine science. The latter can only be built on ground firmly established, and periodically re-checked, particularly with a view to ensuring that the existing corpus remains consistent with new elements being added

But there is a further advantage in the approach which we have proposed, because it enables us to take up a wide number of suggestions raised in the various conference communications which were then subsequently completely ignored in the final Report. The greater part of these were concerned with problems relating to the geography of production, methods of production and the social framework of production. Our Swiss and Spanish colleagues and Marie-Jeanne Tits-Dieuaide placed great emphasis on the local character of their examples and stressed regional variations — and in this they were absolutely right.[57] Similar distinctions — which often verge on real contrasts are also relevant for agrarian France: and it could not be otherwise. Just as Galicia had some cantons which grew maize and others which grew potatoes, so in Périgord we find that in Double there was no sign of Indian corn whereas it was amongst the first to take up the American potato (because of the nature of the soil) — whereas Sarlat quickly adopted maize but in long fine time pointed to the potato.[58] If even within a small locality one finds such a variety of crop specialisation, how can one hope to take off into broad generalisations about the types of culture in such wider zones as the plains around Lake Balaton, the patch-work quilt of the Flemish plains or the banks of the Garonne? A Canadian participant who took part in the preliminary meeting in Paris (Jean- Pierre Wallos) was fully aware of this problem, and suggested that it would be a good idea to attempt an initial typology of the different types of farming and crop production, so that everyone might have a clear idea of what was involved. It goes without saying that such a proposal has our full support, and any such typology would in fact take on a geographical form. Such an exercise would enable us to bring together, and so combine, the various parameters of place, type of production, *conditions of the peasantry* — of which there is no mention in the main Report — and of *per capita* production levels, so that a balance sheet could then be drawn up for each particular type of farming — from the great estates of central and eastern Europe (with their German, Polish, Hungarian, Ukrainian, Russian,

to it. And it is only from the basis of such an established corpus that knowledge can advance. We must introduce a bit of rational geometry into our finery!

[57] More especially, although the list is not comprehensive: ANNE-LIESE HEAD: *Les Fluctuations des rendements et du produit décimal dans quelque régions du plateau suisse du XVI^e au XVIII^e siecle*; CHRISTIAN PFISTER: *An Analysis of Fluctuations in Tithe curves based on Swiss series within the period 1687-1796*; L. M. BILBAO & E. FERNANDEZ DE PINEDO, *Evolucion del producto agricola bruto en el Pais vasco peninsular 1537-1850. Primera approximacion a traves de los diezmos y de la primicia*; XAIME GARCIA LOMBARDERO VIÑAS, *Formas de Apropriacion del Excedente agrario en una economia senorial. Las rentas forales y el derecho de la luctuosa en la Galicia del antiguo regimen.* MARIE-JEANNE TITS-DIEUAIDE, *Rendements céréaliers dans l'environs de Louvain 1434-1726* (all communications at the Edinburgh conference).

[58] GEORGES LIVET, 'La vie paysanne avant la Révolution dans la Double du Périgord', in *Bulletin de la Société historique et archéologique du Périgord*, 1942, pp. 126-135.

Lithuanian etc.... *subspecies*), to the 'minifundia' of the Romagna and Aquitaine, on the basis of which one could then compare in both net and bio-economical terms the relative efficiency of each.[59]

By drawing on the documentation that was brought together for the Edinburgh conference, and especially on the work carried out by our colleagues in geography (which was treated with a totally unjustifiable neglect in the Report), it is possible to outline a number of lines of research which in my view — and I take full responsibility for this, although I should be interested in any proposals for modifications — provide the basis for what I believe to be the right approach.

The first of these concern yields. Since it has become assumed that these were on the increase, they have been strangely neglected — although the Report refers to increases in production in the XVIIIth century there is no mention of where these came from. But it was Slicher van Bath's great study which revealed their central importance, and this has not diminished in the meantime.[60] The first thing to be noted is the geographical distribution. The highest yields occurred with the greatest frequency in north-western Europe; in the Mediterranean we find regions with high yields juxtaposed those with average and even poor yields: in eastern Europe and central Europe the average productivity of the land per hectare was feeble.[61] Now this distribution is largely a reflection of physical causes — soil conditions and climate. It also reflects different methods of farming — the good and the bad, the intensive and the extensive. This is something that needs further consideration. Far too little attention has been given to the fact that the adoption of intensive farming, and hence the phenomenon of high yields, is directly related to population density — and then of course dependent on administrative factors such as land taxation (which tends to reduce the size of the area farmed by the individual) and technological developments (especially the use of manures). One cannot

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[59] These points were stressed in the papers given by our German and Hungarian colleagues: FRIEDRICH-WILHELM HENNING, *Die Entwicklung der Dienste und der Abgaben im 16 Jahrhundert in Mitteleuropa*; HARMUTH HARNISCH-HEINRICH MÜLLER, *The Development of Peasant Services, Payments and Farm Produce in the sphere of the Gutsherrschaft (great estates of the nobility) — on the basis of a few examples*; and Istvan Kiss, see below (n. 89).

[60] B. H. SLICHER VAN BATH, *De oogstopbrengsten van de verschillende gewassen voornamelijk granen, in verhouding tot het zaaizaad, ca. 810-1820* (Afdeling Agrarische Bijdragen, n. 9, Wageningen 1963) & *Yield Ratios 810-1820* (ibid n. 10).

[61] For agricultural productivity in the Mediterranean region, see MAURICE AYMARC, *Production et productivité agricoles: l'Italie du Sud à l'époque moderne*; JACQUES REVEL, *Rendements production et productivité: les grandes domaines de la Campagne romaine aux XVII^e et XVIII^e siecles*; PIERRE PONSOT, *Malthus n'etait-il pas prophète en Andalousie? Les rendements des céréales en Basse Andalousie du XVII^e au XIX^e siecle* (Edinburgh conference papers). Among more recent studies: Jean Georgelin's thesis on the Veneto and FRANCIS BRUMONT: *La Bureba à l'équipe de Philippe II* (New York, 1977).

then concur with the description of eastern European agriculture as being archaic or 'backward'. Quite apart from the methods used, which do also play a part, the main difference between east and west lay in the *attitude* towards use of land, since in the east this was freely available whereas in the west population pressure meant that it was more scarce. To some degree, intensive farming served no purpose where land was plentiful — but it was indispensable where this was not the case.[62] Proof of this can be found outside Europe — in the low wheat yields in the North Americas in the XIXth and much of the XXth centuries, or in the high yields in rice and wheat as well to be found in China and Japan from the XVIth and XVIIth centuries onwards.[63]

In Europe, the geography of this distribution of yields has existed for a very long time. Maurice Aymard has traced back Sicilian yields to the time of Cicero.[64] All the work carried out on the southern Netherlands (most recently that of Alain Derville) has served to show that the record yields which were formerly thought to be peculiar to the estates of Thierry d'Hireçon in Artois, and which were still thought to be exceptional when they were discovered again at Onnaing and Quarouble, were in fact average for the region.[65] The explanation for this historical geography is the same that we have mentioned before: physical and human factors playing a primary role, together with technology. The fact that such yields were not be be exceeded in the course of three full centuries is something which needs to be studied further. Christian Vandenbroecke's research has shown that there was in the Alost region a yield limit which was only exceeded at the very end of the XIXth

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[62] The remarks by Jerzy Topolski and Andrzej Wyczanski, to which we have already referred, on the distinctions to be made between production on the great estates and peasant production in Poland would also support this. After all, the coexistence of extensive and more intensive farming within a single country occurs frequently. In Poland's case this would explain why cereal yields in general at the start of the XIXth century prove to be much higher than those which have been reconstructed by various scholars from the records of the great estates and which were then published by B. H. Slicher van Bath. On this issue see: W. JACOB on *L'Agriculture et le commerce des grains*, in 1825. Yields from seed were generally of the order of 4: 1 — the same was true for Lithuania.

[63] At the beginning of the XXth century average corn yields in the United States were still about 11 to 12 hl per hectare. In Japan, rice yields were on average 23 hl/ha in the early XVIIIth century, while cereal yields in China in the same period were 16.5 hl/ha.

[64] M. AYMARD: 'En Sicile: dîme et comptabilités agricoles', in *Le produit de la dîme... op. cit.*, pp. 294–303.

[65] ALAIN DERVILLE: 'Le Marché Lillois a l'époque bourguignonne', in *Revue du Nord*, 1977, pp. 45–62. J. M. RICHARD, 'Thierry d'Hireçon, agriculteur artésien (1280–1328)' *Bibliothèque de l'Ecole des Chartes* (1892). R. & L. FOSSIER, 'Aspects de la crise frumentaire du XIV^e siècle en Artois et en Flandre gallican', in *Recueil de travaux offerts à M. Clovis Brunel* (1945). M. MORINEAU: *Les Faux Semblants... op. cit.*

century. The situation in Armoricain Brittany (the *Ceinture Dorée*) was very similar, and was probably due to the permanent mortgage constituted by population density, the very small scale of properties, and the problems facing peasants without capital who were trying to increase their cereal output solely with the aid of traditional techniques. The south France also got under way slowly and took-off late.[66] So in the areas of extensive agriculture there was the possibility of increasing yields, which increasing population pressure and the constraints that followed from this could bring into effect, when other solutions were not found, without having to wait for the era of industrial agriculture (as was the case in the United States).

The various fluctuations in agricultural production in the different countries can also be set in two different categories: 1) those fluctuations which were the result of the ' accidents ' and subsequent recoveries which Le Roy Ladurie has studied at length; 2) those which either followed or accompanied increased in population, the latter in turn being sub-divided as follows: a) population expansion due to cultivation of new lands or improved cereal yields (within certain limits and for certain countries); b) those caused by the adoption of new types of crop, many of which have traditionally been dismissed as ' minor ', even though they often quickly lost their marginal character and became simple subsistence necessities.[67] I will not dwell on the first type of fluctuation, although I shall come back to refer to certain documents and problems relating to these especially as far as the Low Countries are concerned: *nec sutor ultra crepidam !*.[68] The second type is the more important, and in any flow-chart they would provide us theoretically with the vectors of ' real growth '.

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[66] By the late XIXth century yields in Finistère had settled at about 18 hl/ha, which was not a great advance on 1840. This was the limit beyond which an ' over-crowded ' society could not progress, despite the everyone's efforts and the adoption of every means at their disposal to increase yields even further. The findings of Christian Vandenbroeke are supported, on a more general level, by the research of J. GADISSEUR: ' Contribution à l'étude de la production agricole en Belgique de 1846 a 1913 ', in *Revue Belge d'Histoire Contemporaine* (1973, pp. 1–48). In lower Languedoc (Departments of Hérault, the Gard) yields fluctuated around 12 hl/ha at the close of the XIXth century.

[67] This was true for maize and the potato as we have pointed out in various articles already cited.

[68] We are not very convinced about the ' superb leap into flight' claimed for the Low Countries in the XVIth century. Although in many ways it is highly eloquent, graph 4 in the communication given by Herman van der Wee and Eddy van Cauwenberghe (Productivité, evolution du prix d'affermage et superficie de l'enterprise agricole aux Pays-Bas du XIV[e] au XVIII[e] siècle) does not show what the authors claim, due to the different developments of the different estates (Ninove and Turnhout especially). On the other hand, the comparison of two pairs of decades (1430-1450 and 1530-1550) for Lierre proves misleading, because the differences are due to one singl exceptional decade alone (1540-50). In fact, the ten-yearly averages for the XVIth cene

I should like to refer to the conclusions drawn in a work which I published five years ago.[69] For two regions of France where I knew that the diffusion of new crops in the XVIIIth century was on a sufficiently wide scale to have produced results that could be quantified, I attempted to measure their contribution to the population's subsistence in the year 1840. The calculations showed the importance of this subsidiary supply of foodstuffs in the mid-Garonne region (where maize alone could guarantee the food supply for 75-100 days in the year) and in lower Lorraine (where potatoes guaranteed supplies for some 60 days). These quantities were essential for the balance and the independence of the food supplies in the two regions — as was also the ease in Ireland and Flanders. The areas devoted to such crops depended on need (as the examples of Poland and Russia in the XIXth century again demonstrate), and while in qualitative terms they did lead to a degree of pauperisation which many will find paradoxical, they also increased life expectancy and increased the population. The main role of maize and potatoes probably lay in mitigating the violence of the subsistence crisis which resulted from bad wheat or rye harvests, and so helped build up individual resistance to disease and so also to mortality.

Is this a model which can be applied to the other European countries which took up cultivation of these new crops between the XVth and the XVIIIth centuries? This does seem to have happened in many places, leading in some areas to a growing dependence on the subsidiary foodstuffs which was to have such tragic consequences in the Irish potato famine. Our colleagues in Spain, Italy, Rumania, Bulgaria, etc.... have shown what was happening in their own countries: Galicia, the Low Countries, and Transylvania became maize producers — in western Spain (Valencia), in the Po valley and in the Dobroudja rice was the answer. Let us not allow our inquiry to become stuck in any strait-

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tury are virtually the same as those for the decade 1430-1440 (about 270 *viertels* per year). Cf. the figures given in H. VAN DER WEE: *The Growth of the Antwerp Market and the European Economy* (The Hague, 1963), p. 497. I also feel that the differences between Herman Van der Wee and Christian Vandenbroeke arise from an ambiguous definition of the 'Agricultural Revolution'. Christian Vandenbroeke cannot be reproached for failing to take account of the introduction of new crops in Flanders in the XVIIIth century, especially not of the potato since it was he who first drew attention to this. But Christian Vandenbroeke has introduced a new dimension to the debate — as I did in my analysis of Hainaut — by relating increases in production to demographic growth. And on this he certainly cannot be faulted. Herman van der Wee, who was kind enough to invite me to Louvain and Brussels in the spring of 1978 to discuss our disagreements — an invitation for which I would like to thank him, was prepared to agree with me at the end of our debate. This only gives more reason for regretting that the authors of the final Report did not see fit to draw the attention of other researchers to this fundamental problem.

[69] This is the article 'Révolution agricole, révolution alimentaire, révolution démographique' published in the *Annales de Demographie Historique*, 1974.

jacket at the outset — but there were certain regions whose food supplies were initially scanty and meagre which succeeded in creating a real supplement to their output by adopting these new crops, and these led to increased *per capita* consumption. We have already shown how this happened in the Vosges. An analysis of Marechal d'Effiat's inquest suggests also that net gains were achieved in this way in Perigord too between 1630 and 1840 — the people gradually gave up their chestnut broth for maize porridge (although this change is hidden in the calculation of the ' Aquitaine average '). [70] And in the permanent race between subsistence and population, the advantage must sometimes have been held by the former — and this would have created shifts in trade and also created pockets of wealth, some of them durable, within the traditional economic structures.

So, let us beware of being side-tracked onto the slippery slope of mythical take-offs. The demographic revival of the XVIIIth century faced mankind almost everywhere with much the same problems: providing the material means to support it. The potential solutions were not infinite. Where land was not in short supply, new land could be cleared and cultivated. Where yields were low because farming was extensive, it could be intensified. When yields were already high for their time, new crops could be introduced and fallow-land reduced if space was short. If when this was done, supplies were still inadequate, then they could be obtained by cash purchases on the market or from abroad (depending on whether there were surpluses close at hand or further away), which necessitated turning to the spinning wheel or craft production (proto-industrialisation). When none of these proved possible, or when all failed, then the alternative was emigration. But let us not forget that the relationship between demography and increased agricultural or industrial production was shot through with factors whose consequences were often unpredictable and even reversible. But essentially the dilemma was as we have described it, and the response to it in Europe followed the pattern we have sketched, the particular solution varying from place to place. And in *per capita* terms the success of these responses remained much the same in western Europe and in eastern Europe — nor were they significantly better than those achieved in similar circumstances in both the Far East or in Central Africa.

Between 1919 and 1969 agricultural production in India has increased considerably, even though it has been faced by certain immovable obstacle (low yields caused by the extension of cultivation to poor soils, the irregularity of the monsoons etc...) [71] But despite these increases it has not alone been able to

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[70] In fact we discovered a net quota of 160 litres per head per year for Perigord in 1630, and in 1840 the figure was 3 hl according to the official statistics, made up of 1.5 hl of heat, 0.75 hl of other cereals (barley, oats, and in particular maize), the rest being rye and maslin. On these quotas, see above.

[71] H. BANERJI, *Supply and Demand for Agricultural Products* (New Delhi 1974).

bring about any change in *per capita* incomes. In emphasising this I am not suggesting that we should abandon making any effort to improve agriculture. My purpose is rather to draw attention to certain aspects of what really occurred in the XVIIIth century and to call for a more realistic revision of the circumstances which produced western Europe's economic take-off. Recent work on Japan in the XVIIth century and on China between 1644 and 1930 more than justifies the parallels which I have been drawing.[72] There was demographic growth, agricultural progress and the achievement of a vital minimum level of *per capita income* even though this was vulnerable, perhaps increasingly vulnerable, to monetary economic changes — but the path forward was doggedly followed: as in Europe, nothing was left untried.[73]

Western historiography since the XIXth century has been dominated by two tendencies: first by a consciousness of superiority with regard to the rest of the world, which was evident from the outset but which has greatly increased with the triumph of industrial civilization throughout the world; and secondly by the desire to show that the causes and the origins of this change in European civilisation were intrinsic and lay in the origins of that civilisation, that they were part of a continuous process, which means relegating to insignificance all the other continents and also the ways in which those changes were in fact to occur in the XIXth century. This is the root from which the current notions of 'real growth' and development have sprung. By placing as far back as possible the origins of contemporary growth an absolute pre-eminence is thereby claimed for Europe.

This has also led historians to apply without any justification and in an almost unconscious fashion, the advances which certainly did occur in certain areas to other sectors where there is no evidence that they had occurred, as is clearly demonstrated by the similarity of the agricultural achievements in the east and in the west which our own comparisons reveal for the period prior to 1840.[74] Once one examines the way in which the West has interpreted its own history, it becomes easier to explain why so many factors have been omitted from an interpretation which is bent on over-estimation and which concentrates on the continuum of indigenous forces which gave silent impetus to the 'agri-

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[72] Cf. L. GRENET, *Le Monde Chinois* (Paris 1972); N. ELISSEEV, *La civilisation japonaise* (Paris 1974) — as well as the Japanese and Chinese historians, of course.

[73] I have already made an attempt to explore and reconstruct critically the way in which the Europeans have spontaneously tended to view their own past in my contribution to the *Histoire économique et sociale du Monde* (ed. P. Léon) Vol. 2.

[74] The study of the economic development of the different European countries must of course take full account of what was peculiar to each of them. But even if France, for example, drew much less from outside and was more reliant on her own resources than other countries, she too benefited from the spatial expansion of Europe as a whole. So whatever the appearances, we cannot offer any accurate model to the Third World countries unless it takes account of the parameters of time.

cultural revolution '. The progress from a rural civilisation in which agriculture was predominant — a civilization which in retrospect we call pre-industrial even though industry was far from absent — to a civilisation which could provide virtually everything needed by its mass population, a consumer society in which the consumer was relatively and undeniably better supplied with goods than ever before, certainly marked a major historical turning-point. Yet the explanation of this change cannot be derived from the determinist view which sees only in its own past the single procreative causes. In studying the extremely complex process by which this change was achieved one must also recognise, alongside the purely technical innovations which are certainly an achievement that cannot be denied the West, the role played by what was the ' exceptional benefit ' enjoyed by Europe at this time. In fact, it had the whole planet at its disposal. Countries were able to send their surplus populations off into the immense spaces of America, they could in part pass on to other continents the task of providing some of the food they needed, and they were also able to find there much of the raw materials they required (wool, cotton etc...). This particular situation (which was to be repeated when it came to finding markets for manufactured goods) was to have its consequences like all the others we have mentioned. Obviously, not all the European countries were able to benefit equally from this, and the nature of their industrialisation as well as its timing was to be determined largely by the degree to which their participation was delayed or prevented. One thing is absolutely certain, however: today's Third World countries have no equivalent of this ' exceptional benefit ' in the XIXth century.[75]

But what about England? The Edinburgh conference provides a good opportunity for taking up this point. In my book *Les Faux-Semblants...* published in 1967, I argued that between the close of the XVIII century and 1840 the British and French sources showed that England had a lead in wheat yields over France of between 40-50%. But a more detailed comparison which, because of similarities in soil and weather conditions, was restricted to north-western France would bring the gap down to about 4 hl per *hectare* — that is 28% of the average French yields, setting aside some of the more particular cases discussed in the study.[76] Quite independently Patrick O'Brien, Daniel Heath and C. Keyder have also argued that the gap between the yields in the two countries needs to be modified.[77] This implies that by this time England had not set up a major gap and created a deep trench between itself and its continental

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[75] *Les Faux Semblants...*, pp. 73-85.

[76] Cf. their communication ' The efficiency of British and French Agriculture 1815-1914 ', published as 'Agriculture in Britain and France 1815-1914 ', in *Journal of European Economic History*, 1977, pp. 339-392. Dr. O'Brien kindly wrote to tell me that he had not read my *Faux Semblants* at the time of writing this article.

[77] In this respect, it would be well worth studying Denmark.

neighbour, and suggests that B.H. Slicher van Bath was right when he claimed that the English performance was much the same as that of the other areas which lay in the same climatic zone clustered around the North Sea and the Channel (Zeeland, French and Belgian Flanders, Picardy, and the coastal strips of Normandy and Brittany). Nor is this surprising, given that similar types of farming, techniques of manuring and forms of crop rotation were to be found on both sides of the Channel. This then provides us with a parameter for doubting the claim that it was greater efficiency which lay behind the development of British agriculture in the XVIIIth century.[78]

While mentioning England there is another factor to be considered. If we look at the figures on the yields from seed in medieval England we find that in the XIVth century they were very low — about 4:1, meaning that yields would have been about 8 *hl* per hectare, which is about half the volume which was being achieved by 1800.[79] This provides a sharp contrast with the high yields obtained from the earlier periods onwards in Artois, Flanders and Brabant.[80] But as soon as these different ratios are related to the respective population figures any sense of astonishment vanishes. With only 3 million inhabitants before the Black Death, giving a maximum population density of 20 inhabitants per square kilometre, England was a very long way off the overcrowding of Brabant, Picardy and Flanders, where density varied between 50,80 and even 150 inhabitants per km^2.[81] So the productivivity of English agriculture was adequate for the population it sustained. Its subsequent improvement, which is revealed by the climbing graph of agricultural rents, almost certainly coincided almost exactly with increasing population density (by 1600 there were 32 inhabitants per km^2, by 1730 there were 40, 60 by 1800). And in achieving this growth heavy borrowing was made from the technical models provided by the excellent Flemish agrarian economy in the Waes region. But by and large the English development followed the model that we have already described. Much of the dynamism was due to the fact it was slow in starting, and England's good fortune lay in the fact that it was never part of that over-crowding of the XIVth century which Pierre Chaunu has described so well — before the XIXth century it never suffered from desperate over-crowding sufficient to give rise to pauperism through sheer weight of numbers, and in catching up it was able

[78] The references are from the data published by B. H. Slicher van Bath and in the works of J. Titow, a resumé of which can be found in the following: 'Le climat à travers les rôles de compatibilité de l'évêché de Winchester 1350-1450', *Annales E.S.C.*, 1970, pp. 312-350.

[79] The data are from the works by B. H. Slicher van Bath, Herman van der Wee, Alain Derville, Hugues Neveux and myself and throughout this paper.

[80] Sir Richard Weston travelled around the Waes region in the 1650s and as a result introduced clover into English agriculture for enriching poor soils.

[81] These statistics have been frequently published — e.g. MacCulloch, *Dictionary*, Vol. 3, p. 418.

to take advantage of the lessons which had already been learned by others, as so often occurs in economic history. British historians now claim that the 'New Husbandry' originated in the XVIIth century, and it was the XVIIIth that witnessed its diffusion.[82] But it is not entirely clear that all the gains came after 1740 and the method of calculation adopted by P. Deane and W. Cole is a little misleading on this point. Foreign trade statistics would, however, seem to suggest in fact that after 1764 England entered a period of difficulties and that home supplies had to be made up from foreign imports.[83]

So England fits more and more into the model which we have outlined. By the end of the XVIIIth century it enjoyed a very high level of per hectare productivity, but in comparison with her neighbours in the same climatic zone her main advantage lay in her much lower population density, but this advantage was being whittled away. Between 1750 and 1759, if we take the most optimistic figures, she exported some 80,000 *tonnes* of cereals a year, not much more than was being exported from Poland and Pomerania via Danzing and Stettin. It does not seem that British agriculture was able to sustain the challenge of demographic growth for long. In the XIXth century the improvement in her agricultural yields was more modest, when compared with France, and leads one to doubt the effectiveness of certain techniques and methods of manuring which had been theoretically proven.[84] Patrick O'Brien's figures show that England held a lead not in net productivity but in terms of productivity per agricultural worker. This is another very important point. Unfortunately we can only make a comparison with France in national terms which is not very revealing since the gap would surely be less between the London basin and the central Parisian basin. The gap is also affected by the different social structure of the two societies, and in particular the different manner in which men were employed in each. French peasant communities were 'tied to the land', whereas this was less true in England due to the enclosures, the decisive impact of which

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[82] Comparing these with the figures given by P. K. O'Brien (*Journal of European Economic History*, cit., p. 361), Great Britain was employing some 188 kgs of manures per hectare in 1830 and 249 by about 1890 — the figures for France were 70 and 87 respectively. If we then compare these figures with the yields in the two countries and the ways in which they improved, it would suggest that we need to revise certain assumptions — and above all to re-examine the question of the *real* effectiveness of human labour. Without any doubt, we are facing two quite different types of rural *economy*.

[83] Clearly the whole thesis of an 'over-crowded world' is here revealed in all its frailty.

[84] The United Provinces in the XVIIth century provide one example of the ways in which economies can flourish without the support of an autonomous or autarkic agricultural sector, and in the XIXth century Britain was well and truly pointed in the same direction — but clearly this solution is not one that cannot be applied generally.

took place only at the close of the XVIIIth century and the start of the XIXth, and the different and long-standing distribution of agricultural, industrial and service production. Lack of evidence prevents us following the ways in which the phenomenon evolved, but any comparison of the history of *per capita* production in Britain and France in the XIXth century clearly reveals the nature of the two different social options adopted. By 1894, one need hardly say that it was France which asked the more from its agriculture hence the slowness of its economic development and of the 'real growth' in incomes, whereas England was more ready to exploit the resources offered by the planet as a whole, which had always provided a major element in its secular process of economic growth.[85]

We can conclude then that England does not disprove our general thesis. In fact, had it been the case that agriculture alone had had to support her demographic growth, the figures for wheat production in 1892 and the fact that two-thirds of her cereal consumption was met by imports would suggest that she too would have experienced the 'Irish style of growth'. The figures are to some extent artificial, since agriculture was to some extent deliberately abandoned by the English, but not entirely. But it remains true that it was factors external to agriculture — industry, trade, and free access to most of the world — which played the major part in her economic development. Agriculture provided no more than a facility and perhaps even a degree of freedom.[86] British historians, strongly influenced by Adam Smith, have devoted much attention to their agriculture and especially to the styles of capitalist management which emerged in the XVIIIth century and were in the XIXth to constitute important pressure groups. But the views of the Glasgow economist and his followers, which were not without their own *parti pris*, like the clamourings of the French physiocrats, in many respects went against common sense. Neglecting the motives which lay behind these views at their birth, subsequent historians have been too ready to be satisfied not with facts but with judgements on what was supposedly happening.[87]

The right perspective must therefore be panoramic. It must attempt to comprehend the nature of different economic development, events and conjunctures on the basis of a classification of geographic, physical and human, hence social, criteria combined in a rigorous style of analysis. The 'economistic' line which

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[85] Cf. the recent article by E. J. Hobsbawm, 'Agriculture et capitalisme en Escosse au XVIII[e] siècle', in *Annales E.S.C.*, 1978, pp. 508-601.

[86] It has not generally been noted that both the Physiocrat movement and interest in agronomy in France took root at precisely the moment of a series of particularly bad harvests (c. 1750). Did any sudden change in economic conditions influence the ideas of the British economists?

[87] I apologise for this incursion, but it is essential for the purposes of the epistemological analysis of the discipline.

Emmanuel Le Roy Ladurie adopts in his general Report, strikes me as totally unacceptable both because of its disregard for human effort and because of its interpretative rigidity. It turns the historian into a palaeontologist who placidly watches the single and entirely autochthonous chain of evolution of an animal species, with no regard for natural cataclysms and disregarding those branches which vanish without issue — the '*depressed areas*'.[88] The variations in agricultural production are the result of actions that really took place and of changing economic circumstances which really occurred.

Let me make two final points before concluding, The study of agricultural production must be carried through to include also the pattern of consumption and distribution. Rather than remain content with mere statistics we must try to enter into the reality which lies behind them. In this sense Istvan N. Kiss's communication was exemplary, and provided a clear picture of the amounts of high protein cereals available per family, together with the changes in time and place, There are again some valuable comparisons that can be drawn here. One part of the inquest of Marshal d'Effiat enables us, for example, to calculate the quota of wheat available for each household in Périgord in 1630. It was about 8 hl, a figure not far off the average in Hungary around 1600. But neighbouring Quercy seems to have done much better with 20 *hl* per household.[89] This great contrast within a very short distance brings to mind that which existed between Nyitra (30 hl per family) and Heves (6.4 hl per family). Leaving aside the variations, each inhabitant of Perigord had theoretically 160 litres of corn a year, roughly the same as those of the central Hungarian plain. But one can assume that the Hungarians were better fed given the large numbers of livestock which meant that meat was readily available. Whether they were still better off than the inhabitants of Quercy would be difficult to prove however. In both cases the diets need to be more carefully studied, but it would seem likely that they were roughly equal. At the other extreme of Eurasia, differences once again vanish on closer analysis: at the beginning of the XVIIIth century the Japanese consumed 180 litres of rice a year against 360 litres in China - but the customary consumption of fish on the archipelago served to bridge the gap. Throughout the world, in fact, man seems to have been able to acquire either from farming, from hunting, from fishing or from scavenging the bare minimum that he needed. In 1840 except in the new countries and those weighed down by gross over-population, this was still the case.

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[88] As economic growth forges ahead it builds up 'depressed areas' in its wake. — the problems of Lorraine today are an example of this.

[89] ISTVAN KISS: 'Volume et production des Exploitations paysannes en Hongrie XVI^e^-XVIII^e^ siècles. Base démographique et capacité d'alimentation' (Edinburgh conference communication) Marshal d'Effiat's inquest will be published in the *Annales de Démographie Historique*.

[90] The existence of a surplus of food supplies in the new World is fairly evident

This conference has been concerned with the problem of peasant production and agricultural incomes. Very little, in fact, was said about the peasants' incomes, which is a very major omission. How can we arrive at the living standards of the masses unless we deduct from the income gained from farming all those seigneurial dues and the rest — all the rents and the tithes which have become our hunting ground — which weighed on the peasants long before we set out in our usual illegitimate fashion to use them as indices of the levels of production? Again we must try to rid ourselves of any *a priori* notions as to the relatively good situation of the peasants under the regime and social modes of production. In Perigord, Church and seigneurial dues alone accounted for 20% of total agricultural income, and to this must be added the share which went to the landowner. This leads one to think of the conclusions of the great Indianist, W. H. Moreland, who tried to discover the origins of the misery of the sub-continent in the reigns of Akbar and Aureng-zeb. He thought that he had found the answer when he discovered that taxation of peasant incomes had risen from 50% — a percentage which he claimed was still tolerable and even allowed for a narrow margin of accumulation — to 66%, which totally destroyed any hope of survival.[91] Now Hugues Neveux has calculated that in Cambrésis taxation and rents amounted to two-thirds of the peasant's income, and in nearby Aquitaine Georges Frêche has discovered peaks of 60% and over.[92] Does this suggest that the simple arithmetical division of resources in Perigord would tend to give, by itself, an unduly rosy pictures. The misery which existed was clearly social in its origins and causes. But on this more international and intercontinental comparisons are vital if we are to obtain a clear picture. What did a Hungarian peasant really earn from his labours? What did an Indian or a Chinese or a Japanese peasant earn? And an English peasant? [92]

Once again we must accept that the figures take us to to the edge of the unknown. The existing corpus of notions and views on the history of Western agricultural production in the XVIIIth century, on the 'agricultural revolution', on 'real growth', and on the take-off are as we have described them in the course of this paper. It is much more difficult to break away from a structured and coherent body of ideas, no matter how erroneous they may be, than to

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— for example the meat diets of the populations of the Pampas. It would not appear that in 1840 there were large zones of major over-population and under-nutrition. We were astonished to discover when comparing a sample budget of a Chinese peasant familyvin Ning-Po with that of a French family (from Aunis) that the calory levels were almost equal, the Chinese being perhaps the higher. Cf. 'Révolution agricole, révolution alimentaire... etc.' *cit.*, pp. 370-371.

[91] W. H. MORELAND, *From Akbar to Aureng-zeb* (London 1923). H. NEVEUX, *op. cit.*; G. FRÊCHE, *op. cit.*, pp. 567-568.

[92] 'La peur du salaire', which was rejected by the *Revue d'Histoire Economique et Sociale* will appear in the *Annales de la Révolution Francaise.*

concede a minor point in discussion. But the nature of this research on agricultural production and agricultural yields suggests that such a break must be made — like a jacket that begins to disintegrate once one starts pulling at a thread, the whole thing unravels.

This overlong paper does not call for any further conclusion. I am sure at the end that it is through collective revision of the documentary evidence available and through collective reflection on the manner in which its interpretation can be made more clear and precise that knowledge and understanding progress.