March 18, 1983

THESES ON ENCLOSURE

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Some time ago I developed the view that enclosure is merely the other side of the persistence of open fields.*

* "The Persistence of Open Fields," pp.73-119, and "The Economics of Enclosure," pp.123-160, in William N. Parker and Eric L. Jones, eds., EUROPEAN PEASANTS AND THEIR MARKETS (Princeton, 1975); and "English Open Fields as Behavior Towards Risk," pp.124-170 in Paul Uselding, ed., RESEARCH IN ECONOMIC HISTORY, Vol.1 (JAI Press, 1976). These and other pieces are the beginnings of a book in progress.

The scattering of strips in open fields was behavior towards risk. When the risks were more easily borne the strips were consolidated, parliamentary enclosure being merely the last (though largest) step in a long journey. Inheritance customs and egalitarianism had little to do with the persistence of open fields in the Middle Ages, nor did common herding or scheduling of work. Likewise, the rise of a capitalistic spirit and an impulse to expropriate the poor had little to do with their demise in early modern times. The tale is one of rational peasants giving way to rational farmers in a thoroughly rational way. If anything the 13th century is more easy, not more difficult, to understand in straightforward economic terms than is the 20th century. And the 18th century, a very Age of Reason and the age about which economists first reasoned, is easier yet.

Being unrepentant in these views, it is natural to cast further thinking in their terms. What follows is a very rough sketch of theses commenting on the 1975 article on enclosure. The headings are a summary of the original article. What appears under a heading is new thinking (if any) that I have had time (if any) to set down for the conference.

1.) Measuring the land affected by enclosure is difficult.

2.) But enclosure by agreement still left in 1700 about half of the agricultural land of England to be enclosed.

It would be desirable to settle the issue more firmly. A proper random sample of villages would make it possible to do so without exhaustion. Glebe terriers are a good source.

The "land affected" is ambiguous. If one's purpose is to measure the effect on yields, then weighting the land by its yield is relevant; if the purpose is to measure the effect on people, then weighting by population (the 1801 census, say) is relevant.

3.) Enclosure in the 16th century was not extensive.

Contra Tawney, Agrarian Problems, p.265, against Gay's finding from the returns that the area affected in the 16th century was small: "The evidence of a general trend of opinion during a century and a half... to the effect that agrarian change caused extensive depopulation, is really a firmer basis for judging their effects than are statistics."

4.) Equity has dominated the discussions of enclosure, to the neglect of efficiency.

5.) In a broad way, that the 15th-19th centuries brought enclosure can be attributed to the diminishing charms of open fields, especially to the diminishing contribution of scattering of strips to insurance against disaster.

Perhaps there is something in the notion that before the engrossments of the 16th and 17th century the shape of fields was governed by the wishes of smaller farmers more open to risk. One must see whether the areas of rising sizes of farms are in fact those with earlier enclosure.

6.) The demands of the common law made enclosure expensive.

What was the case on the Continent, without the blessings of common law?

7.) Piecemeal exchange was frequent.

8.) The common law made it difficult for all to give their assent to an enclosure; equity was for a time a popular alternative, but became expensive.

As 13 Geo III, c.81, para. xxii puts it, "the Owners ... may be incapable, through various Impediments, of entering into any of the Agreements." The owners thus impeded, for instance, might be "Minors, Lunaticks, or beyond the Seas."

Is it possible that it is to any substantial degree the entailment of large estates, not the protests or small, that required the transcendent power of Parliament?

9.) Parliamentary procedures broke the power of each owner to veto an enclosure, by requiring merely a majority.

The alleged rule that in a parliamentary enclosure 3/4 of the owners could vote an enclosure may be wrong. Lambert's book Bills and Acts believes the language of the 1773 act, which related not to enclosure but to the regulation of open fields, is the source of the notion. The actual rules and their history need to be established.

10.) Yet parliamentary procedures were not developed until the early 18th century.

A comparison with Scotland would be to the point (cf. Dodgshon, 1975 and "Removal of Runrig," 1972).

11.) The pre-enclosure costs of bargaining were large.

Michael Turner, 1973, p.36: commissioners and solicitors employed for large fees to explore opinion before an act was attempted: 11 % of the costs at Drayton Parslow 1797-98; 9 % at Stewkley 1811-17; 27% in the enclosure of Olney wastes, 1803.

12.) Costs of parliamentary enclosure would vary from place to place.

13.) The interest rate is a cost, as Ashton argued.

14.) The objection that great landowners did not finance enclosures by borrowing is irrelevant.

The frequency with which the "source" or funds for enclosure has been discussed is no sure guide to its importance:

Habakkuk ("Economic Functions", reprinted in Minchinton, ed., vol. I, p. 194) reckons that 7.5 % of annual gross income was the usual set-aside for repairs and improvements, and did not entail financing "out of capital"; enclosures were something above this, and did entail financing out of capital. But the distinction is meaningless. The 7.5% forgone from income is a forgone opportunity to invest just as much as the other 92.5%, or the

wealth held as land or bank accounts. Money is fungible.

Likewise F.M.L. Thompson (Eng. Landed Soc., pp.224-226) argues that only small owners had to borrow to finance an enclosure, and therefore only they were affected by the interest rate. The large landowners acted as their own bankers: "when the prospective yield on an enclosure might be on the order of 15 or 20 per cent it seems unlikely that a difference of a few points in the yield of government stocks would deter a great landowner from making the investment" (p.226). But the great landowner nonetheless faced the alternative of investing in government stock; many did, suggesting that the alternative was not far from the margin of their concern. And a doubling of the prevailing rate of interest (not only on consols, but on all yields attached to it) cuts the value of a perpetual stream of higher income from enclosure in half, even if the interest rate is a mere 4 or 5% in its most secure form.

And again Parker, 1960, p.5: "There is no evidence, however, of landowners borrowing to enclose; and high interest rates certainly did not always check expensive enclosures (notably during the wars against revolutionary and Napoleonic France)." That an investor does not borrow is beside the point if he is in a position to lend: he faces the rate of interest as an opportunity cost, even if he does not literally pay interest to anyone. And the high interest rates of the French Wars were not always high real rates; indeed, subtracting the percentage rate of inflation that might reasonably have been expected to occur, it fell.

It should be noted that the arguments by Habbakuk, Thompson, and Parker are just that, arguments in the abstract, not citations of evidence relevant to the point. Such evidence would be, for instance, a letter from Lord Bumble to his agent, saying "Damn the rate on stock: I shall go forward with the enclosure of Little Bumbleton on the Wold.". Or demonstrations that the rich enclosed as much, or nearly as much, in years of high real rates as in low. Or demonstrations that the rich were simply unconcerned with the interest rate in their other affairs. Consider Sir John Griffin's annoyance in 1793 at the proposal that he pay L5000 for a property earning L136 a year and leave the present life tenant in possession: "Exclusive of every other Motive the sum of L5000 lock'd up for a healthy Man's Life from the Power of improving its Interest beyond L135, when probably the same Sum will produce an Interest of L250 a Year is a Matter not to be passed over slightly." [J.D. Williams thesis, 1974, pp.345-46]

15.) Costs of parliamentary enclosure apear to rise from 1760 to 1820, but this is a consequence of the greater complexity of later enclosures; costs actually fell, thereby inducing further enclosures.

Turner (1973) makes a persuasive case that costs before the act and after the award were high: negotiation before was not free, and after the award there were costs of finishing roads and forcing compliance that were not adequately allowed for in the award. This for Buckinghamshire.

A cost that needs to be and can be measured is the cost of delay between act and award. A Mr. Maxey put the point well to Batchelor (his Report on Bedfordshire, 1809, pp. 243-44):

> "The farmers, as soon as they have an idea that an enclosure will take place, thinking themselves not interested in the future state of the land, naturally set about making the most of it for the time being; hence the culture is neglected, little or no manure is bestowed, the dung for two or three years remaining in the yards; the land [is] cropped... for two or three years previous to the enclosure, and... even the fallows... . Such lands certainly have not, for ten or fifteen years, produced two-thirds the grain ...[or] stock, as before the enclosure."

Commissioners took over the management of the fields to prevent such behavior: were their management effective the chief cost would be before the act, and would be difficult to measure.

16.) It is said that contrary to the foregoing argument, the parliamentary enclosure movement was no seizing of mutually advantageous improvement, but "a plain enough case of class robbery" (E. P. Thompson).

17.) The assertion must be faced squarely, because it is indeed possible that it was not a fall in costs or a rise in benefits that caused the enclosure movement of the 18th century, but a shift in the distribution of the spoils.

18.) The rights of the landless might have been hurt by enclosure, though the value of the rights was so small that stealing them could hardly have motivated enclosure.

19.) It is the rights of small landlords--- yeoman, if you will--- that have been the chief focus of concern since the Hammonds wrote.

20.) The claim the Hammonds made, endorsed by later historians of the class struggle, is that small landlords had to fence their small plots at larger cost per acre than large landlords, and were therefore induced ("forced") to sell out at prices advantageous to the larger owners.

21.) The claim is doubtful on several grounds, the most important being that a small owner who could sell out before fencing is not hurt: he receives the post-enclosure price of land, since his piece unallotted and unfenced is in the common pool of land, and the price is double the pre-enclosure price.

It is critically important, therefore, to find out when small owners could and did sell out. Marshall (On the Appropriation, 1801, p.52n) is emphatic: "Many small proprietors have been seriously injured, by being OBLIGED, in persuance of ill framed private bills, to inclose lands which never repaid the expense." [his emphasis] The so-called General Enclosure Act provided a standard clause that might be used to avoid the problem. Small holders "may be desirous of stocking and depasturing in common, and... sharing such produce as may grow thereon." [41 Geo III, c.109, para. xiii]. One might examine the acts to see how many were in fact "ill framed" in this connection. In Ellis' careful summary of the clauses of Wiltshire enclosure acts, for instance, there is mention of clauses allowing barter of lands before fencing, and provisions for borrowing on the security of the land not yet enclosed, but never a clause specifically allowing (or for that matter disallowing) actual sale. The 1845 act, a true general enclosure act, explicitly allowed people to sell their allotments at any time, although this could be viewed as evidence either of a custom broken down by law or a custom ratified by law. Again Michael Turner's researches are to the point. Using the land tax, he showed that people did sell out before the final fencing; Ellis (1975, p. 98) concludes that "the period between the Act and the Award was an unsettling one, because of buying and selling."

22.) Even if there was pressure to sell at bargain prices to the larger holders, the gain to doing so was a trivial part of the total gain to the larger holders. The chief gain was the doubling of the value of the land; so small was the share of the land held by small owners that acquiring it, too, at some discount on the doubling of land prices was no large gain: 3.8 percent in Warwickshire, for instance, as against a 77 percent increase due to higher land prices on large estates.

23.) If the distribution of spoils has anything to do with the timing of parliamentary enclosure it is more likely that it is the distribution among the rich than the distribution between rich and poor that mattered. Tithe holders, in particular, could hold up an enclosure.

The history of the share
of titheholders before and after enclosure is knowable;
its history is the history of ruling class struggle.

24.) Certain other reasons for enclosure must be rejected.

The hoary fable of sheep eating men has a life of
The fable of sheep eating men is easy to attack but difficult to kill. It forms the basis for a Marxist model

of enclosure offered by Cohen and Weitzman, who place the upsurge in enclosure in the 16th century. Wool prices relative to grain prices, of course, fell, not rose.

A related theme is taken up by Cohen and Weitzman from the Marxist side and Baack and Thomas from the capitalist side. It seizes on the word "common" in common fields, and supposes that land in them was not owned. The land, in the economist's jargon, was "the fisheries case," overharvested because common. Without wishing to descend to mere ridicule (sober criticisms are quite enough to finish off the argument), one is reminded at this point of the immortal analysis by Sellars and Yeatman in 1931 (1066 AND ALL THAT):

> "At the same time there was an Agricultural Revelation which was caused by the invention of turnips and the discovery that Trespassers would be Prosecuted. This was a Good Thing, too, because previously the land had all been rather common; and it was called the Enclosure movement and was the origin of Keeping Off the Grass. The movement culminated in the vast Royal Enclosurem at Ascot which nobody is allowed on except His Majesty the King (and friend)."

Land was owned before enclosure, of course, and paid rent. If it began to be overharvested--- in this context, overgrazed--- it was stinted, that is, subjected to communal regulations that offset the failure (if any) to establish property rights in land. The economic treatments of enclosure that suppose the contrary can be faulted in detail.

At the other methodological extreme are the "explanations" that state empirical correlations or partially argued theories of the origin and persistence of open fields. Gray's brilliant book, still full of interest after 70 years, provides many examples:

p.109: "A form of tillage so inconvenient, so inflexible, so negligent of the productivity of the soil, could not long endure after technical improvements in ploughing had made possible its abandonment and after its social advantages had come to be disregarded." The remark accepts uncritically, as he does elsewhere, Seebohm's coaration theory of open fields, which is itself incomplete logically (that is to say, its conclusion does not follow from its premises) and empirically dubious.

p.122: "parliamentary activity, voluntary agreement, situation within a forest area or beside a river, and the existence of an ancient residential estate" all are "reasons" for enclosure. These are either the act of enclosure itself or events correlated with it: the one is not a reason, the second at best an incomplete sort of "reason."

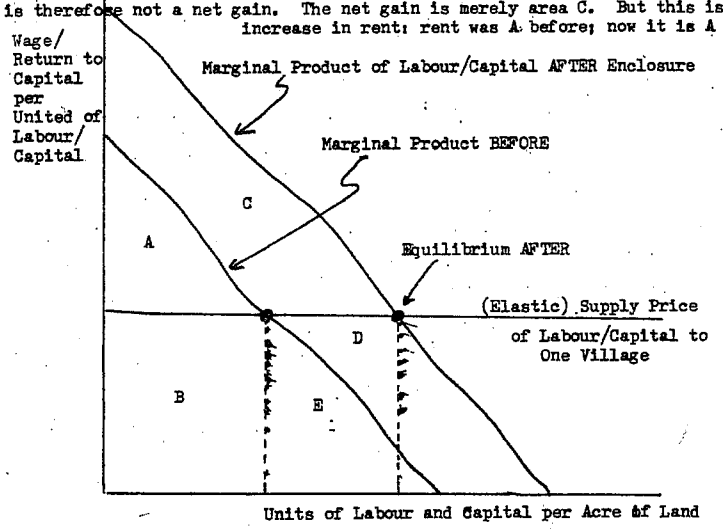
p.405: "Freed in one way or another from the pasturage needs of the Midlands, and disposed with none of the symmetrical arrangement there prevalent, the open-field arable acres of the non-midland counties readily yielded to enclosure at an early time."

25.) In short, the enclosures of the 18th century were a matter of benefits to consolidation exceeding the costs.

26.) The measuring of the benefits is not possible from examining output: there are no data to be measured. But rents are available in elastic quantities. The rise of rent, it can be shown, is an estimate of the social benefit from enclosure.

Why the Change in Rent After an Enclosure is an Estimate of the Net Social Gain

The area A + B is the total output of the village before enclosure. After enclosure the marginal product curve moves out, inducing more labour and capital to move into the village, yielding Equilibrium After. The whole increase in output, and the amount that would appear in records of output, is the area C + D + E (because A + B + ... + E is the total output after enclosure). But the rectangle D + E represents the opportunity cost of the factors of production, labour and cpital, drawn into the village (land is immobile). It is the output forgone elsewhere in the society by producing more corn in the enclosed village, and is therefore not a net gain. The net gain is merely area C. But this is the increase in rent: rent was A before; now it is A + C.



27.) Rent approximately doubled on an enclosure.

The evidence is ample. It can best be arranged by source, proceeding from journalistic assertion to the records of actual holdings. Journalistic assertion, needless to say, is the most plentiful, and can be used to give an impression of chronological depth. The 1598 edition of Fitzherbert's Book of Husbandry, for instance, asserted of the encloser that "than shall his farme be twyse so good in proffite to the tenaunte as it was before" [p. , quoted in Ernle, p. 65]. The tenant would then be willing to pay twice as much in rent too, unless "profit" means exactly "net of rent." Norden's Surveiors Dialogue, very profitable for all men to peruse, but especially for Gentlemen...willing to buy, hire, or sell lands put enclosed land at 50 percent greater in value than open [1607, p. 97, quoted in Leonard, p. 114]; half a century later Samuel Fortrey put it at three times greater [England's Interest, 1663, p. 228; Leonard, p. 114]. The precision and the variation are misleading. The figures are always rounded and undocumented, and the definitions usually unclear. The City and Country Purchaser and Builder said about 1667 that "enclosed lands in many places doth yield half as much, or as much more, as lands in common fields." [Stephen Primott, quoted in Thirsk & Cooper, p. 288]. Is "yield" the yield of rent? Or is it yield of grain, in which case the sum left over for the residual claimant would be larger still? Probably rent, but it does not matter. These are mere rough guesses, statistical equivalents of saying "a lot" or "more than stick-in-the-muds might suppose."

Similar figures in the next century can be drawn from the pamphlet literature. But that itself is a problem: the literature is indeed one of pamphlets, in aid of enclosure and inclined doubtless to exaggeration. When Henry Homer, an enclosure commissioner and enthusiast for the movement, sets "the general improvement of the field" from the landlord's point of view at a doubling, one would be nonetheless unwise to surrender all doubts on the matter [Homer, 1769, p. 64]. It would help to read the other side of the battle of the books, to see if the rise in rent was conceded even by those who thought enclosure ruinously depopulating. In any event it is hazardous to rely on the pamphlets.

The temptation is greater to rely on the quarto drafts (1793/94) and octavo final editions (1796-1814) of the Board of Agriculture's General View of the Agriculture of the County of Xshire. The authors, to be sure, were advocates for improvement as they saw it, including enclosure. But their tone is more sober and scientific than that of the pamphleteers: no doubt by 1793 they knew they had already won, and could afford to be less shrill. Some are undocumented opinions, but the opinions nonetheless of careful observers of English agriculture. Clark's quarto (that is, preliminary) report on Herefordshire asserted that "no sooner is land inclosed, than it lets for nearly double the rent that it did when it was in common fields" [1794, p. 74; cf. p. 70 n]. Pitt's octavo Staffordshire reckoned that "in all cases..common-field land is improved at least five shillings per acre by inclosure" [1796, p. 40], rent being after enclosure (and after some inflation of grain prices) from 10 to 30 shillings an acre [p. 26]. Holt's quarto Lancashire reckoned a doubling or "in many instances" a trebling of rents

immediately on enclosure [1794, p. 51], though this is probably enclosure from waste, not arable. These were regions to the north and west of the main lump of open fields surviving. Only 4.3 percent of the area of Herefordshire and 3.3 percent of Staffordshire was arable enclosed by act of Parliament, as against 40 to 50 percent in Bedfordshire, Cambridgeshire, Huntingdonshire, Leicestershire, Northamptonshire, Rutland, the East Riding, and Oxfordshire [Michael Turner, English Parliamentary Enclosure, 1980, pp. 180-181]. But in his 1813 final report on Oxfordshire Arthur Young quotes a Mr. Davis of Boxham, another enclosure commissioner: "In general, rents have been increased by the enclosures in Oxfordshire, reckoned at the first letting, nearly double; and much more after ten or twelve years." The first letting would be attributable to the promise of enclosure alone, the later rises to further improvements showing their worth, or perhaps to rises in the price of corn.

Other of the testimony from the General Views concerns particular enclosures, not overall impressions. The instances reported here, not inclusive but not chosen to arrive at a high estimate either, can be arranged chronologically:

Table . Rises in Rents Immediately After Enclosure, from General Views of the Board of Agriculture

Village	County	Date of Enclosure	Rise in Rent Immediately After Enclosure	Source
Elford	Staffs	1765	"trebled"	Pitt's Staff (1796),p.41
Lidlington	Beds	1775	83% (12s to 22s)	Batchelor's Beds (1808), p.
Coney Weston	Suffolk	1777	doubled "since the enclosure"	Young's Suffolk (1794), p. 53
23 Villages	Lincoln	before 1799	92% (L 15,504 to £ 29,760	Young's Lincoln (1799), pp. 77, 83
Risely	Beds	1793	90% - 157% (7-10s to 18-19s)	Batchelor's Beds (1808), p.
Milton Bryant	Beds	1793	88% (10-7s to 20s)	Batchelor's Beds (1808), p.
Queensborough	Leics	1793	92% - 130% (10-12s to 23s) "now"	Pitt's Leics ( ), pp. 70-76
Dunton	Beds	1797	113% (8s to 17s)	Batchelor's Beds (1808), p.
Enfield	Middlesex	1803	33% (L 18,000 to £ 24,000)[a]	Middleton's Middlesex (1807), p. 142
Wendelbury	Oxon	c. 1805	140% - 167% (9-10s to 24s, the latter tithe free)	Young's Oxon (1813), p. 37

Notes: [a]The figure is for 1805. "Many have unfortunately adopted [more properly, retained] the old plan" of two successive grain crops.

These allege to be observations, not mere optimistic opinion. They average about 100%: a doubling of rent. True, some reckoned the rise to be lower. Davis' quarto Wiltshire [1794, p. 83] remarks that "the difference of rent and produce is not so great as in many counties," setting the increase at a third or a half. Wedge's quarto Warwickshire [1794, p. 20f] reports that in the forty years before he wrote the south and east of the county had been enclosed, producing "an improvement of nearly one-third of the rents, after allowing for...expenses." He puts the expenses at 45s an acre "when frugally managed; which, in many instances, was not the case." If rents before enclosure were about 10s and the interest in perpetuity to pay back the expenses of 45s were 6 percent, then the implied ratio of rents after enclosure to rents before would be about 60 percent.

But the general opinion, even outside the Board of Agriculture, was that a doubling could be expected. Parliament itself, though guided in this by the Board, believed that the capital gain in the price of land after enclosure was large, and in its General Enclosure Act of 1801 (41 Geo. III, c. 109, para. II) forbad enclosure commissioners to buy land until five years after an award. A doubling of rents was the conventional estimate of the capital gain. Michael Turner [1973, p. 36] cites a letter by John Fellows, commissioner for an unsuccessful attempt to enclose Quainton, Buckinghamshire, using the doubling convention. John R. Ellis ["Parliamentary Enclosure in Wiltshire," Ph.D. diss., Bristol, 1971, p. 93] quotes the parties involved in the enclosure of Aldbourne in 1805-09 using it. Even for the tiny acreage still unenclosed by 1844 a tithe commissioner held out to the Select Committee on Commons Inclosure the prospect of a rise from their existing levels of 15s or 17s per acre to 30s "by the mere simple re-distribution of land," which is now "incapable of cultivation according to improved rules of good husbandry" [SP 1844, vol. 5, question 257].

The best sources are account books of estates experiencing enclosure. The vigor with which estate studies have been pursued in England makes general impressions possible. For an early instance, John Broad using the Verney family manuscripts was able to extract most of the relevant facts about the enclosure (by agreement) of Middle Claydon, Buckinghamshire, in 1654-56 ["Sir Ralph Verney and His Estates, 1630-1696," D. Phil Oxon 1973]. The rent rolls in 1646 imply rents of about 8s an acre, depressed perhaps by the Civil War; a surveyor's valuation of 1648 puts them higher, at 11.6s an acre. The actual rent paid in the three years after the enclosure was 17.8s per acre, a rise of 53 percent from the valuation before. The Harcourt family papers, of Stanton Harcourt in Oxfordshire, were used by J. R. Walton to calculate a rise of rents from L 1415 in 1773, a year before the enclosure, to L 2444 in 1777. ["The residential mobility of farmers and its relationship to the parliamentary enclosure movement in Oxfordshire," pp. 238-52 in A. D. M. Phillips and B. J. Turton, eds. Environment, Man and Economic Change (London, 1975), at p. 241].

B. A. S. Swamm's dissertation of 1964 ["A Study of Some London Estates in the Eighteenth Century," Ph.D., London] contains many similar instances. A farm of about 90 acres in Great Wilbraham, Cambridgeshire owned by Jesus College rose from 9s an acre in 1796 to 30s an acre in 1802 after enclosure, a rise of over 200 percent [p. 153f; cf. pp. 167, 209]. Holdings of St. Bartholomew's Hospital in Bottisham, rented for £ 465 a year in 1794 and £ 1100 in 1801, after enclosure a rise of over 130 percent [loc.

cit.]; seven holdings in Northamptonshire "more than trebled" in rent on enclosure. The history of Fiennes Trotman's dealings with St. Bartholomew's illustrates a number of points about such figures. For one thing, he like others held by long lease, making the rents long averages of expected conditions. In 1753 he received a 21 year lease on 59 acres of open field at Heath, Oxfordshire (and stinted rights to a share of an 80-acre common) for £ 4 per year and a £ 160 entry fine. The entry fine, an ancient device, amounted to prepayment of rent. At 6 percent interest (for which there is some evidence in the accounts) it was equivalent to an addition of L 13.6 a year to the L 4 explicitly promised, implying a rent of 6s an acre.* In 1772 the village was enclosed, 47 acres of enclosed land allotted to Trotman in exchange for his 59 acres of open fields. The other acreage perhaps went to titheholders. He was granted in 1774 a new lease for 14 ½ years at L 14, so low "possibly [as] some compensation for the expenses he incurred in enclosing" [Swann, p. 206]. When in 1789 the lease expired the underlying value of the now-enclosed land was finally acknowledged in the rent: it rented for 11.9s an acre, double the earlier figures (both 6s an acre).

True, enclosure was not always a good idea to the extent of a 100 percent leap in rents received. A 60-acre farm at Tempsford, Bedfordshire owned by Jesus College rented at £ 30 in 1749. It was enclosed in 1777, at a cost of about 7 years of such rents (L 218). The College was able to lease it for three years at £ 45, a modest 7 percent return on such expense. After 1780, however, the College had to accept lower rents, first of £ 40, then of £ 36: it would have done better in consols.

A more important case is the Longleat estates (1773-1808) in Wiltshire, analyzed by J. R. Ellis ["Parliamentary Enclosure in Wiltshire," Ph.D. Bristol, 1972]. Enclosure produced no increase in rent [pp. 119-125]. At Warminster, for instance, rental surveys in 1781 and 1801 which bracket the enclosure of 1783 show rises of 58 percent in rents on land anciently enclosed. Such a rise is to be expected, since wheat prices rose 42 percent from 1773-82 to 1792-1801. What is not expected is that the rents on land enclosed in 1783 rose only 28 percent [p. 135]. It must have been very peculiar land to fall in price relative to wheat after enclosure. Ellis remarks that the earlier "rents" may have been mere notional figures, tenants being persuaded to accept holdings by prospects of remissions and easy accumulations of arrears. We do not know.

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*An annual rent, R, for n years at i percent interest is equivalent to a price, P, paid in the first year according to:

$$\frac{R}{i}\left[1 - \left(\frac{1}{(1+i)^n}\right)\right] = P$$

With P = £ 160, n = 21 years, and i = .06, R is £ 13.6, to be added to the £ 4 explicit rent on 59 acres. The calculation ignores, as ideally it should not, deductions for the probability of the lease holder dying: the entry fine had been paid and would not have been remitted had Trotman dropped dead the day after paying it. Allowing for mortality would raise the effective pre-enclosure rent.

We do know, of course, that a rise in the prices of things grown would increase rents. Land is the residual claimant. As Ricardo said, the price of land is high because corn is high, not corn high because land is high. A perfectly general inflation causing prices of harvest labor, horses, plough parts, and transport as well as corn itself to rise together would cause rents to rise in the same proportion. But if corn rose relative to other things, as it did especially during the French Wars, then the rise in rent would be more than in proportion to corn. Pitt's Leicester in 1809 noted that the Duke of Rutland's rents increased from 6s to 18s an acre after enclosure "in part produced by the enclosure, but in part certainly by a change of times and circumstances" [p. 15]. Most of Leicestershire's (and Rutland's) enclosure of arable by Parliamentary act happened before 1793 [Turner, 1980, p. 186], but the 18s figure was doubtless war-inflated. Likewise, the rise in rents accruing to the chief landlord of Aspley Guise, Bedfordshire from L 85 in 1759, on the eve of the enclosure, to L 158 in 1781 looks less impressive, and much less than an 86 percent rise, when set beside the inflation that brought wheat prices up from around 30s per Winchester quarter to 45s over the same span.

The difficulty, then, is that rising prices of grain in the late 18th century, especially during the French Wars, would lead one to exaggerate the impact of enclosure alone. The difficulty might be sidestepped by examining rents on open and enclosed villages at the same time. Richard Parkinson's General View ... of Rutland (1808), for instance, contains elaborate statistics including rents of some 53 villages in the midget of English counties, a compact and uniform area if there ever was one, being 18 miles across at its widest extent. The statistics that can be cooked up from Parkinson are mouthwatering in the extreme. One is hungry, alas, an hour after eating.

Parkinson gives particulars in each village of rotations practiced, the type and quality of soil, the percentage under crop, the yields per acre of wheat and barley, the yield per seed of wheat, and, above all, the rents, tithes, and poor rates per acre. The significance of this last is that rents paid to landlords are not full economic rents. Some of tithes and all of poor rates fell on the owners of land, land being as was argued earlier the immobile input on which all local burdens and benefits came to rest. The full economic rent is what prices and productivity push up or down. Poor rates and tithes are simply the portions of economic rent appropriated by the local government and the church. They are not opportunity costs of production but mere redivisions of the full economic rent. To put it another way, if the land of Wardley in southwest Rutland had been in 1807 suddenly freed of its poor rate of 1s 3d an acre and its tithe amounting to 3s 9d an acre (supposing the tithe collected as a land tax, as it often was by this time), then tenants could have paid 30s rather than 25s an acre to the landlords of the place and still collected the usual reward to tenantry. Tenants in the village of Wing about six miles to the northeast paid the same 25 shillings per acre to the landlords. They paid to the village twice as high a poor rate but no tithe at all (these were both enclosed villages), with the result that the full economic rent at Wing can be reckoned at 28.1s, as against 30.0 at Wardley.

The full economic rent can be easily calculated for Parkinson's Rutland as for most places it cannot.*

If the other burdens on economic rent moved up as the landlord's rent did the distinction would not be important. But they did not. Tithes in particular were often eliminated along with open fields, especially in this age of improvement, and were compensated as we have seen by a share of the land. The landlords had less land earning them a higher rent. But the higher rent would be a sign of lower taxes (or a shrunken holding: really, shifted taxes), not higher productivity. The Rutland sample illustrates the point. The 44 enclosed villages around 1807 had "rents," defined as the payments to the landlord, of 22.2 shillings per acre on average (with a standard deviation of 5.8s); the 9 open villages had rents of 14.9 shillings per acre (standard deviation of 3.4s); the difference is nearly 50 percent. But the average of rents plus tithes plus poor rates differs much less between enclosed and open villages: the enclosed average 26.0s (standard deviation of 6.5s), the open 21.9s (standard deviation of 4.0), for a difference of only a little under 20 percent. This is not the doubling towards which the other evidence tends.

The smallness of the advantage to enclosure in the Rutland sample cannot be eliminated by econometric witchcraft. The wealth of other data Parkinson collected suggests various spells that may be cast. For instance, one might view the information on the quality of land as the one external variable out of the control of farmers in Parkinson's data, and one might wish to correct for its effects on rent. Parkinson speaks of three sorts of soil--red loam, clay, and others--and often classifies each into poor, average, good, very good, and exceeding good. Adopting in a hesitant way a scoring of 1.0 for poor, 2.0 for average, and so through 5.0 for exceeding good, the qualities in a village can be averaged. It should be noted that the assignment of numbers with such intervals to Parkinson's adjectives is not innocent: a choice of poor = 1.0, average = 320, and exceeding good = 16,329,658 would lead to different results. The ratio 5 to 1 is perhaps more defensible than 16,329,658 to 1, but not more so than 3 to 1 or 2 to 1, with varied intervals. Still, the scale adopted is not unreasonable.**

A straight line can be run through the scatter of points of economic rents ranged against quality. Doing this for the open and enclosed villages separately would presumably give a lower line for the open villages. The vertical difference between the two lines would measure the rental superiority

*For completeness in other respects I have in 7 of the 44 enclosed villages and 4 of the 9 open villages had to estimate the tithe on the basis of partial evidence in Parkinson and the averages in known cases (using enclosed tithes for enclosed and open tithes for open). Data on four of the villages, by the way, had irremediable defects. The 44 enclosed and 9 open exclude them.

**Again the data had to be messaged for completeness. It seemed more sensible, in particular, to use the average reported quality for red loam and so forth to fill out the estimate of quality even when a quality was not explicitly reported than to abandon half the sample as incomplete.

of enclosure allowing for the intrinsic fertility of the soil. In the event, the wideness of the scatter of points discourages full econometric honors. The independent variable, quality of land, is measured with considerable error, which would lead to biases in a straightforward attempt to fit the line. It can be shown that the line through the two points of means of the top quarter and the bottom quarter of the observations (11 each for the 44 enclosed villages) is statistically speaking a consistent estimate of the true underlying relationship (the ordinary least squares regression is not). The points of means are quality = 1.32 and economic rent = 20.57 shillings and quality = 3.15 and economic rent = 31.25. Note that rent does rise quite considerably (over 50 percent) as the quality of land moves from a little better than poor to a little better than good. The implied straight line going through these two points is, by some secondary school algebra,

$$\text{Economic Rent in village} = 12.8 \text{ shillings} + 5.84\text{s per unit of quality} \times (\text{Quality of land in a village})$$

One hesitates to perform a similar trick on the scant 9 observations of open field villages. But the observations themselves can be set beside the enclosure line. The relevant question is, are they on the whole below the line and if so by how much? The answer is that they are below the line, but not by very much. Letting positive deviations offset negative, the average of the nine vertical deviations is -3.34 shillings. Enclosed fields paid 3.34 shillings more economic rent than open fields of similar quality. But such an advantage is only 15 percent.

The ability to shift into grazing was apparently important for a successful enclosure in Rutland. The 18 enclosed villages--less than half of the total, note--that devoted as much as 52 percent of their land to arable (52 percent was the least that the 9 open field villages devoted to arable) had economic rents of only 21.7s on average, virtually equal to the average for open field villages (the wheat yield is only 5 percent higher).

Yet it is more likely that the Rutland sample is peculiar--for one thing, it is only Rutland--than that its message of little or no difference in rents and productivity is true. Comparing open and enclosed villages at one time has its own special methodological difficulties. Chief of these is that villages do not become enclosed by accident. The experiment is not randomized. For instance, there is surely some reason that by 1807 seven of the nine open fields surviving in Rutland were located in the southeast of the county, in the Wrandyke Hundred. The reason, whatever it may be, might be itself connected to the determinants of rent, such as cost of transport or ease of drainage. A third factor, uncontrolled in the experiment, may be causing both persistent open fields and high rents.

The closest approach to a controlled experiment is a comparison of rents on open and enclosed holdings

28.) Rents before enclosure may not have been in equilibrium.

This is the burden of an interesting paper by Robert Allen, using chiefly the Tours of Arthur Young.

29.) Long leases are another problem.

30.) But the doubling of rents, or a little less, still seems a good estimate of the gain to enclosure.

31.) The upshot, however, is surprisingly low gains: to the village enclosed, a 13% increase in total productivity; to the nation (since not all income was agriculture and not all agriculture in open fields) some 1.5 percent or less. Enclosure, for all the debate surrounding it, was a modest enough improvement.