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.

Contrary to Woolley, Agrarian Problems, p.265, against Say's finding from the returns that the area affected in the 17th 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 broader way, that the 15th-16th centuries brought enclosure can be attributed to the diminishing chances of open fields, especially to the diminishing contribution of scattering of strips to income against disease.

Perhaps there is something in the notion that before the encroachments 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 demand of the common law made enclosure expensive.

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

7. Piece-meal exchange was frequent.

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

As 13 Geo III, c.81, para. xxii puts it, "the Owners... may be incapable, through various Inconsiderations, of entering into any of the Agreements." The owners thus injured, for instance, might be "Dinora, Lunatics, or beyond the Seas."
Is it possible that it is to any substantial degree the entailsment of large estates, not the process of 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 is a misnomer.^Hobart's book Bills and Acts believes the language of the 1773 act, which relates not to enclosure but to the regulation of open fields, is the source of the notion. The actual rules set 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. Dodgson, 1975 and "Reovery of Sunnys," 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 Forest 1775-78: 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" of funds for enclosure has been discussed is no sure guide to its importance: Habakkuk ("Economic Functions", reprinted in Dischington, ed., vol.1, 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% figure 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 P.D.J. 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 was unlikely that a difference of a few points in the yield of govern ment stocks would deter a great landowner from taking the investment" (p.226). But the great landowners 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.35: "Where 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 Habakkuk, 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 South to his agent, saying "I will not go forward with the enclosure of Little dunstable on the Woods." Or demonstrations that the rich enclosed as much, or nearly as much, in years of high real rates as before.

Consider Sir John Griffin's annoyance in 1793 at the proposal that he pay £500 for a property earning £136 a year and leave the present life tenant in possession: "exclusive of every other motive the sum of £500 lock'd up for a wealthy man's life from the power of improving its interest beyond, when probably the same sum will produce an interest of £250 a year is a latter act to be passed over slightly." [J.D. Williams thesis, 1974, pp.44-45]
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 lawmen, 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... Jagh 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 improvements, but "a plain enough case of class robbery" (Z. 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 right have been hurt by enclosure, though the value of the rights was so small that stealing them could hardly have activated enclosure.

(19.) It is the rights of small landlords—yesmen, if you will—that have been the chief focus of concern since the Hazmonds wrote.

20.) The claim the Hazmonds made, endorsed by later historians of the class struggle, is that small landlords had to fence their small plots at a higher 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 deceptively simple 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. 32n) is explicit: "Many small proprietors have been seriously injured by being OBLIGED, in pursuance 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.105, para. xiii]. One might examine the acts to see how many were in fact "ill-framed" in this connection. In Ellis' careful survey of the clauses of Wiltshire enclosure acts, for instance, there is mention of clauses allowing barters 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 took some discount on the doubling of land prices was no large gain: 3.8 percent in Warwickshire, for instance, against a 77 percent increase due to higher land prices on large estates.

23.) In 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. The holders, in particular, could hold up an enclosure.

The history of the share of the holders 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 its own. 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. Woe 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 Sack and Thomas from the capitalist side. It relies on the word "comons" in commons 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 Sellers and Tait in 1937 (THE AND ALL THAT):

"At the same time there was an Agricultural Revolution, which was caused by the invention of turnips and the discovery that Transatlantic would be prosecuted. This was a Good Thing, too, because previously the soil 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 Enclosures at Acre which nobody is allowed on except His Majesty the King (and friends)."

Land was owned before enclosure, of course, and paid rent. If it began to be overharvested---in this context, overgrazed---it was stunted, 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 faulty in detail.

As the other methodological extremes 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. 105: "A farm of village is inconvenient, so inflexible, so neglect 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, Seebom's coercion 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 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-arable 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.

25.) 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 B + K (because A + B + ... + K is the total output after enclosure). But the rectangle B + K represents the opportunity cost of the factors of production, labour and capital, 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 rents rent was A before, now it is A + C.
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 1798 edition of Fitzherbert's Book of Husbandry, for instance, asserted of the encloser that "than shall his farms be turned so good in profite to the tenant as it was before" [p. 48, quoted in Trench, 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 Survivors Dialogue, very profitable for all men to peruse, and especially for Gentlemen, willing to buy, hire, or sell lands put enclosed land at 50 percent greater in value than open [1507, 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 1697 that "enclosed lands in many places doth yield half as much, or as much more, as lands in common fields." [Stephen Pritwood, quoted in Thring & 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 Horner, 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 wise to surrender all doubts on the matter [Horner, 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 Worcestershire. 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 Worcestershire 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 Enclosures, 1980, pp. 180-181]. But in his 1813 final report on Oxfordshire Arthur Young quotes N. 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

<table>
<thead>
<tr>
<th>Village</th>
<th>County</th>
<th>Date of Enclosure</th>
<th>Rise in Rent Immediately After Enclosure</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eli Ford</td>
<td>Staffs</td>
<td>1765</td>
<td>&quot;trebled&quot;</td>
<td>Pitt’s Staff (1796), p.41</td>
</tr>
<tr>
<td>Lidlington</td>
<td>Beds</td>
<td>1775</td>
<td>83% (12s to 22s)</td>
<td>Batchelor’s Beds (1808), p.</td>
</tr>
<tr>
<td>Consey Weston</td>
<td>Suffolk</td>
<td>1777</td>
<td>doubled &quot;since the enclosure&quot;</td>
<td>Young’s Suffolk (1794), p. 53</td>
</tr>
<tr>
<td>23 Villages Lincoln</td>
<td>before</td>
<td>1799</td>
<td>92% (L 15,504 to £ 29,760)</td>
<td>Young’s Lincoln (1799), pp. 77, 83</td>
</tr>
<tr>
<td>Nisely</td>
<td>Beds</td>
<td>1793</td>
<td>90% - 157% (7-10s to 18-19s)</td>
<td>Batchelor’s Beds (1808), p.</td>
</tr>
<tr>
<td>Milton Bryanpeds</td>
<td>Beds</td>
<td>1793</td>
<td>88% (10-7s to 20e)</td>
<td>Batchelor’s Beds (1808), p.</td>
</tr>
<tr>
<td>Queensborough Leics</td>
<td>c.1793</td>
<td>92% - 136% (10-12s to 23e)</td>
<td>Pitt’s Leics ( ), pp. 70-76</td>
<td></td>
</tr>
<tr>
<td>Dunton</td>
<td>Beds</td>
<td>1797</td>
<td>113% (8s to 17s)</td>
<td>Batchelor’s Beds (1808), p.</td>
</tr>
<tr>
<td>Enfield</td>
<td>Middlesex</td>
<td>1803</td>
<td>33% (L 18,000 to £ 24,000)</td>
<td>Middleton’s Middlesex (1807), p. 142</td>
</tr>
<tr>
<td>Wendelbury Oxon</td>
<td>c.1805</td>
<td>140% - 167% (9-10s to 24s, the latter tithe free)</td>
<td>Young’s Oxon (1813), p. 37</td>
<td></td>
</tr>
</tbody>
</table>

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

> These alleged 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. 206] 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 1os 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. 108, para. II) forbade 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 Quaiston, Buckinghamshire, using the doubling convention. John R. Ellis ["Parliamentary Enclosure in Wiltshire," Ph.D. diss., Bristol, 1971, p. 92] quotes the pactises 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 Enclosure the prospect of a rise from their existing levels of 1½ or 1½ 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" [80, 1844, vol. 5, question 257].

The best sources are account books of estates experiencing enclosure. The vigour with which estate studies have been pursued in England makes general impressions possible. For an early instance, John Broad using the Vernon family manuscripts was able to extract most of the relevant facts about the enclosure (by agreement) of Middle Claydon, Buckinghamshire, in 1654-56 ["Mr. Ralph Vernon and His Estates, 1630-1696," R. Phil Oxon 1973]. The rent rolls in 1664 imply rents of about 8s an acre, depressed perhaps by the Civil War; a surveyor's valuation of 1648 puts them higher, at 11s 6d an acre. The actual rent paid in the three years after the enclosure was 17s 8d per acre, a rise of 53 percent from the valuation before. The Harcourt family papers, of Stanton Harcourt in Oxfordshire, were used by J. B. Walton to calculate a rise of rents from £145 in 1773, a year before the enclosure, to £244 in 1777.


B. A. Swam'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 £8 an acre in 1796 to 39s an acre in 1801 after enclosure, a rise of over 200 percent [p. 133f; cf. pp. 167, 209]. Holdings of St. Bartholomew's Hospital in Bortisham, rented for £4 6s a year in 1794 and £110 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 Flemes Trottman’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 ages of expected conditions. In 1753 he received a 21 year lease on 59 acres of open field at Heath, Oxfordshire (and stented 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% interest (for which there is some evidence in the accounts) it was equivalent to an addition of £13.6 a year to the £4 explicitly promised, implying a rent of £36 an acre. In 1772 the village was enclosed, 47 acres of enclosed land allotted to Trottman 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 14-3/12 years at £14, so low "possibly [as] some compensation for the expenses he incurred in enclosing" (Seman, 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 £6 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 Tewford, Bedfordshire owned by Jesus College rented at £30 in 1740. It was enclosed in 1777, at a cost of about 7 years of such rents (L218). The College was able to lease it for three years at £45, a modest 7 percent return on such expense. After 1760 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 1785 which bracket the enclosure of 1783 show rises of 58 percent in rents on land already enclosed. Such a rise is to be expected, since wheat prices rose 42 percent from 1770 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.

We do know, of course, that a rise in the prices of things grown would increase rents. Land is the residual of corn 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 £6 to £18 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 was 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 £85 in 1759, on the eve of the enclosure, to £158 in 1781 looks less impressive, and much less than an 86 percent rise, when set besides 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 15 miles across at its widest extent. The statistics that can be cooked up from Parkinson are mouth-watering 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 yard of wool, 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 an 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 interpreted as portions of economic rent appropriated by the local government and the church. They are not opportunity costs of production but mere redistributions of the full economic rent. To put it another way, if the land of Wartley in southwest Rutland had been in 1807 suddenly freed of its poor rate of £3 an acre and its tithe amounting to £39 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 Wartley 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 Wartley can be reckoned at 28.1s, as against 30.0 at Wartley.

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

With \( P = £160, \) \( n = 21 \) years, and \( i = .06, \) \( R = £13.6, \) 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 Trottman dropped dead the day after paying it. Allowing for mortality would raise the effective pre-enclosure rent.
The full economic rent can be easily calculated for Parkinson's Rutland as for most places it cannot.4

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 5.3e); the 9 open villages had rents of 14.9 shillings per acre (standard deviation of 4.0); 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 6.5e), 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 = 3.0, exceeding good = 5.0, exceeding good = 6.329.658 would lead to different results. The ratio 5 to 1 is perhaps more defensible than 6.329.658 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 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. Nota bene 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,

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\text{Economic Rent} = 12.8 \text{ shillings} + 5.84 \text{ per unit of quality in village} \]

(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. Rent 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—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 even of the nine open fields surviving in Rutland were located in the southeast of the county, in the Wrangle 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.
27.) 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.

28.) Long leases are another problem.

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

30.) 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.