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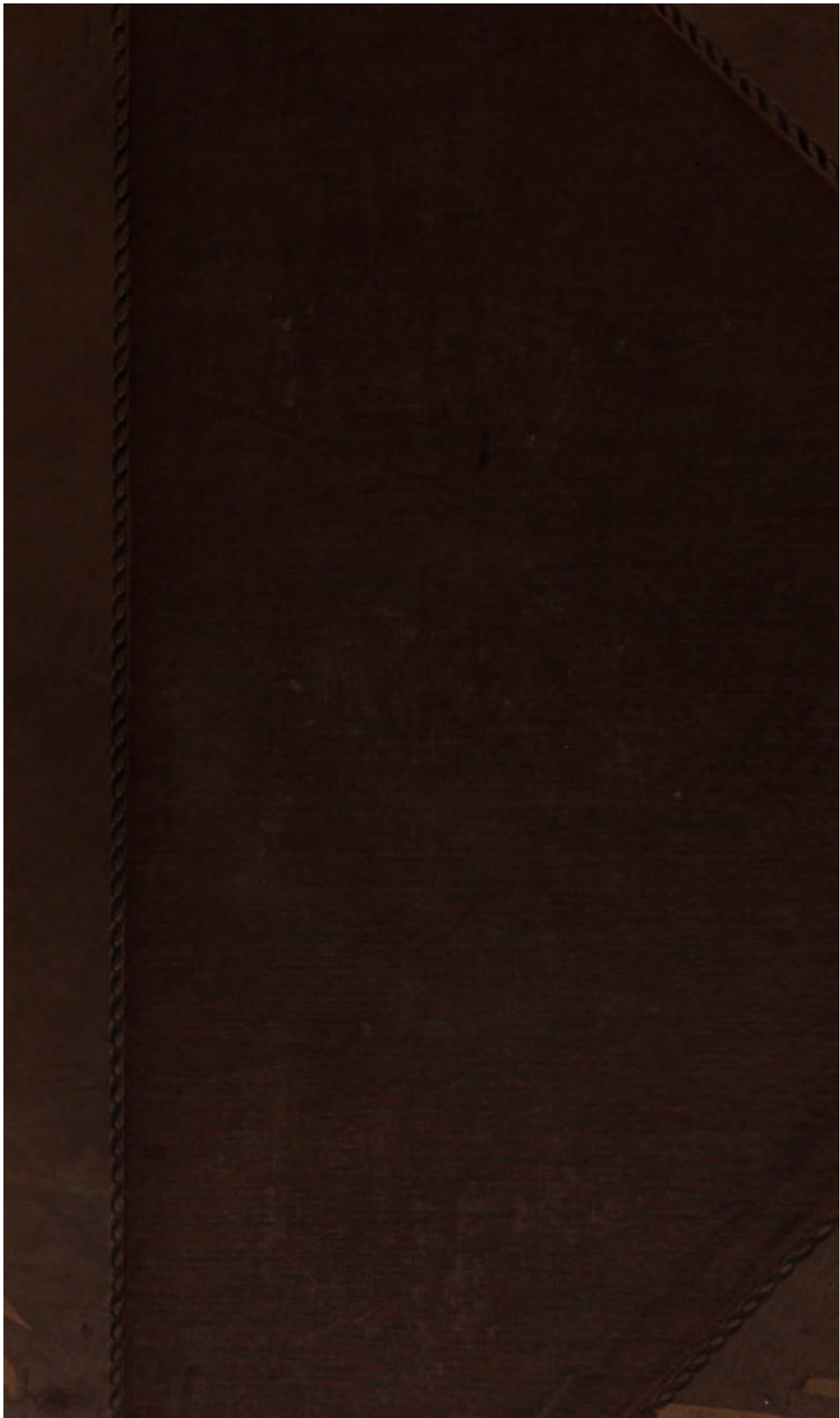
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GENERAL VIEW
OF THE
AGRICULTURE
OF THE
COUNTY OF ESSEX.

DRAWN UP FOR THE CONSIDERATION OF
THE BOARD OF AGRICULTURE,
AND INTERNAL IMPROVEMENT.

BY THE SECRETARY OF THE BOARD.

IN TWO VOLUMES.

VOL. I.

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57.

[Price One Guinea.]

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but that the work is written as some men seem to
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with that view, the discordant
materials be compared, and reduced to a systema-
tic

INTRODUCTION.



THE County of Essex was originally surveyed by Messrs. GREGGS. Mr. VANCOUVER was next employed to form a new Report of it, and his work was nearly as voluminous as the present one. Their two Reports were afterwards put into the hands of the Rev. Mr. HOWLETT, to form a new one on the modern arrangement recommended by the Board. He made very large additions; but the Committee to whom that work was referred, having declined to direct the printing, a new Survey was ordered: this undertaking fell, unsought for, into my hands. Had any other person offered, I should most willingly have relinquished it, knowing well the amount of the labour, exertion, and expense, that are requisite, in making a journey of above 1000 miles in the vicinity of the capital, to examine a county containing a million of acres.

In drawing up this General View of it, I have followed the same rule by which I acted on former occasions—to let the reader have the authority, not only of Essex farmers in general, but of the individuals in particular. I take it for granted that he does not want my ideas, or my proposals.

He has accordingly only Essex authority ; I offer myself rarely to his notice, and never without warning him.

One word on the repetitions which I am apt to think necessary in such a work as a County Report. The difficulty of producing a good one, on any plan, is very great ; and it is said to be so in proportion to the progress made by the Board in surveying the kingdom. However in unison particular passages may be with readers of congenial tempers and opinions, the repetitions necessary in giving husbandry details, must disgust all who read with any idea of amusement. If the Reports be not considered, in the greater part of their contents, as tables of information, they are examined with improper expectation. Take, for instance, the section that gives the quantity of seed wheat : the practice of the whole county might be dispatched in a single line, presenting the average quantity. But how would the reader in search of minute accuracy, be able to judge of the authority whence so general a result was drawn ? He wishes to know from what data such conclusions are derived, and the degree of attention due to the practice of the persons whose names are noted ; he compares the minutes of different chapters, and in his progress forms an idea of the abilities of the men whose information is before him. On almost every object he considers the soil, and deduces his own result from such an
exami-

examination. Those who read rapidly, and judge as hastily, are very apt to forget one grand object of the Reports, which is that of furnishing materials for a future general result of all the Surveys of the Kingdom. The writers who, at some future period, shall be appointed by the Board to draw up such GENERAL REPORT, will not complain that the authorities given are too numerous; but were Reports written as some men seem to wish, that general work would present many blank counties, from such not offering to the individual Surveyors particulars which appeared sufficiently interesting to common readers. The money, and consequently time, allowed by the Board, must necessarily cause some deficiencies in all Reports; but it is to be regretted, when too much attention in the writers to produce rather agreeable books than useful tables, is the cause of many others.

Such readers as are apt to think that there is little use in collecting insulated, and perhaps apparently contradictory facts, will not be pleased in reading many of the pages of this, or of my other Reports; but such should in candour reflect on that great object of the Board, to collect hereafter the intelligence scattered throughout the whole into one focus; a general result: and in the work to be executed with that view, the discordant facts will be compared, and reduced to a systematic

the case. Certain results which in any Experiment, may be obtained at present, may later be obtained in more favorable conditions; and in the execution of such experiments, the person, or persons, to whom care and important objects may be entrusted, may not, I conceive, regret the number of successful effects; but will, on the contrary, commend to a friend, so many subjects, to lament that the materials are not sufficiently mixed to furnish a more equal and diversified. It is not by the quantity of the material, that future Work can be rendered more useful. The cases, at present, which are not distinct, when contrasted, compared, or combined, with others equally distinct, and extremely important, will reflect a mutual light, and produce an effect which will be found to be far more useful, on subjects where the imagination has been sparingly and moderately exercised.

However, I have unable themselves to

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AGRICULTURAL SURVEY

OF

ESSEX.

CHAP. I.

GEOGRAPHICAL STATE AND CIRCUMSTANCES.

SECT. I.—SITUATION AND EXTENT.

“**T**HE county of Essex is one of the eastern maritime counties. It is bounded on the east by the German Ocean; on the west by the rivers Lea and Stort, with a part of Hertfordshire; on the north by the river Stour, and part of Cambridgeshire; and on the south by the river Thames. Its situation is between $51^{\circ} 30'$, and $52^{\circ} 15'$ north latitude, and from London, about $1^{\circ} 20'$ east longitude. Its extent, from east to west, is about 60 miles; from north to south, 50; its outline or boundaries, about 120 miles; containing nearly one million and two hundred and forty thousand acres*.”

Mr. NEELE, map-engraver to the Board, from measuring

* Howlett.

the new map of the Board of Ordnance, makes it about 942,720 acres. The table annexed to the returns of poor-rates, in consequence of the act of the 43d of the KING, makes it 976,000 acres.

SECT. II.—DIVISIONS.

“THE divisions of this county may be considered as twofold, natural and artificial. Its natural divisions are divided into continent and islands. Its continent comprehends by far the major part. Its islands are numerous, but not extensive; they lie bordering, partly on the German Ocean, and partly on the river Thames. The first and the most valuable, to the south-east, is the island of Mersea, eight or ten miles south of Colchester, between the mouths of the rivers Colne and Blackwater; a rich and fertile spot, about five miles from east to west, and two from north to south. The islands, towards the south, in the hundred of Rochford, are, Foulness, Wallsea, Potten, Havengore, and New England, contiguous to each other; bounded to the north by the Crouch river; to the east and south-east by the German Ocean; and to the west, by the continental part of the hundred of Rochford; and are about four or five miles from Rochford town. The remaining island, going towards the south-west, is Canvey Isle, surrounded by branches of the river Thames, and situated nearly at its mouth.

“The artificial divisions of the county are, hundreds, towns, parishes, and hamlets. There are fourteen hundreds, and five smaller districts, called half-hundreds, containing, in all, 403 parishes, and 24 market-towns*.”

* Howlett.

SECT. III.—CLIMATE.

"The climate of this county, in the common and popular sense of the word, is mild; its northerly and easterly winds, however, in the northern and eastern quarters, especially during the spring months, when they most prevail, are pernicious, both to the animal and vegetable creation; bringing to the latter destructive blights; to the former, the human species particularly, colds and hoarseness. Part of the eastern and southern limits, for ten or twelve miles from the sea and the river Thames, in the hundreds of Thurstable, Dengey, Rochford, Barstable, and Chaffers, are not a little subject, during the autumnal months, to thick and stinking fogs, which are often productive of quartan agues; and a person can hardly pass through these hundreds, without being struck with a proof of it in the sallow sickly faces of the inhabitants, and the prominent bellies of the children. The draining of marshes, and the highly improved cultivation of the lands, however, it must be acknowledged, have already greatly abated these evils, and probable hopes perhaps may be indulged, that in time it will be as salubrious as the rest of the county, which by no means deserves the imputation of unhealthiness, but may safely stand a comparison with any other part of the kingdom*."

The region of agues in Essex, I am sorry to say, is pretty extensive. That they should abound in the vicinity of marshes, is not surprising; but I was hurt to find, that the most elevated situations, in what are called *the hundreds*, are not exempt from them. The highest land for many miles is Landon hill; and a clergyman going

* Howlett.

fitable; and although every farmer perhaps in the district has what is called *etch* (that is, after) crops, yet the quantity is so restricted by leases and agreements, that the variations make no considerable exceptions. Some clover, pease, tares, and a few beans, are scattered about the country; but the generally prevailing features are white corn and fallow. There is, however, a distinction in fertility, between the soil locally called *red land*, and the rest, to which no appropriate term is attached. This red land is the poorest, and not usually valued at more than 12*s.* an acre; whereas the rest of the district is pretty generally at 15*s.* and, by late agreements, rising to 18*s.* or 20*s.*

The district of the Roodings, which takes its name from that of six or seven parishes so called, is much more extensive, relative to similarity of soil and husbandry, than the limits of those parishes. Going from Harlow to Dunmow, in less than two miles, and long before the village of Shearing, the white clay marl bottom commenced, and the course of crop and fallow. The same soil and the same husbandry, with no material variation, continues the thirteen miles which reach to within one of Saffron Walden. It is a hilly district, in which the surface loam in the vales is dryer and better than on the hills, and in some cases form a very good soil; but the general feature is a wet loam on a clay marl bottom.

The Hallingburies are heavy, and the course of crop and fallow denote that they belong to the Rooding district. Mr. CHAMBERLAIN, of Rise, mentioned the pitchiness of the soil making it stick like glue: but this remark must be taken with caution; for the iron on their plough-breasts shew that the soil does not rank with the superior clays under the South Downs of Sussex, where this quality is so remarkable. It is all a loam on a whitish clay marl,

marl, and nearly resembles the district called High Suffolk: the same husbandry is applicable to both.

The strong loams on a whitish clay upon which summer fallows prevail, abound at Raine and Felstead, where turnip loams are scarce. They are all hollow-drained; and the country, in general, has received this improvement twice, and even thrice: in those soils where flints abound in the clay, the drains are not durable. This soil is under fallow for wheat, and then fallow for barley. They assert that the white clay bottomed lands will not do for grass.

Much of the land just described, Mr. SAVILLE, of Bocking, had prepared me for hearing of, under the term *poor red land*, which is, however, a misnomer, for very little of it has a reddish cast, at least when I saw it: it is of rather a light brown colour, when dry. Much of it of a shallow staple; crumbles into fine powder, never having the least disposition to break into more defined forms; the substratum a clay, whitish, from a small quantity of chalk stones; will yield nothing without draining, and very little with. I found much of this land all the way to Dunmow, and thence to Waltham; and Mr. FOWKE, of the former place, informed me, that it is found, in another direction, to hold nearly to Stortford: extends through all the Roodings, interspersed with better lands; and also beyond Thaxted, in the way to Saffron Walden. Here it has got a particular name; any where else it would be called a thin wet loam on a clay bottom. Mr. FOWKE assured me that it will not yield any grass for more than two years. Rain makes it stick to the sheep's feet like pitch. With such a soil the great deficiency of the country is, there being very little pasture in it. Turnips not attempted; when they have been

been tried, nothing could exceed the horrid spectacle of getting them off the land.

At Warners, Mr. SAVILLE's, in Great Waltham, I was in the head-quarters of this *red* land, as it is called: he has much, and his neighbour, Mr. POOLE, some hundreds of acres; and here I heard some fresh circumstances of it. An assertion is, that the white clay under it does no good when spread on the surface. Of this I must have great doubt. There is some of it that does not require draining, yet is not dry enough for turnips. Some farmers have tried deep ploughing, and wild oats the only consequence.

Bringing up the under stratum is almost sure to produce this effect; so that in digging hollow drains, when the lower spit is thrown on the land, the direction of the drains may afterwards be traced by lines of wild oats.

Crow-garlic also abounds on it. It yields clover, but the plant will fatten nothing, from (as it is said) being bitter; stock even eat it with difficulty: they call it *partridge-leg'd* clover, with red stalks and small leaves.

I walked into some of Mr. POOLE's fields that were fallow, and brought away a specimen of the soil. The parish having been valued for the rates, the poor red land was estimated at 12*s.* an acre.

One remark I could not but make on this soil, which is spoken of in this neighbourhood in a style of depreciation, as if it was the parent of poverty: every one I met, said that he had rather give 20*s.* for good land, than have this for nothing; and the remark is the fact, that chicory is indigenious in every lane and on the borders of most of the fields, even the very poorest. It is surely marvellous, that men should become poor by fallowing a miserable soil, and yet will not open their eyes to see the spontaneous

neous gifts of the Almighty, which, cultivated, would save a very great expense, and by being close-fed for some years by sheep, would infallibly prepare for corn. My proposal to Mr. SAVILLE and others was, to sow the worst field he has with 10 or 12 lb. of chicory per acre, a portion of cocksfoot-grass, and a small quantity of trefoil and white clover; to sheep-feed till the land was turfed enough to pare and burn; then to take on one part a crop of oats, laying down again to grasses; and on another part to harrow in grasses again in August, without corn, mixing a portion of plants, as crested dogstail, &c. &c. of a better description, which, in this improved state of the soil, would probably succeed well.

A variation against chicory rising in the oats is, to sow winter tares (soiled), for the first crop; then to fallow for oats, and sow the grasses as above-mentioned.

In discourse with Mr. PORTER, of Little Leighs, on this soil, of which he has none, but has long known it well in the fields of his neighbours, he assured me that the character that had been given me of it, was very true. It is horrid land, of which he would never buy or hire an acre. It runs, by frosts, from the roots of wheat, which becomes root-fallen; the clover is so bitter, that cattle will scarcely eat it.

Besides the route marked in the map, I crossed this district on a former occasion, from Dunmow, in a line to Ongar; and also, from Dunmow quite to Hockerill; and from Finchingfield to Dunmow.

*NOTES ON THE SOILS IN THE DISTRICT OF FERTILE
LOAM, NO. II.*

At Bradfield, near Maningtree, I entered a soil which had not occurred before during the course of the journey, a very rich loam, which, apparently and to the touch, should

should not be called either a sandy or a clayey loam; perhaps an *impalpable* one would not be an improper term. It nearly resembles the fine loams of Flanders. The dry surface is a very light pale stone colour, tending to white, and in many fields almost white. It is tenacious or friable, according to weather; the clods are found sometimes as hard as those of pure clay, but fall by rain to powder, after well roasting in the sun. The quantity of sand, or rather probably the size of the particles, gives the variation of being pitchy, and adhering to the mould-board of the plough, rather more than the quality of the under stratum, which is very generally a strong loam, tending to that species of clay which in some cases moulders into small particles, and in others shivers, by the action of the atmosphere, into dies, and angular bits; the colour dark brown. Some of the stiffer bottoms assume the appearance of tile clay, and has a yellow hue. Some of these very rich loams are, from a gravelly tendency of the subsoil, or from the depth and more sandy quality of the surface mould, dry enough for turnips: a few dry enough to feed off with sheep; but the much larger extent in several parishes, consists of a loam too heavy and too retentive of moisture for that root; so that in much the greater part, a summer fallow is given once in four or five years. Mr. HARDY, of Bradfield, shewed me many fields of these soils at that place, and also at Wicks; the latter stronger, more retentive, and wetter, than those of Bradfield, yielding greater crops of corn, but worked with more difficulty and expense, than the lands at Bradfield, sticking to the ploughs like pitch. The farming traveller will find these soils deserving much attention; for they are not to be seen in whole counties, and, I suspect, no where at a distance from the sea. There is much resemblance with the fine loams of
East

East Norfolk, but are more stiff, and difficult to manage.

Wrabness parish has more sand. Ramsey is more generally heavy. Wicks has some turnip land, but more that is heavier than Bradfield. Dovercourt much fine turnip land; but in all of them the good loams are of this pale and impalpable character.

Bradfield to Tendring, heavy; but a level of 200 acres about Tendring, chiefly turnip land.

Beaumont generally strong, but has some turnip land.

To Ramsey and Harwich very good turnip loams; but some heavy that are excellent, of the quality above described.

At Harwich, examined the strata of the cliff. The conversion of the clay ooze into that hard stone of which Framlingham and Orford castles are built, is curious. It is found here quite soft like clay, and in all the progressive stages, till it becomes stone. There are masses of it, which are at one end ooze, and at the other stone. There is also a stratum of concreted shells, which breaking down from the cliff, are found in lumps below; some of them mixed with pyrites, of which imperfect ore, pieces are found scattered. I brought away specimens of these soils, stones, &c. and have since found that a given weight of the ooze stone contains a vastly greater proportion of air (gas) than the ooze itself, being as 115 to 15.

The same fine impalpable loams are at Little Oakley, where the Rev. Mr. SCOTT shewed me the variations of soil; some of the high lands strong, but much lighter, and turnip land; the slopes light, and finishing in the marsh, where the arable is very heavy and strong, but rich. All the stronger loams here are of so tenacious a quality, that,
when

sandy loam, very rich and fertile. It has no wet strong clay, nor any striking tendency to it, except a narrow slope falling from the general level of the surface, down to the narrow tract of the north marshes. Here there is some strong land; but land-draining is rarely necessary, except on spots, and for carrying off springs. In a similar manner the southern part of the island is generally light land, dry, sound, and very excellent turnip soil; and the centre of the isle, from E. to W. contains the best land, which they call a *mixed soil*. Much of this part is as fine land as any one can wish to farm; a sandy loam, not gritty, nor impalpable, of a dark hazel brown colour; friable, yet moist; never burns; wants no drains; not dry enough, however, to eat off turnips, as the lower stratum is a yellow adhesive loam. The dry turnip loams are very sandy, and the grains of sand large and gritty; this also is very fine and profitable land. The rent of the whole island may be 20s. or 21s. per acre; but rising rapidly, the late bargains having been made at 25s. 30s. and even 40s.

The nearly flat space at Burnham, between the high lands and the river Crouch, which joins the marshes, is of a light soil. Mr. WAKEFIELD has about 400 acres, that suit turnips. The depth of the staple seven or eight inches, on a reddish stiffer loam; but which would not burn to brick or tile: at a foot depth, tending to gravel; the marshes (a great space of which is under the plough), though not clay, is very wet in winter, but never *blocks* or *burns*; a friable mould, too wet to feed turnips on, and water-furrowed at the expense of 5s. or 6s. an acre; under it a sort of silty loam, for twelve or fourteen feet. It improves as you advance to the ocean, and is best of all in the farm at the south-east point on the mouth of the river.

Foulness

Foulness Island, I am much inclined to think the richest soil in this county. The following is a note I made on it many years ago :

The whole island was certainly the bed of the sea; there are layers of oyster and cockle-shells in it; and every other appearance confirm the idea: it is therefore thoroughly impregnated with marine salt, not only in its origin, but from high tides breaking the banks and overflowing it. Forty years ago the whole was under water, and no corn got for two years; but after that much greater than ever, so as to furnish an effectual proof that the water did good, after being chastened and corrected by the atmosphere. This saline quality is entangled in a peculiar loamy substance, very different from any that are found in upland countries. The richest soils in such, are composed in a great measure of sand mixed with a portion of clay, and are, from this quantity of sand, very friable. But with the soil of Foulness the case is different; for whatever friableness it possesses, seems to be owing to a fermentative power, arising from the action of the atmosphere on a body abounding with mucilaginous particles. It falls, when exposed to the vicissitudes of the weather, into dies, and is more like the crystalized forms of mud drying in the sun, than the crumbling looseness of common loams. There is very little appearance of any sand in it; the particles are so fine, that one would imagine it would easily become an impalpable powder; on the contrary, it is capable of such adhesion, that a clod will become very hard. Hence, therefore, it seems to be composed of clay, fine sand, some mucilaginous principle which ferments with rain and warmth, and that saline quality it derives from its origin and situation. Crumbled in the hand, it yields a strong scent, so that the volatile alkali would probably be discovered by a chymical process.

south, between the river Crouch and the Thames; and between the more various soils of the western part of the hundred and the marshes to the east. A scattered portion on every farm in this tract is called turnip land; and turnips are sown on such; but the best farmers have doubts of the practice, except where the soil is really dry. Mr. BARRINGTON calls about one-fourth of his home-farm turnip land. The soil of this district has a great similarity to the pale impalpable mould so often mentioned in Tendring hundred, and to the pale loam of Fleg, in Norfolk; and it is at least equal to either of them.

The best is found, according to Mr. WRIGHT, from Rochford to Wakering; Sutton Shopland, Great and Little Wakering, and part of Barling; the Shoeburys, South Church, Prittlewell, are all of this good land; the variations not considerable. But much in Eastwood bad; Leigh is poor; Hadleigh woody and poor; Hockwell heavy; and towards Raleigh, bad.

The soil is of great depth and free from stones. Any estimate of the value of this land would be fallacious, if the ravages of the wire-worm be not taken into contemplation.

On the farm of Rochford-hall, it is a mellow, friable reddish loam, above two feet deep. I have some doubts whether to call it a *sandy* loam, for it tends to that impalpable quality which betrays little grittiness, and yet, what is singular, the texture is good, not binding, but when inclined to adhesion in clods easily melting into friability. That there is much sand in it, is certain, but very minutely divided. It takes chalk well, and is much the better for it. Unquestionably, fine as the soil is, it will not give a crop of turnips without dung. Mr. WRIGHT never succeeded without manuring but once; and I saw some lands not dunged, in the middle of a fine crop, the result
of

of dung, and they failed entirely. It will give pretty good cole without dung, but not great. This year a field was all dunged, except three acres, and sown with cole; the crop great where manured, but the three acres very indifferent. Adjoining the farm of Rochford-hall is a vein of a darker hue, which does not turn equally pale when dry: this is as good as the rest; but in all soils there will be variations in every circumstance: this is nothing more than a variation, and the quantity not great. At Shoebury it is a sandy loam, or impalpable sand, two, three, or four feet, on a yellowish loam, or clay.

Dr ASPLIN described the subsoil at Wakering to be clay, and at three feet deep a white sand, very little gravel, but in some places a reddish gravel under the sand.

*NOTES ON THE STRONG WET LAND DISTRICTS,
NO. III. IV. AND V.*

We shall speak first of the district in the north-west part of the county. I viewed this from Wethersfield to Hempstead, from the Hedinghams to Haverhill, from Clare to Belchamp Walter, from Yeldham to Toppesfield; and on a former occasion I crossed it in different lines, as from Clare to Finchingfield, and from Baythorn-end to Walden, by Sampford; and I once resided six months in this district. The general feature of the whole is that of a strong, wet, poaching, sandy loam on a whitish clay marl bottom. A great deal of it lets for 20*s.* per acre, but the worst at not more than 12*s.* The exceptions or variations are not numerous: we must deduct a certain breadth along every stream, or brook, in the district (and indeed in the whole county), for bottoms of meadow, many of them on a gravel; also slopes to those meadows, of greater or less extent, which are sound land, and a

tion dry enough for turnips; but the moment you rise up the hill to the more level tract there all is wet loam and clay. These wet spaces have been all hollow-drained more than once, and it continues to be the staple improvement of the country. Some of the land is so stiff, that the drains (to use the expression of Mr. EATON, at Yeldham) draw more from the top than the bottom, which, however, must be the case, if the bottom is very stiff. Part of Yeldham is on a blue clay; and in Toppesfield there is not an acre of turnip land.

The soil at Hempstead, and the adjoining parishes, is a very wet, stiff, and tenacious clay on a strong marly clay; some of it so poor and wet, that it lets only at 12*s.* an acre, and much dearer than any of the better lands at double the rent.

Yeldham has both dry and wet land: the line by the turnpike-road and brook, very good: not one-tenth of the parish, however, will do for turnips.

Stambourn, heavy.

Tilbury, Birdbrook (of which not one-fourth turnip land), Ashen, Ridgwell, Ovington, and Belchamp St. Paul, on a clay bottom, and not so good as Yeldham.

Helion, and Steeple Bumpsted, have much good dairy land.

Sturmer, good, but on a clay bottom.

Pebmarsh has no turnip land.

Lamarsh has a good share of turnips, and some very fine land.

Twinstead and Alphanstone good, but on a clay bottom.

At Little Sampford, the meadows are good; but there is no turnip land, though I have seen one field sown in 300 acres.

The

The second strong land district is that small space including Wigborough, Peldon, &c.

One-third of Layer de la Haye is light turnip land, and two-thirds too strong to feed off that crop on the land. The heavy land here is a shallow surface on a very strong loam bottom, but Mr. BUXTON thinks, not *clay*. It is exceedingly wet: he has tried land draining at half a rod asunder, and no benefit whatever resulted from it. Tiles might be made of the loam. It is evident enough that this soil is, to every purpose of farming discrimination, *clay*.

At Abberton, I found a strong brown clay, tenacious, but good. At Langenhoe, what I saw was generally strong and heavy.

At Great Wigborough a new soil occurred: the farmers call it strong loam, and so it is; but the strength, heaviness, and tenacity are such, that it has all the qualities of the stiffest clay. It will not bear barley; turnips are out of the question. It is of a rich brown colour, and falls, by the action of the atmosphere, into dies and angular bits; but does not, like weaker soils, crumble into powder: a very decisive characteristic whereby to discriminate these soils. It is nearly the same to the depth of six or seven feet. There are no springs in it; so that the farmers suffer a very great inconvenience in sending (sometimes several miles) for water. Hollow-drains, for surface water, are absolutely useless; they will not *draw* for a single yard. The expense of working such a soil is, of course, great; but the crops are great also. They throw the fallows on to the four-furrowed ridge for winter.

At Peldon, some very strong land.

Layer Marney, and Layer Breton, strong.

The third strong land district is that of Dengey, Rochford, &c. from Hanningfield on the western extremity, to Southminster on the eastern; and from near Maldon

to Pitsey. Of this district, the eastern part is better than the western. It seems as if the soil changed gradually as it approaches the rich selvage that borders on the marshes; yet some of the hills at St. Lawrence are a strong clay, and others, very harsh and tenacious, are found at Latchingdon and Snorum. The western part of the district is not interesting.

At Snorum, on the farm of Mr. DINES, and his neighbours, I found a soil, the reverse of the friable vale of Maldon; harsh, stiff, and tenacious. The farmers call it loam; but this is a confusion of terms common in Essex; it is, to every farming purpose, a decided clay. It is of very great depth. They have, by subscription, most laudably sunk a well, for the general use of Snorum and Latchingdon, which is 337 feet deep, and scarcely any variation of soil occurred. This well cost 300*l.* and is a great blessing to the poor. This strong clay produces beautiful samples of wheat.

At Hockley, in Rochford hundred, I found myself again in the clays; strong, wet, tenacious land, poaching with rain, and sticking to the horses' legs. Difficult, however, as it is to work, Mr. HICKS, a Suffolk man, who came from a farm at Waldingfield, near Lavenham, where he paid 20*s.* an acre, seemed very well contented with his new situation; as he could get better crops than at Waldingfield, without paying an equal rent. As to agues, there are plenty; but good crops seemed to be the prevalent idea.

About Raleigh, the general feature is wet strong land; but there are many variations; some poor and hungry, the high land all wet.

The same from Hadleigh to and about Thundersley; no turnips there in the vale lands; the soil strong and wet, and hollow-drained. This strong land continues through

through Pitsey, with but few variations. The best lands by far are the marshes, near half of which are ploughed, and under the old course.

From Billericay, by Ramsden and Downham to Wickford, the general feature is strong and heavy; but about Wickford, there is a flat vale of lighter land, and a very good loam it is, one to two feet deep; the wheat stubbles there brighter, and indicated much better crops than I had travelled with of late.

NOTES ON THE TURNIP LOAM DISTRICT, NO. VI.

Colchester is situated in the midst of a district of dry, sandy, and gravelly loam, which is perfectly well adapted to the turnip culture; it extends east and west from Stanway to the Bromleys, and north and south from Mistle to Fingringhoe. The additional tract added in the map, extending towards Bures, partakes, in a good measure, of the same soil, but with more variations from a mixture of heavier fields. Part of Copdock, Stanway, and Lexden, is a sand, and a loamy sand on a gravel bottom; much of it light, and much also so deep above the gravel, as to be very excellent land, and, in wet seasons, yields great crops. Pretty considerable tracts near Colchester are in the occupation of gardeners, who, besides supplying the town and barracks with vegetables, raise considerable quantities of garden seeds for the country, and the supply of London.

About Beerchurch, &c. a dry, sound, sandy, or gravelly loam; all, or nearly all, good turnip land, and for feeding off; but most productive in wet seasons, and some apt to burn in dry ones, from the shallowness of the surface soil, or the sharpness of the under stratum. Of this description

description is a level of sound dry land, with some variations, to the south and west of the town.

Most of the land from Colchester to Manningtree, is nearly the same light loamy sand, or sandy loam on gravel, which is found at Ardleigh: much of Lawford so.

CHALK DISTRICT, NO. VII.

In the north-western corner of the county, there is a small district of chalk; but small as it is, with some variations, however, the basis, at certain depths, all, or nearly all, chalk. At Elmton, and Strethall, the surface is heavy; and the point at Heydon Grange, and Crisbat Grange, there is gravel: but the whole must be considered as a continuation of, and in union with, the chalk districts of Hertfordshire and Cambridgeshire.

Within less than a mile of Walden, the chalk is visible, and the soil changes entirely to a dry turnip soil on a chalk bottom. Near the town, is a large and deep excavation for burning lime. This chalk stratum extends by Audley End to the hills of Littlebury, thence to the Chesters, and so into Cambridgeshire and Hertfordshire.

About Audley End, the hills are all chalk, and the vales good loam on gravel, but with variations. On the hills, the soil is thin, in some places not more than four or five inches on the chalk, and they *burn* in a hot summer. Much of the chalk is hard, and bad to plough up; for which reason they are careful not to plough too deep. Elms thrive in the vales; and they have a proverb—*Good elm, good barley: good oak, good wheat.*

Hadstock is dry, with wet hills; Ashdon, quite heavy; Little Walden, the same; Strethall, cold and heavy; Elmton,

Elmdon, the same ; Crishal, part heavy, and part on a basis of gravel.

Near Hockerill, the soil is turnip land, and the vales and lower slopes generally dry and good, throughout the way from Chesterford thither.

*NOTES ON THE DISTRICT OF MISCELLANEOUS
LOAMS, NO. VIII.*

Having thus struck off the three strong land districts, that of the Roodings, the maritime district of rich loam, the turnip loam, and the chalk, there remains the larger part of the county, which is so intermixed with a variety of loams, that no separation can with propriety be made. The variety of soils in this space is great. At Foxhearth, Leiston, and Borely, there is much sand ; at Lamarsh, some very rich sandy loam ; also a fine white sandy loam at Bulmer, and Belchamp Walter. At the Hedinghams and Halsted, rich vales under hops ; at Markshall, &c. strong clays ; at Wickham Bishop, sound sandy loams ; around Chelmsford, very good turnip land. The southern tract, from Thorndon to the Thames district, heavy, wet, and poaching, and not much more in the husbandry than in the soil to excite attention. The potatoe district near London is, in a measure, artificial. In the broad space from Hanningfield to Waltham Abbey, every sort of soil is to be met with. But in all these cases, the distinctions do not run into such masses as to enable me to strike off any more districts sufficiently different from the rest.

Finer land is very rarely to be seen, than a vein of loamy sand found at Borely, Belchamp, Bulmer, and Gestingthorpe. It is in the state of fallow, after rain, nearly white ;

white; and this in proportion to the quantity of sand in it. I found a farm (Brickwall) at Bulmer of this soil, but not so white as some; the land so good, apparently, and of so high a reputation, that I brought away a specimen of it. These sands are exceedingly fertile; four or five quarters of wheat, six or seven of barley, seven or eight of oats, and four or five of pease, are not uncommon crops on them. There is a strong principle of adhesion in them, though so sandy to the touch; for if placed in the wet, they become hard clods. In all this country, whatever land does not want draining, is excellent.

About Ballingdon, Middleton, &c. the general features of the vicinity of the river Stour, the slopes that hang to the meadows are a fine, sound, friable, sandy loam; the hills are strong and harsh, and near a stiff clay, but with variations. The Suffolk side of the river presents nearly the same features, with the exception that the range of slope from Melford to Sudbury is superior, and is, indeed, a tract of some of the finest and deepest loam in that county.

About Little Maplestead, they have light loams on gravel, and good strong loam, two feet deep, on a whitish clay marl bottom; some of this wants draining. The texture of the loam is excellent; it varies in tenacity.

Great Maplestead resembles Little Maplestead; about half the parish may admit turnips, and the other half too heavy. It is a hilly country, and the vales and slopes good land; the tops of the hills heavy, but with variations.

From Sibble Hedingham to Wethersfield, is, in general, strong loam on a clay marl bottom, all drained, but too wet for turnips: a large portion summer-fallowed, and laid up on the two-bout ridge for barley or wheat.

Around Spains-hall, Mr. RUGGLES possesses 1000 acres
within

within a hedge: the soil of two sorts; one dry, sound, gravelly, or sandy loam; the other, strong loam; both on clay marl, but the former 18 to 24 inches deep; so that the permeable space below the plough is sufficiently deep to render drains unnecessary; but where the loam is more tenacious, and nearer the clay, there draining is necessary, and turnips improper. The dry land runs to white clover, and makes fine pasture and upland meadow. The whole is, on an average, worth from 20*s.* to 25*s.* per acre; some 30*s.*

From Braintree to Coggeshall, strong loam on clay: many fallows on the two-bout ridge for barley and wheat. At Markshall, very stiff and tenacious, and, in many fields, shallow, on an ill-looking yellow clay bottom; but seeing very fine crops of wheat on it, I examined the thin surface, and remarked, that with all its tenacity, it was of a good texture for so strong a soil.

About Coggeshall, in the vale, a very fine, rich, putrid loam, eighteen inches deep, on clay; worth 40*s.* to 60*s.* an acre for common crops. Mr. HANBURY's farm there, and much of the higher lands in the vicinity, a strong, stiff, wet loam on a whitish clay marl; but he thinks, not so heavy a soil as in the Roodings.

Little Tey, heavy; Feering, heavy, but very good; Bradwell, a kindly soil; Cressing, heavy, but good.

The vales, and part of the slopes, at Kelvedon, are a good sandy loam; but the flatter parts, and general face, is strong loam on clay, and all summer-fallowed.

The soil around Felix-hall has the varieties of this part of Essex, but may, in general, be considered as a strong heavy loam on a whitish clay marl: there are some fields which will admit turnips, but very few with propriety; and summer-fallowing the characteristic feature. The surface, nine or ten inches deep; and drains well by
hollow

hollow cuts: the same features, in this respect, continue to Witham.

Birch, Great and Little, various; some dry, some strong: a mixed loam on a whitish clay marl; also a dry loam proper for turnips. The parish being valued for the rates, the dry turnip land was estimated higher than the heavy land; yet the latter, if on a brown clay bottom, gives greater crops; but not, if on a whitish clay marl bottom.

Messing, lighter than Birch.

At Hatfield Peverell, the soil is either a loamy gravel, some a sharp gravel, or strong loam on a clay bottom; but at Bishop's Wickham, there is a very fine tract of sound, rich, sandy loam, which does perfectly well for turnips and for wheat. Mr. WRIGHT has above 500 acres there of very fine land, in the occupation of his brother, Captain LUARD, who, after ploughing the waves successfully, converted his keel into a share.

At Fingringhoe, on the farm of Mr. COOPER, the soil is generally light; but at Langenhoe he occupies much heavy land: his whole farm did consist of near 2000 acres, saltings and marsh included.

From Chelmsford to Danbury, various loams, and turnips and cole met with often. Danbury-hill is poor on gravel, but improves in descending towards Maldon.

From Kelvedon to Colchester, for the first five or six miles, I saw only one small piece of turnips, and a scrap of cabbages; but many fields fallowed and ridged for barley. The soil, strong loam on light coloured clay marl.

From Chelmsford to Terling, and much about that place, the soil is a sound loam, a turnip loam on gravel; but in the vicinity of Terling, and to and at Fairstead, there is much heavy and wet land on a whitish clay marl.

At

At the Priory farmer, Little Leighs, there is a tract of healthy sandy loam, fertile and productive, but being, though deep, on a clay bottom, turnips are consumed with difficulty. It carries, however, every appearance of being a very fine soil. Pond-park, I was informed, is of the same land.

At Sandon, Mr. TWEED occupies a strong binding tenacious wet loam on a rank tile clay bottom; the surface not more than four or five inches deep; and if, in ploughing, the under stratum be brought up, wild oats grow in abundance. It is a harsh, difficult, churlish soil, which demands much attention in management. There is a great breadth of it in that vicinity.

Romford, Weald, and Stapleford Abbots, have two general descriptions also; strong and heavy on clay, which demands careful draining, and the dryer loams on gravel and blue pebbles, which will do for turnips. Sir RICHARD NEAVE's, at Dagnam-park, is chiefly heavy, but he has some turnip land.

The Earl of St. VINCENT informed me, that the soil at Rochetts is loam to the depth of two spits: under that, clay; under the clay a vein of gravel, and then a very fine sand, which is full of springs of an uncommonly fine water. All wants draining.

A change of soil ensues at Vange, Fobbing and Stanford-le-hope; dry and stony; the subsoil of little round stones, but still mixed with fields of stronger and wetter land: turnips appear in this district. They call the dry lands all around Herndon hot and burning, and the country for some miles is either of this description, or strong clay. These variations hold to Stifford and Avely; much clay, some lighter lands, and at the last mentioned parish, all a turnip loam on a gravel bottom.

Chadwell, deep and heavy; Ockendons, both heavy;
Stifford,

Stifford, light; Dagenham, excellent; Wannington marsh, very good; to Upminster all light, but to the north of it heavy.

Hornchurch is various; much turnip loam on gravel, and a great deal of wet clay that will do nothing without draining. Romford to Ilford various, either turnip land on gravel, or strong on clay.

Barking is a very extensive parish, which contains a great variety of soils, but only two material distinctions, dry for turnips, and heavier clays that demand draining and fallows. About Woodford it is dry on gravel, and around Claybury-hall, chiefly clay. The forest of Hainault chiefly wet and heavy, but the part I saw of it excellent sandy loam. There is a great deal of land in it, that wants only enclosure to be highly productive.

Vastly the greater part of 1300 acres in the hands of Lord PETRE at Thorndon, are so heavy, that turnips will not do on it: there is not one field in which that root can be safely fed on the land. As I stood with Mr. MILES the bailiff on the promontory of Jewry-hill in the park, which looks down on an immense vale bounded by the hills of Kent, and inquiring the soil of the parishes nearest to the eye, he informed me that, generally speaking, all I saw for some miles was very strong heavy land on clay; Childerditch, East Horndon, Warley, Bulvan, the two Ockendons, &c.

The basis of the soil at Billericay is a reddish gravel full of blue round pebbles: at Stock the soil is lighter, and there the subsoil is a white sand and gravel; and though gravel is so prevalent at Billericay, yet the loam mixed and superincumbent is so stiff, that there are very few turnips to be seen in the country, and there ought to be none.

Around Ingatestone the soil is either a reddish, friable,
good,

good sandy loam on a brick earth, with veins of gravel, or an inferior loam on gravel: turnips are general, yet most of the land is much improved by hollow-draining.

Buttsbury is strong heavy loam, tending to clay, on a yellow clay bottom; Margaretting much lighter, but demands draining.

Around Chelmsford, all, in general, is light, and turnip land; which holds for three or four miles in the road to Ongar by Skreens, but then comes clay, with some variation, not considerable, at Roxwell. Going from Skreens, the soil begins to lighten at Writtle-park.

At Ongar, a loam on gravel, and good: Stonedon much light and dry; at Keldon and Navestock, both soils; the hills gravel, and the vales heavy, as Mr. DYER of Ongar informed me: it is an uncommon circumstance.

The whole district around Epping has small variation of soil in point of application, for there is very little turnip land; scarcely any that is truly so; it is nearly all a wet strong loam, that demands hollow-draining; and it is of the same quality to near Harlow.

These several districts being measured on the new Map of the Board of Ordnance by the map-engraver to the Board, were found to contain:

District No. I.	156	square miles.
II.	255	—
III. IV. V.	222	—
VI.	114	—
VII.	45	—
VIII.	681	—

1473, square miles, or 942,720 acres.

Face of the Country.—The most beautiful part of Essex, without the addition of a river, is in the liberty of Haver-
 ESSEX.] D ing

ing. From Romford to Brentwood is a fine country; but the more striking scenes are not within view of the road. From Dagnam-park to the Earl of St. VINCENT'S, who commands a portion of the fine park of Mr. TOWERS, the country is truly beautiful. From Thornodon, Lord PETRIE'S, to Epping, was mentioned to me as all nearly of this description, and Haivering-bower as singularly fine. What I saw, is all a perpetual variety of hill and dale, thickly wooded with much fine timber. The fields in general, grass, and of a verdure refreshing to the eye: gentlemen's houses thickly strewed in every direction.

Between Hockley and Raleigh, there is a very beautiful view of a rich vale, bounded by distant higher grounds; the whole a scene to the eye of rich cultivation, well wooded.

Landon-hill commands the greatest and finest view in the county: the Thames is seen distinctly for many miles, and the distant hills of Kent terminate the view with an interesting outline. It exceeds the view from Danbury, though that also is a striking one.

The high lands at Purfleet, formed by a chalk cliff projecting to the Thames, without the intervention of marsh, offer a scene not common on the Essex side of that noble river: it is full of business, shipping, and animation, which form always an agreeable prospect, when mixed with rural features.

South-End depends for beauty, as the scenes on tide rivers necessarily must, on the moment of view being high or low water. I came thither at low water, and in a letter to a friend, dwelt too much on the breadth of black sand: at high water, the prospect was so strikingly beautiful, that I could not but add a postscript, retracting much I had said. The river is five miles wide; the high
lands

lands of Sheppy, and the lower coast of Kent, distinct. Opposite is the mouth of the Medway. Many great ships were at anchor, and innumerable sails were swelling to the gale in every direction. The cliff on which the terrace is built, is high enough to command the whole; and the broken woodland shore, that sinks to the water's edge, gives to it an outline of foliage.

A finer country is no where to be seen, than the banks of the river Stour, from Shoebury to Harwich; the vale through which the river glides, has great variety in breadth and features; and the bounding hills offer, in all directions, rich scenes of cultivation: towns, villages, steeples, farms, and woods, are intermixed, and form a succession of landscapes which are extremely pleasing. The animated, as well as decorated, scene at Mistley, is, at high water, singularly beautiful.

SECT. VI.—WATER.

FEW counties can be better surrounded than Essex, in respect of navigation. The Thames forms its whole southern boundary; the Stour, navigable to Shoebury, its northern limit; the Sea to the east; and to the west, the two navigations of the Stort and the Lea. The great estuary of the Blackwater penetrates twelve miles into the county, and afterwards is navigable to Chelmsford.

The greater part of Essex is well watered, by the many brooks and rivers which run through its vales. The hundreds of Rochford, Dengey, and some others, however, lying near the sea, and the banks of the Thames, called, in reproach, *the hundreds of Essex*, are rather deficient in good water; and perhaps their autumnal agues have been

as much owing to this deficiency, as to the noxious vapours arising from marshes imperfectly drained. A recent successful experiment, made by the Rev. Mr. NOTTIDGE, at East Hanningfield, near Danbury, affords the pleasing hope, that by making wells of considerable depth, water of the finest quality might often be obtained. He persevered in the expensive attempt till fine water was found nearly 500 feet from the surface, which soon arose to within 120 feet of the top of the well, at which height it continues to stand, and must be of considerable benefit to his own family, and many of his neighbours, for whose use it is always open.

The parish of Latchingdon dug a well 300 feet deep, to the very great comfort of the whole.

The Crouch, a very fine river, and laid down too narrow in all the maps, is from three-fourths of a mile to a mile wide near Burnham, and has water enough for a 90 gun ship; a 74 might go up almost to Hull-bridge. Proposals have been, at various periods, made to Government, for the establishment of a dock-yard here. The river is a very noble royalty, belonging to Sir HENRY MILDMAY, a grant of EDWARD III.

“That springs have their origin from the sea, and not from rains and vapours, among many other strong reasons, I conclude from the perennity of divers springs, which always afford the same quantity of water. Of this sort there are many to be found every where. But I shall, for an instance, single out one in the parish of Upminster, where I live, as being very proper for my purpose, and one that I should have better opportunities of making remarks upon, for above twenty years. This in the greatest drought is little, if at all, diminished, that I could perceive on any well, although the ponds all over the country,

country, and an adjoining brook, have been dry for many months together; as particularly in the dry summer months of the year 1705. And in the wettest seasons, such as the summer and other months were, preceding the violent storm in November 1703. (Vide *Philos. Trans.* No. 289.) I say, in such wet seasons I have not observed any increment in its stream; excepting only from violent rains falling therein, or running down from the high land into it; which discoloureth the water often times, and make an increase of only a day's, or some times but a few hours' continuance. But now, if this spring had its origin from rain and vapours, there would be an increase and decrease of the one, as there should happen to be of the other; as actually it is in such temporary springs as have undoubtedly their source from rain and vapours.

“ Besides this, another considerable thing in the Uxminster spring (and thousands of others) is, that it breaks out of so inconsiderable an hillock, or eminence of ground, that can have no more influence in the condensation of the vapours, or stopping the clouds (which the maintainers of this hypothesis suppose) than the lower lands about it have. By some critical observations I made with a very nice portable barometer, I found that my house stands between 80 and 90 feet higher than the low-water mark in the river of Thames, nearest me; and that part of the river being scarce thirty miles from the sea, I guess (and am more confirmed from some later experiments I made nearer the sea) that we cannot be much above 100 feet above the sea. The springs I judge nearly level with, or but little higher than where my house stands; and the lands from whence it immediately issues, I guess about 15 or 20 feet higher than the spring; and the lands above that, of no very remarkable height. And indeed, by actual measure,

one of the highest hills I have met with in Essex, is but 363 feet high (*Vide Philos. Trans.* No. 313, p. 16); and I guess by some very late experiments I made, neither that, nor any other land in Essex, to be above 400 feet above the sea. Now, what is so inconsiderable a rise of land to a perennial condensation of vapours, fit to maintain even so inconsiderable a fountain as what I have mentioned is? or indeed the high lands of the whole large county of Essex, to the maintaining of all its fountains and rivulets?

“I am told by persons conversant in digging of wells throughout the county of Essex, where I live, that the surest beds in which they find water, are gravel, and coarse dark coloured sand; which beds seldom fail to yield plenty of sweet water: but for clay they never find water therein, if it be a strong stiff clay; but if it be lax, and sandy, sometimes springs are found in it; yet so weak, that they will scarcely serve the use of the smallest family. And sometimes they meet with those beds lying next, under a loose black mould (which, by description, I judge to be a sort of oaze, or to have the resemblance of an ancient, rushy ground), and in that case the water is always naught, and stinks. And lastly, another sort of bed they find in Essex, in the clayey lands, particularly that part called the Rodings, which yield plenty of sweet water, and that is a bed of white earth, as though made of chalk and white sand. This they find after they have dug through forty, or more feet of clay; and it is so tender and moist, that it will not lie upon the spade, but they are forced to throw it into the bucket with their hands, or with bowls; but when it comes up into the air, it soon becomes an hard white stone.

“Upon inquiring of some skilful workmen, whose business

ness it is to dig wells, &c. whether they had ever met with the like case, as these in the note; they told me they had met with it in Essex, where, after they had dug to fifty feet depth, the man in the well observed the clayey bottom to swell, and begin to send out water, and stamping with his foot to stop the water, he made way for so sudden and forcible a flux of water, that before he could get into the bucket, he was above his waist in water; which soon ascended to 17 feet height, and there stayed; and although they often, with great labour, endeavoured to empty the well, in order to finish their work, yet they could never do it, but were forced to leave it as it was."—*Derham. Phys. Theol.* vol. i. p. 72, 93, 109.

CHAP. II.

STATE OF PROPERTY.

SECT. I.—ESTATES, AND THEIR MANAGEMENT.

“ IF by estates, are meant possessions in landed property, they are, in this county, in point of size and extent, almost infinitely various: from one, five, and ten pounds a year, to ten, and even twenty, thousand; and, although there may be a few considerable and extensive estates in the hands of the nobility, or of some very wealthy private individuals, yet, perhaps, there never

was a greater proportion of small and moderate-sized farms, the property of mere farmers, who retain them in their own immediate occupation, than at present. Such has been the flourishing state of agriculture for twenty or thirty years past, that scarcely an estate is sold, if divided into lots of forty or fifty to two or three hundred a year, but is purchased by farmers, who can certainly afford to give for them more than almost any other persons, as they turn them to the highest advantage by their own cultivation; and hence arises a fair prospect of landed property gradually returning to a situation of similar possession to what it was a hundred, or a hundred and fifty years ago, when our inferior gentry resided upon their estates in the country, and, by their generous hospitality, diffused comfort and cheerfulness around them. Nor let us envy or grudge the farmers this prosperity: by their laborious and spirited exertions, they highly deserve it. Nor, indeed, after all their toils, are their acquisitions of wealth comparable to those in other situations and departments of society.

“As to the management of our estates, those of the larger size are usually committed to the care and superintendance of stewards, who are sometimes attornies, sometimes capital farmers, and sometimes private gentlemen. These lett the farms, with or without leases, at the pleasure of the proprietor; fix, often, and receive the rents; and, where leases are granted, frequently direct the terms according to their own discretion. These are commonly lett cheaper than those of smaller proprietors*.”

* Howlett.

SECT. II.—TENURES.

“THE tenures of the landed proprietors are in almost all the diversities of freehold, leasehold, and copyhold; but what are the number of estates holden by these several species of tenure, or what their proportion to each other, either in number, value, or extent, I am totally unable to say. I conjecture, however, that freehold estates are by much the most numerous, extensive, and valuable. Next to these are the copyhold, there being few parishes in any part of the county, especially in the quarter of Dunmow, in which there are not one, two, three, or more manors; to the lords of which, annual quit-rents are paid, besides fines, or heriots, upon deaths, purchases, or other events and contingencies; some certain and fixed, others variable and arbitrary. Our leasehold estates are, I suppose, by much the fewest, and least extensive. We have also many estates in mortmain, belonging to GUY’S and CHRIST’S Hospitals, and other corporate bodies.

“That freehold estates are the most valuable to the immediate proprietor, there can be no doubt; but the purchaser of a copyhold may remember, that the original purchase is by so much the lower; and whether he lets the occupation to a tenant, or farms and cultivates it himself, he may possibly make as good interest of his capital as if he had bought a freehold. Perhaps, also, its general and final utility to the public, may be nearly or quite the same. This, I think, is certain; copyhold estates, whether in the hands of the proprietors or tenants, are altogether as well cultivated as the free, excepting only in the article of timber; and even in that, the difference is
seldom

seldom visible. The like may be said of leasehold estates, and even of those in mortmain.

“With regard to the tenures by which the mere temporary occupiers hold their farms, they are, as already stated, extremely various; some upon leases, of longer or shorter duration; some without any leases at all, agreeably to the taste and pleasure of the landlord, though by far the greater number, especially of those in the possession of the smaller proprietors, are lett upon leases of from eight or ten to twenty-one years*.”

CHAP. III.

BUILDINGS.

SECT. I.—HOUSES OF PROPRIETORS.

WANSTEAD, the magnificent seat of Miss LONG, occupied at present by the PRINCE of CONDE, is one of the largest houses in the kingdom, certainly coming into the first class.

Audley-End, Lord BRAYBROOK's, is well known, also, to be a princely residence, and the grounds improved by BROWN, with a taste not often exceeded.

Mistley-hall, the elegant residence formed by the late Right Hon. RICHARD RIGBY, is, upon the whole, the most striking place I have seen in Essex. The house is

* Howlett.



1852

Westerly View of the Harbor, N. York

not large, but the park is fine, and well wooded; a varied hill, sloping down, in different forms, to the Stour, which is two miles wide; the opposite shore, a rich country, and not flat; the new church, built by ADAM; the quay, the warehouses, and other buildings; a good inn, the shipping, the little dock-yard, with ships building in the very bosom of a hanging wood;—all conspire to render it a lively beautiful scene, of singular and pleasing features; but it should be viewed when the tide is in. (See *Plate I.*)

Gosfield, in my opinion, merits much attention, for the circumstance of being formed about 60 years ago by the late Earl NUGENT, before the spirit of decoration took place: he did it himself. The lake is a happy effort, and just what BROWN would have executed; and the plantations are so disposed, as to attract the eye in every direction; and were the hedges cleared of pollards for a few miles around the village, the woods would be seen in a very magnificent outline on every side.

Thorndon, the seat of Lord PETRE, is in the first style of residences. The house is large and celebrated, the park extensive, the variety of ground striking, and the timber respectable. From Jewry-hill, a promontory that pushes boldly into the vale, through which the Thames flows, and is bounded by the hills of Kent, commands a view that is interesting.

To give a recital of many seats would be useless; but I may in general remark, that in the erection of moderate houses, adapted to the residence of gentlemen of three, four, or five thousand pounds a year, the county has been greatly adorned; and the money which has been thus invested in that portion of the county which is in the vicinity of the capital, with the decoration and improvements by lawns, pleasure-grounds, and gardens, is
very

very great indeed, so as to have added to the value of the fee-simple a sum, which, were it calculated, would shew the increase of national wealth, in a manner that could leave little room for doubt.

But there are large portions of the county, where the dearth of gentlemen's seats is remarkable; there is not one in the whole hundred of Dengy, which would come into contemplation on these ideas. There are but two acting magistrates in the hundred, and they both reside in the town of Maldon. In Rochford and Tendring hundreds, and, indeed, in all the district that goes by the name of *the hundreds*, they are extremely scarce. The reputation of unhealthiness accounts for this circumstance; yet there can be no doubt, that an improved drainage and cultivation, with clearing the ground of superfluous wood, has added to the health of the inhabitants. These changes are all in progression, and will gradually remove the cause of the neglect complained of.

Some other parts of the county are but thinly inhabited by gentlemen, though far removed from the suspicion of agues. Mr. BRAMSTON observed, that going north from Skreens, twelve miles, as the crow flies to Lord MAYNARD'S, there is not the trace of a gentleman's house; yet there are parts of the country that offer fine scenes of woodland landscape, with vales and brooke, admitting every sort of decoration.



SECT. II.—FARM-HOUSES, OFFICES, AND REPAIRS.

“THE houses upon the Essex farms (say the Messrs. GRIGGS), are good, and conveniently constructed, and the
stables,

stables, barns, cow-houses, and other buildings, more numerous than in most counties." This is perhaps generally true; subject however to great and numerous exceptions; according to the interest, the purse, the caprice and fancy of the proprietors, and sometimes also of the occupiers, if the repairs be thrown upon them, as sometimes happens. The houses of small farms, whether holden off-hand, or inhabited by the farmers themselves, are frequently wretched hovels, not better, if so good, as decent cottages. And an annotator in a former Report justly observes, that on "many of our farms, consisting of small ones laid together, the farmer's own residence is frequently ill situated for his whole farm; many too are old mansions, too large and expensive, and in general the out-buildings numerous without convenience." In the unin- closed part of the county, the farm-houses, with regard to the land belonging to them, are, for the most part, very awkwardly and too distantly situate; a circumstance which renders the conveyance of manure extremely expensive, and commonly leaves the extremities much impoverished.

"The repairs are commonly kept up by the landlord; the tenants, however, furnishing in some articles, the rough materials, as straw for thatching, &c. and in most, fetching the bricks, tiles, lime, &c.*"

SHEEP-YARDS.

One of the completest sheep-yards I have seen, is that which Mr. THURLOW has made at Gosfield: partly by means of stubble stacks; but the space well enclosed; a large flock may be under cover or exposed, at their pleasure: in the centre is a thick stubble stack, which forms a double shed. He finds it of incomparable use, insomuch

* Howlett.

that he intends thus to convert nearly all the straw of his large farm into dung, and to leave off buying bullocks for that purpose. This is the only sort of folding he admits of.

Mr. BLYTHE, of Kirby, has a yard also in which his store sheep are confined every night. He highly approves the system.

Many other sheep-yards are forming in the county.

CALVES-PENS.

It is so essentially necessary for calves to lie dry, that it is always effected by some means or other: floors of timber rot speedily; to remedy this, they have in Dengey and Rochford hundreds an economical method, which deserves noting. I saw it at Mr. SPURGEON's, at Bradwell, and at Mr. PRENTICE's, at Prittlewell: the floor is laid of bricks set on edge, with a narrow space open between brick and brick. (*Plate II.*)

GRANARY.

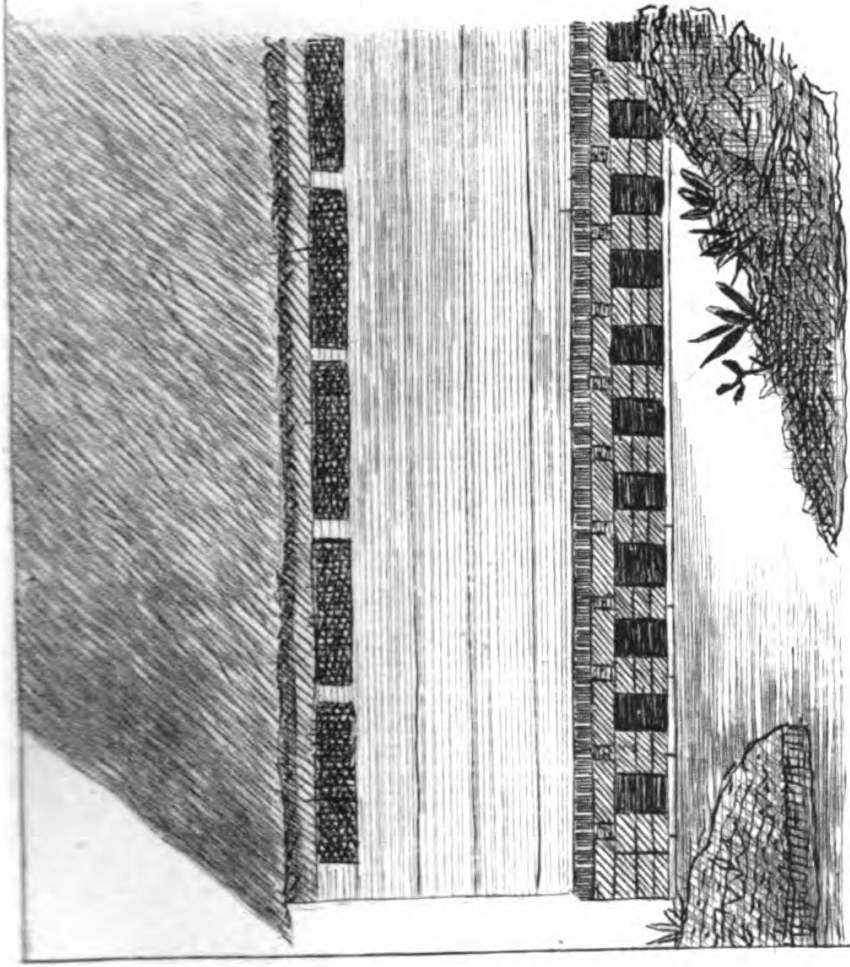
Mr. ROGERS, of Ardleigh, has built a new granary over a cart-lodge, which has one convenience which merits noting. It is in two divisions: first, a small room with some bins; here he can dispose of any small parcels of horse or hog corn, to which a servant may in his absence have recourse, without being entrusted with the key of the larger heaps.

Mr. HANBURY, at Coggeshall, in his granary has two stories of corn bins, one directly above another; and a hole in the floor of the upper one, for skreening the corn into the lower one. Very useful.

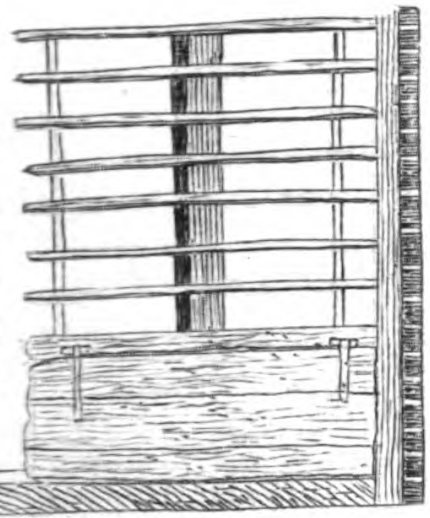
BARN.

Mr. PATTISON, of Maldon, in building a barn which he favoured me with a sight and explanation of, conducted
a stream

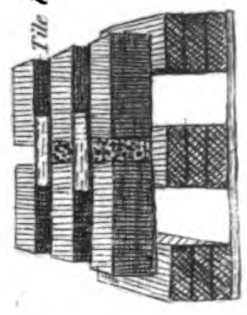
Plan of 1841



Chalk & Meal trough



Tile between the Bricks



Between ends fill up with Chalk & Brick rubbish at dots.

Tile bottom

Mr. Spurgin's half-Pen!

*Wooden windmill - 17th century. Huntington Castle
also referred to as Plate 41 p. 300*

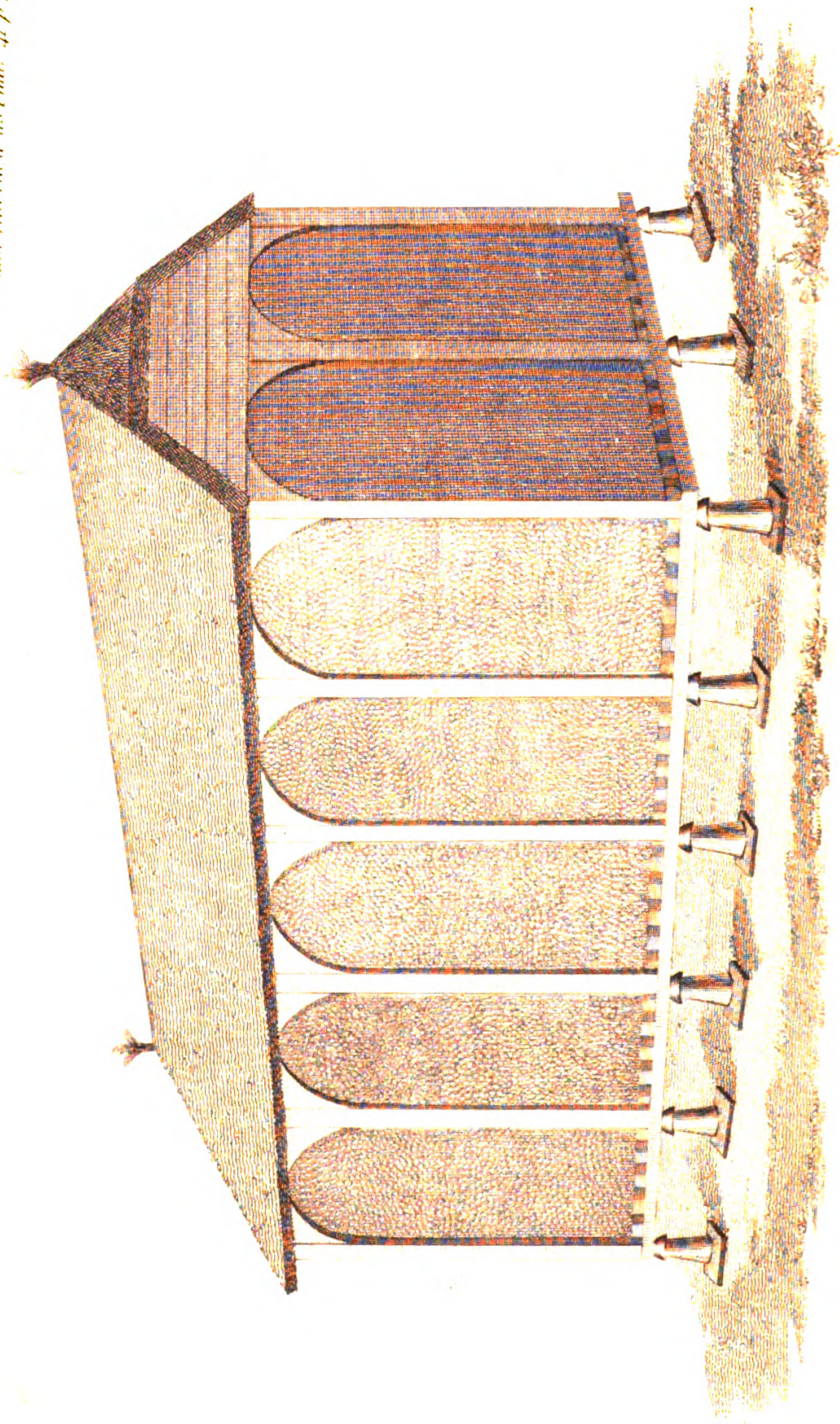
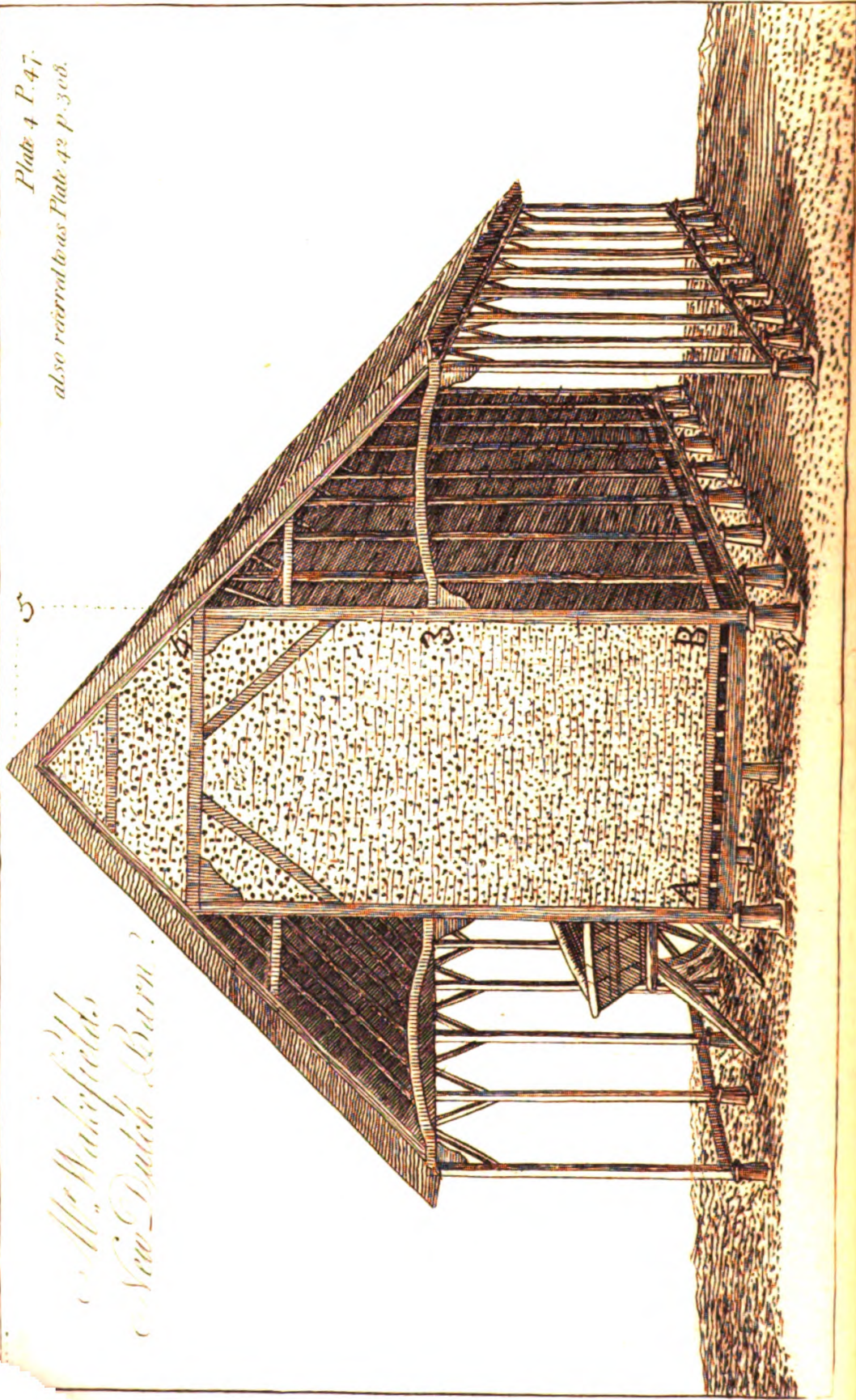


Plate 4 P. 47.
also referred to as Plate 42 p. 308.



at Mr. Wainwright's
New Dutch Barn.

a stream of air under the floor from end to end, for the preservation of the planks and timbers of it: the planks rest on brick piers. This improvement would merit more attention, if the invention of thrashing-mills did not promise, speedily to put an end to all barn-building. To avoid the necessity of the common great doors for the admission of a loaded waggon, he has shortened them considerably, and made up the deficiency of height by a falling third door, which is raised or let down by a rope and pulley.

CORN-STANDS.

Mr. MAJENDIE has built two standings for wheat-ricks, which are effective and useful, and perfectly well executed. (*Plate III.*)

Mr. THURLOW shewed me a new wheat-rick standing, of very large dimensions, but not on capt stones: he is of opinion that a projecting ledge of timber on the foundation wall is a full security against rats; the foundation is safe, from the depth to which it is carried.

Great exertions have been made by the farmers in Dengy hundred, in building corn-stands on capt stones, more than in any other part of the kingdom where I have been. Mr. WAKEFIELD, of Burnham, has as many as cost him 1000*l.* *Plate IV.* represents one of them, with cart-lodges for loaded corn, annexed.

On these erections, Mr. HOWLETT observes: "a very considerable improvement in the above described erection for corn-ricks, have been recently introduced, and is, I believe, becoming every year more and more common. Upon the timber platform the skeleton of a perfect barn is erected, ends, sides and roof. Upon the roof a complete substantial coat of thatch is put, which, being exposed to no injuries from mice and rats, nor any thing else, excepting
fire

The Earl of WINCHILSEA, on re-letting his farms in Foulness, annexed land to his cottages; and the inhabitants of these have not been, nor are, chargeable to the parish.

Mr. JOSEPH FRENCH, at East Horndon, has had a peculiar merit as a tenant, in building many cottages, as the best means of remedying the evil of the very high price of labour paid in this country: he has built three at Horndon, and seven in another place. Where so many are complaining of the price of labour, to see this gentleman taking the only effective means of remedying it, is an object grateful to the feelings: he deserves every commendation that can be given.

The Rev. Mr. HAND remarked to me, that the want of cottages is a serious evil. At Dunton there are not houses to cover the inhabitants already in that miserably peopled place.

Mr. BRAMSTONE, at Skreens, assigns gardens to all his cottages; half a rood; to some more.

On the enclosure of Great and Little Chesterford, the cottagers that had cow-gates on the commons, had allotments of land, which they now cultivate in wheat, potatoes, &c.

The Rev. Mr. SCOTT, at Oakley, has built several cottages of brick and tile, and annexed gardens to them, which are cultivated in a superior style.

“ A labourer in the neighbourhood of Dunmow, about seven or eight years ago, had money and credit sufficient to raise 60 guineas. With this sum he purchased a double-tenemented cottage, with about an acre of arable land belonging to it. One of the tenements he lets for 40*s.*, the other he retains for his own use. Of the land, about ten or twelve rods are set apart for a garden, and which is kept in very high garden-culture for a proper supply of vegetables

vegetables for his family, consisting of himself, his wife, and four children. The remainder of the ground is managed and cultivated as a farm. The hedge of the enclosure is on the side of the field, which at the same time that the reparation of it falls upon the occupier, makes ample amends by the loppings of the trees, the wood of the hedge-rows, and the perpetual renewal of manure in the ditches. There is also a pond of considerable depth and size, which, from its advantageous situation, rapidly increases its mud, which is rich and good. He constantly keeps a cow, which is supported, the greater part of the spring, summer, and autumn, by feeding about the roads; in the winter, before she calves, in the straw-yard of some neighbouring farmer, at 9*d.* 10*d.* or 1*s.* a week; and after calving she lives upon the little hay he has been able to get, partly and occasionally from his own field, partly from the narrow corn-field greens of some friendly farmer, and partly by prowling about the roads. He always fattens one or more hogs; he last year had one of the largest size I saw in the neighbourhood, it weighing from 16 to 18 score; and he had one this year of about the same weight. He sometimes has also a sow, and rears a litter of pigs. From his hogs, his cow, his ditches, and occasional scrapings in the roads, and diggings on the wastes, he annually raises from 15 to 20 cart-loads of rich and good manure, great part of which is regularly laid upon his field, which is enabled to bear the following rotation of crops, and to yield the following produce.

Rotation of Crops, and Annual Produce of the above-mentioned Acre of Land, during Eight Years, each year respectively.

	£.	s.	d.
1790. Oats, 4 qrs. value about	4	0	0
1791. Beans, 7 qrs.	8	0	0
1792. Carrot-seed, 7 cwt. at 9 <i>l.</i> per cwt.	63	0	0
1793. Oats, 7 qrs.	7	10	0
1794. Clover sown among the oats, twice } mown, nearly 3 tons each time	7	10	0
1795. Wheat, 4 qrs. at 4 <i>l.</i> per quarter	16	0	0
1796. Wheat, 5 qrs. at 3 <i>l.</i> per quarter	15	0	0
1797. Fifty-seven rods of the field } carrot-seed, about 3 cwt. } £.18 0 0 } at 6 <i>l.</i> per cwt.			
Half an acre potatoes, 200 } bushels, at 1 <i>s.</i> per bushel }	10	0	0
Remainder beans, 3 qrs. } at 28 <i>s.</i> per quarter	7	4	0
Total produce of the acre in the } eight years	156	4	0
Annual average produce	19	4	0
To which add, produce annually of cow and hogs	8	0	0
	27	4	0
Deduct for annual labour, ploughing, manure, } and carting it on, rates, feeding cow and } hogs, and every other possible expense	12	12	6
Balance of nett annual profit	£.14	12	0

“ Besides all this, his hedge-rows are as thick with trees, ash and elm, as I have ever seen; a large proportion of these he planted with his own hand, and which
now

now appear in a most thriving and flourishing condition. One corner also, containing at most two or three square rods, is a little nursery of fruit-trees, which this year (1797) are sold for 5*l.* What are *pasture* statements compared with this *arable* one! To all the above I might add the annual produce of eight or ten hives of bees, in the management of which our cottager is exceedingly skilful and dexterous, and the profits of them in favourable years is by no means inconsiderable! This acre of arable then is not only advantageous to the cottager himself, but highly beneficial to the community at large. Few farmers of one, two, or three hundred a year, in the present state of agriculture and population, could ever raise a proportionable quantity of provisions for the use of the public.

“The person of whose persevering, successful industry, I have above given so full and minute a detail, may be fairly considered in the two-fold character of a cottager and a farmer. I cannot deny myself the pleasure of adding another historical narrative of a similar kind, and perhaps even still more extraordinary.

“A farmer’s servant in this neighbourhood, from an uncommon spirit of industrious exertion, after he had done as much work as, in the judgment of the master himself, was adequate to his stipulated wages, frequently earned 6*s.* a week more, which was readily paid him by his employer. He continued in service till he was seven or eight and twenty years old, regularly pursuing the same course of unusual industry. Having by this time accumulated about 40*l.*, he married a young woman, careful and industrious like himself. This sum enabled him decently to furnish a cottage, still leaving him a little money to go the more easily forward in his new and more expensive situation. He had now no longer the plentiful and strengthening

food of his master's table. His laborious efforts, however, instead of being remitted, were in a manner increased. Being a dexterous, active, ingenious workman, he confined himself to no single employer (as has been absurdly recommended by some agricultural societies), but constantly sought out the best, and most advantageous kind of work to be found in the neighbourhood. By this means, he frequently earned 2*s.* or even half a crown, while a large proportion of labourers gained perhaps scarcely a shilling. His frugality and abstinence, mean time, were as remarkable as his disposition for active and vigorous labour. He often denied himself the *luxury* (strange application of the term, it may be thought) he denied himself the luxury of *cheese* to his *bread*. His health and spirits, nevertheless, remained perfectly good; and never, he says, did the dry morsel go down with a more sweet and pleasant relish. With this persevering abstinence and industry, he maintained a family, consisting of his wife and four or five children, without the smallest parochial assistance. These children, each successively, at the age of fourteen or fifteen years, went to service. He constantly laid by every shilling he could spare; and one singular piece of prudent forecast, and judicious economy which he generally observed was, to buy, soon after harvest, a sufficient quantity of wheat for the whole year, from two quarters, only at first necessary, till, when his family was largest and most numerous, it amounted to five or six quarters, by which he generally made a saving of from 20*s.* to 40*s.* a load.

“ By permission of the lord of the manor, in the year 1781, he fenced in a small piece of ground by the highway side, and built him a house upon it, consisting of two
* apartments on the ground floor, and two correspond-
- above, together with a commodious brewhouse

at

at one end. To render every domestic occupation the more convenient, the whole has since been surrounded with various little out-buildings, insomuch that there is now not only a hog's cote, and a house for wood, but a hut to receive the spinning wheels and other cottage utensils; even a shed to shelter the necessary provisions for a sow and pigs; and also a well-secured bee-stall filled with hives. The yard, containing about ten or twelve rods, has on the side next the road, been planted by his own hand with a quick-set-hedge, which has long been vigorous and flourishing. On the opposite side are apple-trees, plumb-trees, and cherry-trees of various sorts. The intermediate space, before the *enclosure*, was part of it a mere gravel pit, and the rest so utterly barren, as never to half fill the belly of a single sheep, or even rabbit; but since, from proper culture, and suitable manure, it has yielded, and continues to yield, beans, pease, fine potatoes, and other useful garden productions, in vast abundance. A thrifty grape-vine, too, has already spread its mantling branches along the whole front of the house, promising many an occasional cheering glass of comfortable reviving cordial. He has also sunk a well of considerable depth, and fixed a pump therein, at an expense of seven or eight guineas, which it amply compensates by a constant supply of excellent water. This rural mansion, with its several appurtenances, all in form and perfect repair, is now worth 50/.

“ In the year 1794, he had laid up money sufficient to purchase a small copyhold farm, consisting of a house and barn, with two acres of arable land. The purchase, the writings, and the taking up (as the phrase is), cost him about 110/. He has since erected, with his own hands, a well-formed commodious cow-house, a hog's cote, and other convenient little buildings. The land,

though extremely heavy, he has cropped, and that very successfully, every year. It was land ditched about five or six years ago; but having been done in a very imperfect and slovenly manner, it appeared necessary to do it again, and which is now nearly completed. One circumstance, in the manner of performing it, being rather singular, I cannot omit to notice. The lower spit with the land-ditch spade was a fine firm clay; this he laid separate from the rest of the dug out earth, and after putting at the bottom a proper quantity of haulm, he took the clay soil with his bare hands, and forced it compactly down, very judiciously observing, that the haulm will be rotten by next spring, and the clay will then have become a firm conducting pipe, for the ready conveyance of the water for thirty or forty years.

“ He keeps no horse, the neighbouring farmers obligingly ploughing his land for him; but he has a cow, a sow and pigs, and occasionally fats a hog; having in all respects the same assistance from his neighbours as the person before mentioned. He will be able next spring (1798) to cover the whole field with excellent compost; and he intends to sow it with beans, for which it will be well prepared; and he will, I doubt not, add one more proof to the many already adduced by Mr. A. YOUNG, and others, that the heaviest soils, properly manured, and properly managed, with due attention to variation of crops, stand in need of few, if any, entire summer fallows.

“ Notwithstanding the expense of land-ditching, of the erection of new buildings, and the repair of old ones, he has already, he assures me, made more than 10 per cent. on his purchase money.

“ About the time he bought this little farm, his eldest son married; he put him into the cottage above described, of which he manages well, after the example of

of his father, who removed to his new estate, which I confidently believe will not be the last he will buy; indeed he is nearly able to do it now, should the opportunity present itself.

“ A small farm, very near him, with two cottages and a barn, with about twelve acres of sound arable land, was sold a few months ago for under 250*l.*, and he regrets that he did not know of it soon enough; for that he would have tried hard to have gotten it, which I make no doubt he easily might; for if he had not money sufficient of his own, there are persons who would readily have lent him whatever might have been wanting.

“ He is now about sixty years of age; he enjoys, he says, as fine a state of health as ever in his life; but finds himself not *quite* so nimble, *strong*, and *active*, as in his younger days, nor is he able to fare so hardly, and live so simply. Dry bread and small beer will no longer do; but it becomes necessary, occasionally, to add a little comfortable strengthening ale, to recruit his declining powers. When favoured, however, with bright moon-light, he has even now endeavoured to work on his field all night; but soon discovered, that incessant labour, without repose, could not be supported, and therefore discontinued the attempt*.”

* Howlett.

documents to prove how groundless are the apprehensions so common in the world, that England suffers by the largeness of her farms.

At Shearing, Hatfield, &c. in the Roodings, the farms are generally small; 300 acres a large one.

At Hallingbury, &c. 400 the largest.

Few farms in an old enclosed country have been more improved than that of Mr. NEWMAN, at Hornchurch. It consists of 530 acres, part clay and part turnip land, and was never known, before he took it, to carry more than 100 sheep and 20 cows: last year he kept 770 sheep and lambs, and 117 beasts. There were before two stacks of corn, and four barns filled. Now Mr. NEWMAN has the four barns, three stacks of wheat, three of barley, and one of beans, besides 130 loads of hay. This is a sort of improvement which no public documents can present to the eye of a Board or of Parliament: a silent progression in agricultural prosperity, which results from the pursuit having become fashionable, and in general estimation; from the conversations that have been excited; and from a variety and extent of information having been diffused through the kingdom; to the banishing of old, and stupid prejudices, and the excitement of a new spirit among all the cultivators of the earth.

Lord BRAYBROOK, at his truly beautiful and magnificent residence of Audley End, keeps a farm of 1100 acres in his hands; of which about 400 are arable.

The parish of Walden contains above 7000 acres, and the largest farm is from 500 to 600 acres; all sizes below that. Near 4000 acres of the parish belongs to Lord BRAYBROOK.

Mr. COVERDALE, of Ingatestone, occupies a beautifully contiguous farm of 300 acres, on which he last year turniped 60 acres; hollow-drained 40, and manured 100; mowed

70 of grass ; he employs ten men, keeps ten horses, ten oxen, ten cows, twenty-five heifers, five colts, and joists some horses.

Farms in the vicinity of Downham-hall for some miles, not large : 200/. a year a considerable one, and not many such. Many small ones.

At Hatfield, 400 to 500 acres a large one : more generally 200 : and many smaller.

Lord PETRE, at Thorndon :

Arable, &c.	366
Ditto, part of the park,	110
	—
	476
Rest of the park,	967
Wood,	25
	—
	1468
	—

800 Deer.

850 Sheep and lambs.

22 Cows.

8 Working oxen.

30 Bullocks.

20 Young cattle.

Two of the finest farms I saw in the county, were Rochford-hall, in Rochford hundred, and Beaumont-hall, in Tendring hundred.

“ That the consolidation, or engrossing of farms, has sometimes been highly prejudicial to particular families, and diminished the number of occupiers who might have gained a decent maintenance, there can be no doubt ; and I am likewise by no means unwilling to acknowledge, that this practice has lately been somewhat increased. Its increase, however, has, I believe, not been equal to what is generally supposed. I remember a farmer 40 years ago, who

who occupied six farms, *detached*, and *widely apart*. They are now in the occupation of four distinct families; but neither is their present culture, nor their present produce, greater than before, if equal. I am inclined to think, however, many more farms have within the period now given, been *united*, than have been *separated*. I this moment recollect a person who holds not only *nine* farms, but fourteen; and the two extreme ones are more than 20 miles asunder. But even this very extraordinary and disadvantageous instance of engrossment (though I am by no means an advocate for it, when carried to such excess), I am far from being certain, has impaired the cultivation, or diminished the *nett* produce of the land, for the public consumption, which is the grand criterion for judgment.

“ But to come to a fact more fully to the point, of indubitable authority, and most minutely ascertained: in a parish adjoining to this, a man occupied a farm of 12*l*. a year, with a capital equal to what is generally possessed by farmers of that size. Utterly unable to bear the expense of that treatment, and those improvements which the land stood in absolute need of, he continued for many years to plough and sow; to toil and fatigue himself with the intensest industry; rising early; late taking rest; working harder, and faring harder, than the most laborious of mere labouring husbandmen; till, at length, his farm produced not corn sufficient to repay the little money he could afford to bestow upon it, exclusive of the rent, the rates, and the tithes. Of course he was obliged to quit. A large farmer, in the same parish, using almost twenty times as much land immediately adjacent, took it, all covered as it was, with weeds and thistles; and, in every respect, in the most wretched and impoverished condition. At Michaelmas 1770, he entered the premises;

mises; and, the next summer, being skilful and spirited, he fallowed the whole of it, consisting of about twenty acres; well-manured and properly land-ditched the greater part; and the following spring he sowed it with barley. The expenses and produce were as follow :

EXPENSES.

	£.	d.	s.
Land-ditching,.....	20	2	7
Summer's ploughing,.....	20	10	0
Ten quarters of seed barley, at 1 <i>l.</i> 5 <i>s.</i> per } quarter,	12	10	0
Raising manure and carrying on,	27	3	10
Two years' poor-rates,	7	0	0
Two years' great and small tithes,	5	8	0
Harvesting the crop,	5	0	0
Two years' rent,	24	0	0
Total expense,	£. 121	14	5

PRODUCE.

	£.	s.	d.
Two years' rent of the farm-house, lett as } a cottage,	3	0	0
Eighty-six quarters of barley, produced } on the twenty acres, and sold at 30 <i>s.</i> } a quarter,	129	0	0
	132	0	0
Balance in favour of the farmer at the } end of the two years,.....	£. 10	5	7

Here is *ten pounds five shillings and sevenpence nett profit* to the farmer, although he laid out at once ten years' rent; and notwithstanding the consequent crop was by

no

no means an extraordinary one. It still remains in the same hands; and, instead of relapsing into its former slovenly condition, has constantly been in garden culture, and its produce has repeatedly been one-third greater than that stated above. I believe I might safely venture to affirm, that in the course of the twenty-five years it has been under the judicious management of this intelligent farmer, the total product for the public use has been at least four times as much as during the twenty years immediately preceding. This has been the consequence of the land having passed from the hands of a little farmer into those of a larger one. Similar are the consequences of the like transition in nine instances out of ten. The little farmer, his family and cattle half starved, himself worn to the bones with unavailing labour, and perpetual anxiety, can at length pay neither rent, nor rates, nor tithes; his landlord, however humane and compassionate, is reduced to the painful alternative of either turning him out, or making nothing of his estate. No less than six instances of this kind, besides that already given, have happened in the same parish (it being an extensive one) within the last forty years. The rents of these farms were each respectively 22*l.* 16*l.* 30*l.* 24*l.* 21*l.* and 40*l.* a year. They came into the occupation of the larger neighbouring farmers, and although the rents of three or four of them have been advanced more than one-third, yet, their cultivation being proportionably improved, and their consequent produce doubled, tripled, and even *quadrupled*, the farmers still find them sufficiently profitable, and, I believe, would suffer themselves still further to be raised rather than quit them. These facts might be multiplied almost *ad infinitum*. They are but a specimen indeed of what has taken place, more or less, in most parts of this county; and I may safely leave it to common sense to determine,
whether

whether the practice, in these instances at least, is *fraught with more evil, and is more destructive to the agricultural improvement and produce, and political interests of this country than any other at present existing**."

"The characters of men depends very much on situation and circumstances; and as the situation and circumstances of our Essex farmers are almost infinitely various, we may naturally expect an equal variety in their characters. All ranks and sizes of them, however, are generally industrious; but their industry is exerted in a very different manner. The small farmer is forced to be laborious to an extreme degree; he works harder and fares harder than the common labourer; and yet with all his labour, and with all his fatiguing incessant exertions, seldom can he at all improve his condition, or even with any degree of regularity pay his rent and preserve his present situation. He is confined to perpetual drudgery, which is the source of profound ignorance; the parent of obstinacy, and blind perseverance in old modes and old practices, however absurd and pernicious. He is in a manner shut out from that intercourse with the world which enlarges the mind, and improves and increases knowledge. His understanding and his conversation are not at all superior to those of the common labourers, if even equal to them, as the latter, by sometimes changing masters, and working in different situations, extend the sphere of their observation and experience, and make some little accession to their narrow stock of ideas.

"With regard to the large farmers, the case is extremely different. They not merely superintend their business with the utmost care and vigilance, but, visiting the markets far and near, they mix with persons from

* Howlett.

every part of the county; the various modes and practices of agriculture in every quarter are frequently discussed, and fully examined with a minuteness and liberality that would not disgrace higher assemblies. The reasons for and against any scheme are maturely weighed, and if, after a due consideration of every difference of soil, situation, and circumstances, it is likely to be advantageous, no prejudice or prepossession obstructs its adoption. Nay, the more wealthy and opulent do not confine their information to their own county, but not unfrequently, during the summer months, form parties, and visit the neighbouring counties, with the express purpose of nicely examining the various methods of cultivating their land, as well as of rearing and improving the several kinds of live stock, and resolving to bring back and reduce to practice in their own immediate business, whatever may appear to deserve it. Hence a more general diffusion of knowledge and improvement, and all that is gradually increasing from the increasing size of farms and the increasing opulence of the farmers. Hence too, an improved education of their children, and a greater taste for reading, especially of new publications on practical husbandry. All these causes contribute to heighten the character of the higher orders of our Essex farmers, and render them persons of as enlarged and liberal minds, and of as various and extensive conversation, as any men whatever of similar rank and property, and of not superior education*.”

I cannot let this subject pass, without adding my testimony to the very respectable character of the Essex farmers: there will in all professions and bodies of men, be

* Howlett.

here and there found one of a narrow and prejudiced mind; but the readiness with which by far the greater number of those I applied to, resolved my inquiries, and in the whole county, meeting with but two flat refusals, is an extraordinary proof that these men are enlightened, and that their ideas have taken a much larger range than would have been found some twenty or thirty years ago. The objects, exertions, and pursuits of the Board of Agriculture, it is true, are all decidedly favourable to the farming interest; but this is not so generally known as it ought to be, nor has the Board been free from false, and scandalous misrepresentations which might have had weight with the ignorant and ill-informed: such is not the character of the Essex farmers. Many of those I conversed with, are men of much information, great ingenuity, and carry on their business with a spirit of exertion that is ready to adopt whatever appears practically promising.

SECT. II.—RENT.

THE main object of any ascertainment of rent, is for the better understanding the description of the soils; this is of consequence, but the imaginary views assigned by ignorance to this inquiry, deserve not a moment's attention.

DISTRICT NO. I.

In general, for some miles around Dunmow, and excluding the immediate vicinity of the town, 10*s.* to 15*s.*

Shearing and Hatfield 15*s.*

The heavy country about Hallingbury, and all the Roodings and vicinity, 15*s.*

Poor lands in the neighbourhood of Warners, 12*s.*

Other various and general information for the whole district, 10s. on an average.

DISTRICT NO. II.

Bradfield, 25s.

Little Oakley, 17s. to 20s.

Beaumont, 20s.

The whole hundred of Tending above 20s. on average.

Mersa Island 20s. round, old rents; but new ones much higher; 30s. and some even 40s. There is a competition for land in the island, as the occupations are small, and almost every man wants to increase his business; they are fond of their island, and will not readily quit it.

The part of the district north of Blackwater, 20s.

Munden, to the Marsh, 20s.

At St. Lawrence is a farm belonging to St. Bartholomew's hospital; of 460 acres 100 arable, 20 meadow, and 10 saltings: for this farm Mr. ALEXANDER THOMSON, from Tweedside, near Coldstream, offered 720*l.* per annum, for a lease of 21 years: another offer in the country was 600*l.* and to lay down 80 acres to grass, according to their steward's proposal: the latter offer, with some variation in the terms, was accepted: the exact rent unknown. 720*l.* for the whole is 31*s.* 3*d.* saltings included; but leaving these out (and they must be worth but little), the rent offered is 31*s.* 3*d.* Latchingdon, 15s.

The rated rent of Burnham is at 20s. an acre above the brook, and 18s. below it.

Foulness Island, the Earl of WINCHILSEA's estate, 23*s.* 6*d.* tenants doing all repairs without allowance. The rent of such a district must be combined with the circumstance of a great want of fresh water for live stock; the difficulty

difficulty of getting to the island; the immense price of labour, and the ravages of agues and autumnal fevers*.

Foulness Island 25*s.* round. The other islands in the vicinity 20*s.*

Average at Bradwell 20*s.* but Mr. WILLES has lately lett a farm (Wymarks) of 700 acres, to Mr. KIRKBY from Hertfordshire, at 40*s.*; and East-hall has been lately relett by the Rev. Mr. DUDLEY to Mr. SANXTER, at 30*s.* an acre; but in very high condition, from the great exertions of that celebrated cultivator: it contains 360 acres, 90 of which are saltings.

The strong clays of St. Lawrence 20*s.*; but old chalked lands 15*s.*

* They dig little reservoirs to receive the water from their fields for their cattle, which answer in a wet season, but in a dry one they are greatly distressed. The next inconvenience is the distempers they are subject to from their situation. I asked, I believe, thirty persons, if they had had agues, and every one answered in the affirmative, in a tone and manner that marked sufficiently how common and universal they were. There are but four farmers resident on the island; all the rest live out of it, in more wholesome and less sequestered situations, leaving their farms to the management of bailiffs, whom they call lookers. The same circumstance also, I suppose, occasions the high price of labour, for the men I saw hoeing beans were paid 2*s.* a day; and for harvesting, to do every thing, 10*s.* 6*d.* an acre is paid round, and two bushels and a half of malt per man. These agues are certainly owing to the muddy coast, wet and dry every day by the tide, and a yet larger extent flooded every spring tide. The mud, exposed to the sun, must yield pestilential exhalations; and every field being fenced by a ditch half full of stinking mud, must also, in a dry season, have the same effect. Spring and autumn are the seasons when agues are most prevalent.

The tradition is, that the Dutch embanked and first cultivated the island; there are many names now, which they say are Dutch; as Lodick, Pe-roose, Mowbecker, and Crozier. The latter died 80 years old; his daughter is Mrs. DOUSET, wife to a farmer now on the island. His grandfather and grandmother came from Holland, as she herself informed me.—*Note*
1000 years ago.

At Assingdon, &c. none under 20*s.*, some at 30*s.*

Around Rochford, generally 20*s.* or 21*s.* but the tenants do all the repairs without allowance, and their expenditure in this article surprized me not a little. One would suppose the country all inhabited by rich landlords. The same at Prittlewell.

The south-eastern circle of good land in this hundred 21*s.* on an average.

Canvey Island possesses a valuable eel fishery: very little arable. Mr. BAWTREE valued it at 15*s.* an acre, and it now stands so: they have fresh water only from rain.

The marshes to the south, &c. of Avely, 3*l.* and very rarely mowed; they are grazed by fat bullocks. The country in general, whether clay or gravel, 20*s.*

I estimate the average rent of this district at 25*s.*

DISTRICT NO. III.

Hempstead, and the Bumsteads, 20*s.*: some so low as 12*s.* Finchingfield, 20*s.*; some 2*l.* Belchamp St. Paul, Ovington, Ashen, Birdbrook, Tilbury, Ridgwell, the Yeldhams, and Toppesfield, 15*s.* on an average.

Average of the whole, 17*s.*

DISTRICT NO. IV.

Average of the whole, 16*s.*

DISTRICT NO. V.

Snorum, 15*s.*

Latchingdon, 15*s.*

East Hanningfield, 18*s.* to 20*s.*

Hockley, 15*s.*

Many miles around Bowers Gun, 20*s.*

Downham, 14*s.* to 17*s.*

Purley, 20*s.*

Average, 17*s.*

DISTRICT

DISTRICT NO. VI.

Stanway, 25*s.*

Lexden, 25*s.*

The whole of that part of the district which is in Tendring hundred, that is, all to the right of the line from Colchester to Stratford, and to the left going down the river Colne, 20*s.*

Colchester to Marks Tey, 22*s.* 6*d.*

The rest of the district, 20*s.*

Average of the whole, 21*s.*

DISTRICT NO. VII.

The Chesterfords, enclosed by act, and tithe free, 21*s.*

Littlebury and Walden, 15*s.* to 20*s.*

Chesterford to Newport, 17*s.*

Common fields, 7*s.* 8*s.* 10*s.*

Average of the whole, 15*s.*

DISTRICT NO. VIII.

At Belchamp Walter, 26*s.* an acre round; rates 5*s.* and tithe 5*s.*: therefore total 36*s.*

Maplestead, 12*s.* to 25*s.*, average 16*s.*

Gosfield, 20*s.*

Vale lands at Coggeshall, 40*s.* 50*s.* 60*s.* and gardeners' lands, 80*s.*

Hatfield Peverel, 20*s.*

Bishop's Wickham, 20*s.*

Sandon, 18*s.* to 20*s.*

Great Baddow, 25*s.*

Danbury, 18*s.*

Around Felix, old and new rents, average 20*s.*

General rent around Hornchurch, 25*s.*

Jewry-hill, in Lord PETRE's park, at Thorndon, looks down on a clay vale, in which the average is 18*s.*; high rented 25*s.*

Average rent of the country around Billericay, 15*s.*

All the country around Ingatestone, 20*s.* to 25*s.*; and the tenants repair, but the landlords find rough timber. Mr. COVERDALE, on a farm of Lord PETRE's, has built a bullock shed at his own expense, near 100 feet long, and 12 wide; and divided his yard; one for his horses, which never lie in the stable, and the other for cows.

Mr. BRIDGE, at Buttsbury, another of his Lordship's tenants, has also built a bullock shed, and divided his farm-yard by a long crib, with a projecting roof over it on either side, so that the cattle stand dry while feeding.

Around Ongar, the general rent is 20*s.* to 21*s.* The same within two miles of Epping.

The grass lands around Epping, 25*s.* 30*s.* and to 50*s.*

Newport to Hockerill, by Hallingbury, 17*s.*

Around Terling 15*s.* All Mr. STRUTT's property, wherever situated, taken together, does not reach 15*s.*

The strong lands at Coggeshall, &c. 22*s.* to 23*s.* new rents, Average, 20*s.*

	<i>Square Miles.</i>	<i>Acres.</i>	<i>Per Acre.</i>	<i>Total Rent.</i>
District No. I.	156	99,840	16 <i>s.</i> 0 <i>d.</i>	£.79,872
II.	255	168,200	25 0	204,000
III. IV. and V.	222	142,080	16 8	118,400
VI.	114	72,960	21 0	76,608
VII.	45	28,800	15 0	21,600
VIII.	681	435,840	20 0	435,840
		<hr/> 912,720 <hr/>		<hr/> £.936,320 <hr/>

The rent of the whole may therefore be called 20*s.* per acre.

RISE OF RENTS.

Fifty years ago rents at Latchingdon, according to Mr. RUSH of that place, were 7*s.* 6*d.* an acre; 20 years ago,
10*s.*

10*s.* 6*d.* The whole parish would now lett at 21 years for 20*s.*: but there being few or no leases, it is 15*s.*

Forty years ago the south side of the river Crouch, for a mile up, was 5*s.* an acre; now the tithe is 5*s.* 6*d.*

The Belchamps doubled in 25 years.

Mr. BEAUVOIR, of Downham, informed me, that his father died in 1757, and in his time the estate around Downham-hall lett at 8*s.* to 9*s.* per acre: now it is 14*s.*; and new rents are through that vicinity at 17*s.* on an average.

Mr. BRAMSTONE's father died in 1764, and the rents of his estate were then 7*s.* 6*d.* on an average; now they are 16*s.*

In 1784 I published the memorandum, that for many miles around Bowers Gun, near Pitsey, the rents were 10*s.*: this year, 1805, at the same spot I repeated the inquiry, and found them 20*s.*, some 25*s.*; and some even 30*s.*

At the same time, from Burnham to Bradwell lett at 13*s.* 6*d.*; it is about doubled, if we look to modern rents only.

In the year 1770 I took notes of the rents at Stanway and Lexden, when they were from 12*s.* to 20*s.*: they are now on an average 25*s.*

At the same period, the rent from Colchester to Witham was 13*s.*: it is now, at a medium, 22*s.* 6*d.*

At the same time the heavy part from Chelmsford to Dunmow 12*s.*; Dunmow to Hockerill 15*s.*; Dunmow to Braintree 15*s.*; Dunmow to Thaxstead 15*s.* These are in what I now call the Rooding district; the rent may be called at the lowest 14*s.* It is now 16*s.*

In 1784 I estimated the whole county, having travelled many miles in it, at 14*s.* on an average.

In 1794 Mr. VANCOUVER found the average rent of the whole to be 14*s.* 6½*d.*

RECAPITULATION

	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
Latchingdon in 50 years,	7	6	to	20 0
————— 20 years,	10	6	—	20 0
On the Crouch, in 10 years,	5	0	—	20 0
Belchamps, in 25 years,	10	0	—	20 0
Downham, in 48 years,	8	6	—	17 0
Skreens, in 41 years,	7	6	—	16 0
Bowers, in 21 years,	10	0	—	20 0
Burnham, &c. in 21 years,	13	6	—	27 0
Stanway and Lexden, in 35 years,	16	0	—	25 0
To Witham—————35 years,	13	0	—	22 6
The Roodings—————35 years,	14	0	—	16 0

MR. VANCOUVER'S TABLE OF RENTS.

<i>Parishes.</i>	<i>s.</i>	<i>d.</i>
Sturmer,	13	0
Tilbury,	15	0
Great Henney,	15	0
Great Maplestead,	14	0
Great Bardfield,	10	0
Gosfield,	14	0
Great Tey,	15	0
Aldham,	16	0
Terling,	13	6
Great Leigh,	13	0
Little Leigh,	15	0
Barnston,	14	0
Coptford,	16	0
Torrington,	14	0
Britlingsea,	15	0
St. Osyth,	15	0
Little Holland,	15	0
		Weeley,

RENT.

75

<i>Parishes.</i>	<i>s.</i>	<i>d.</i>
Weeley,	14	0
Great Holland,	15	0
Walton,	15	0
Kirby,	15	0
Thorpe,	15	0
Mersea Island,	17	0
Aberton,	15	0
Peldon,	16	0
Great Wigborough,	11	0
Little Wigborough,	11	0
Layer Marney,	15	0
Layer Breton,	16	0
Great Braxtead,	13	0
Toleshunt Major,	12	0
Goldhanger,	18	0
Toleshunt Darcey,	12	0
Woodham Walter,	16	0
Woodham Mortimer,	15	0
Downham,	14	6
Great Burstead,	16	0
Little Burstead,	16	0
Purley,	14	6
Latchingdon,	15	0
St. Lawrence,	13	0
Cricksea,	14	0
Althorn,	15	0
North Fambridge,	12	0
Woodham Ferrars,	13	6
Assingdon,	13	0
Hawkeswell,	13	6
Packlesham,	13	6
Great Stambridge,	15	0
Sutton,	15	0

Shopland,

<i>Parishes.</i>	<i>s.</i>	<i>d.</i>
Sheplund,	15	0
Little Wakering,	16	0
Great Wakering,	16	0
North Shoebury,	16	0
South Shoebury,	16	0
South Church,	17	0
Hadleigh,	12	0
Vange,	12	0
Langdon Chay,	14	0
Ramsden Cray,	15	0
Ramsden Bellhouse,	15	0
South Benfleet,	12	0
Thundersley,	12	0
Landon hills,	16	0
Hornden on the Hill,	16	0
West Tilbury,	18	0
Chelderton,	16	0
Great Hornden,	15	0
Ingrave,	14	0
Cranham,	14	0
Aythorp Roding,	13	0
White Roding,	13	0
Abbots Roding,	14	0
Roding Blanchard,	14	0
Blatching,	14	0
High Laver,	14	0
Berners Roding,	12	0
Good Easter,	15	0
Leaden Roding,	13	6
High Easter,	15	0
High Roding,	13	0
Pleshey,	15	0
Norton Mandeville,	14	6

Blackmoor,

<i>Parishes.</i>	<i>s.</i>	<i>d.</i>
Blackmoor,	15	0
Rickling,	12	0
General Average,	14	6½

SECT. III.—TITHES.

THE almost incredible, and most unmerited, abuse which has been heaped on the Board of Agriculture, in various periodical and anonymous publications, founded on assertions as false as they are absurd, has not prevented that respectable body from permitting this title to remain as an object of inquiry. I shall enter into no general discussions; nor do I think there is any thing in the manuscript of Mr. HOWLETT, who treats on it, that merits the smallest attention: opinions are of little value on points which want only the elucidation of facts.

Belchamp Walter, 5*s.* an acre round: this is about one-fifth of the rent.

Little Maplestead, 4*s.* 6*d.* round.

Hempstead, 3*s.* 6*d.* round.

Kelvedon, 4*s.* 6*d.* arable, per acre: vicarial, 3*s.* 6*d.*; meadow, 1*s.* 2*d.*, turnips, 1*s.* 4*d.*; both 5*s.* 8*d.* or 5*s.* 10*d.*

Beerchurch free; Hatfield Peverel, 4*s.* to 5*s.* great and small, per acre, grass and arable; woods, 1*s.* 6*d.* per acre, per annum.

At Ardleigh, great tithes 5*s.* an acre all round; small, 1*s.*

At Bradfield, great and small 5*s.*; very little grass.

At

At Little Oakley, 4*s.* 6*d.* to 6*s.* great and small.

At Beaumont 4*s.* 6*d.* great and small ; grass 1*s.* 6*d.* :
the marshes coarse.

At Great Holland, 5*s.* 6*d.* uplands ; and 2*s.* 6*d.*
marshes.

At Great Clackton, taken in kind. At St. Osyth's, 5*s.*

At Layer de la Haye, 5*s.* round for every thing.

West Mersea, 3*s.* ; East 5*s.*

At Great Wigborough, 4*s.* 6*d.*

At Birch, 5*s.* an acre, round.

At Kelvedon, 5*s.* round.

At Bocking, 4*s.* 3*d.* round, which, as rates are 20*s.*
make 8*s.* 6*d.* in fact.

At Felstead, 3*s.* 4*d.* or 3*s.* 5*d.* round : lease out ; and
now will be 6*d.* more.

At Dunmow, 5*s.* round, which is 8*s.*, including rates.

At Great Waltham, great tithe 4*s.* and small 6*d.*

At Snorum and Latchingdon, 5*s.* round, and all rates
on it. The latter parish contains 3000 acres, and pays
the rector 745*l.* per annum. It is a peculiar of the Arch-
bishop of CANTERBURY.

At Burnham, 5*s.* round.

At Southminster, great and small 5*s.*

At Bradwell, 6*s.* round.

At Assingdon, 5*s.* 6*d.* round.

At Rochford, 5*s.* great and small.

At Eastwood, taken in kind. Ditto at Prittlewell.

At Great Wakering, taken in kind: at Little Waker-
ing, 4*s.* great tithe, 2*s.* small : 6*s.* in all.

At Avely, 3*s.* 6*d.* round.

At Hornchurch I made inquiries concerning tithe :
gathered : Mr. BEARBLOCK of great notoriety. Here is
a field to expatiate in!

New

New College, Oxford, and Mr. BEARBLOCK, are famous topics in this country.

Tithe of potatoes at Ham, 20*s.* turnips after them, 10*s.* more.

At Woodford, 9*s.* great and small round. At other places, 5*s.* 6*s.* 7*s.*

At Romford great tithe taken in kind : for hay, a modus of 3*d.* an acre. Small tithes 9*d.* in the pound.

At Billericay 5*s.* round, great and small. The same at Ingrave.

At Dunton, 3*s.* 3*d.* At Stock 4*s.* 6*d.*

Average to Raleigh, 4*s.* to 5*s.*

Ingatestone, &c. &c. 3*s.* 6*d.* to 6*s.*; average 4*s.* round.

Buttsbury 5*s.* Roxwell 3*s.* 6*d.*

At Ongar 5*s.* Stonedon 5*s.* 6*d.* High Ongar 4*s.* 6*d.* Stanford Rivers the same.

At Hatfield, in the Roodings, 4*s.* in the pound rent : 15 years ago 2*s.* 6*d.*

At the Chesterfords, land given by the enclosure : the Rev. WILLIAM MACKLIN has 300 acres; 60 of which are convenient to his house, to which he has built offices and garden walls, such as form with a neat well kept garden and homestall, and the favourable circumstance of a river which bounds it, a very comfortable residence, that had been long uninhabited by a rector. Where enclosing renders a clergyman's residence eligible, and he becomes the inhabitant of a deserted village, the benefit to the inhabitants is sure to be great.

At Littlebury, land allotted by the act of enclosure.

Lord BRAYBROOK has the impropriation of Saffron Walden; 7940 acres in the manor, and above 7000 in the parish. Composition : great tithe in enclosures 5*s.*; open fields 3*s.* 9*d.*

Mr.

Mr. STRUTT has that of Terling; his composition for great tithes 3*s.* an acre; small tithes are 1*s.*

At Lagenhoe 5*s.* an acre.

In West Mersea, copyhold 2*s.* per acre; freehold 3*s.* small tithes 1*s.* The difference in the tenure arises from a right of feeding on the impropiator's farm, which keeps his tithes moderate.

Great Maplestead, 5*s.* great, 1*s.* small.

At Yeldham, 3*s.* to 4*s.* per acre, great and small.

At Toppesfield, 3*s.* to 3*s.* 6*d.*

At Birdbrook, 4*s.* 6*d.*

At Borely, 5*s.*

General average of 56 notes, 4*s.* 9*d.* per acre, great and small.

MR. VANCOUVER'S TABLE OF TITHES IN 1794.

Names of Parishes.	Tithes, Great and Small.					
	Composition per Acre.		Composition per Pound Rent.		Increase in 20 years.	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
Hellon Bumstead,	3	3	....	—	....	—
Haverill,	3	3	....	—	....	—
Sturmer,	3	6	....	—	....	—
Ridgwell,	5	0	....	—	....	—
Tilbury,	4	0	....	—	....	—
Ashen,	3	9	....	—	....	2 3
Belchamp St. Pauls,	2	6	....	—	....	—
Belchamp Oten,	3	6	....	—	....	1 0
Belchamp Walter,	3	6	....	—	....	1 0
Foxearth,	3	6	....	—	....	0 8
Bulmer,	5	0	....	—	....	3 0
Middleton,	2	3	....	—	....	—

Great

<i>Names of Parishes.</i>	<i>Tithes, Great and Small.</i>					
	<i>Composition</i>		<i>Composition</i>		<i>Increase in</i>	
	<i>per Acre.</i>		<i>per Pound</i>	<i>Rent.</i>	<i>20 Years.</i>	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
Great Henney,	4	0	—	—	1	0
Alphanstone,	3	10	—	—	0	5
Great Yeldham,	5	0	—	—	1	8
Great Maplestead,	4	0	—	—	—	—
Finchingfield,	3	0	—	—	—	—
Weathersfield,	3	0	—	—	—	—
Panfield,	3	6	—	—	1	9
Braintree,	3	6	—	—	—	—
Bocking*,	3	6	—	—	—	—
Gosfield,	3	0	—	—	—	—
Halstead,	4	9	—	—	1	3
Colne Engain,	2	6	—	—	—	—
Wake's Colne,	3	0	—	—	0	6
Mount Bures,	3	0	—	—	—	—
Earl's Colne,	—	—	4	0	2	0
Great Tey,	—	—	4	9	—	—
Aldham,	3	6	—	—	—	—

* This place being contiguous to Stisted, the following is inserted, pursuant to a letter from the President of the Board to the Rev. Dr. SEAL, the Rector.

"Some misrepresentations having been inadvertently inserted in the first Edition of Mr. VANCOUVER's Report, respecting the tithes of Stisted, which occasioned serious concern to the rector of that Parish, and which, on an examination into the facts, appear to be totally unfounded, the President wrote to Dr. SEAL, the rector, a letter, expressive of his being entirely convinced of the moderation of Dr. SEAL, in his compositions for the tithes, and assuring him that the defamatory matter should be expunged. This letter he deemed as an act of justice and amepde honorable due to him, in confutation of the gross misrepresentations inserted in the former Edition."

*Names of Parishes.**Tithes, Great and Small.*

	<i>Comparison</i>		<i>Contribution</i>		<i>Increase in</i>	
	<i>per Acre.</i>		<i>per Pound</i>	<i>Rent.</i>	<i>20 Years.</i>	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
Coggeshall,	4	6	—	—	1	0
Kelvedon,	3	11½	..	—	1	0
Black Notley,	—	—	4	0	—	—
White Notley,	—	—	4	0	—	—
Great Waltham,	—	—	4	0	0	9
Great Leigh,	—	—	4	6	0	9
Little Leigh,	—	—	4	6	1	2
Felstead,	2	6	—	—	—	—
Stebbing,	2	6	—	—	—	—
Barnstone,	—	—	4	0	—	—
West Bergholt,	2	3	—	—	—	—
Little Horseley,	3	6	—	—	—	—
Boxted,	3	6	—	—	—	—
Langham,	2	9	—	—	—	—
Dedham,	3	3	—	—	—	—
Lawford,	3	3	—	—	1	6
Mistley,	3	0	—	—	0	6
Ramsey,	4	0	—	—	—	—
Little Bromley,	3	6	—	—	—	—
Frating,	3	0	—	—	1	0
Allesford,	3	6	—	—	1	9
East Donyland,	3	0	—	—	1	0
Fingringhoe,	4	3	—	—	1	0
Coptford,	3	0	—	—	—	—
Stanway,	3	6	—	—	1	0
Great Bromley,	3	6	—	—	—	—
Little Bentley,	3	0	—	—	0	9
Torrington,	3	0	—	—	1	0
Britlingsea,	3	6	—	—	—	—

Great

*Names of Parishes.**Tithes, Great and Small.*

	<i>Composition per Acre.</i>		<i>Composition per Pound Rent.</i>		<i>Increase in 20 Years.</i>	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
Great Clackton,	3	8	—	—	1	2
Little Holland,	3	6	—	—	—	—
Little Clackton,	3	0	—	—	—	—
Wceley,	3	6	—	—	1	0
Great Holland,	3	6	—	—	1	0
Walton,	2	8	—	—	—	—
Kirby,	3	2	—	—	0	6
Thorpe,	3	0	—	—	0	6
Beaumont,	3	6	—	—	0	9
Mersea Island,	3	6	—	—	—	—
Aberton,	3	6	—	—	—	—
Peldon,	4	0	—	—	—	—
Little Wigborough,	4	0	—	—	1	0
Great Wigborough,	4	0	—	—	1	0
Layer Marney,	4	0	—	—	2	0
Layer Breton,	3	6	—	—	1	9
Langenhoe,	4	0	—	—	1	0
Feering,	3	11	—	—	1	0
Inworth,	2	6	—	—	0	6
Great Broxtead,	—	—	4	0	—	—
Little Broxtead,	3	0	—	—	—	—
Great Totham,	4	0	—	—	2	0
Toleshunt Major,	4	0	—	—	—	—
Goldhanger,	4	0	—	—	1	0
Toleshunt Darcey,	4	0	—	—	—	—
Folesbury,	2	6	—	—	—	—
Woodham Walter,	3	6	—	—	—	—
Woodham Mortimer,	3	6	—	—	1	3
Little Baddow,	3	6	—	—	1	0

*Names of Parishes.**Tithes, Great and Small.*

	<i>Composition per Acre.</i>		<i>Grain Rent per Acre.</i>		<i>Increase in 20 Years.</i>	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
Sandon,	—	...	3	6	...	—
Chelmsford,	5	0	...	—	...	2 6
Downham,	2	0	...	—	...	—
Stock,	3	6	...	—	...	0 6
Buttsbury,	3	0	...	—	...	1 0
Mountneysing,	3	0	...	—	...	1 0
Great Burstead,	4	0	...	—	...	—
Little Burstead,	4	0	...	—	...	1 6
Purley,	3	0	...	—	...	1 0
Latchingdon,	—	...	4	3	...	—
St. Lawrence,	3	9	...	—	...	1 3
Tillingham,	5	0	...	—	...	2 6
Southminster,	2	6	...	—	...	1 6
Cricksea,	3	3	...	—	...	1 1
Althorne,	3	0	...	—	...	1 8
North Fambridge,	3	0	...	—	...	—
Woodham Ferrars,	3	0	...	—	...	1 0
Rettenden,	—	...	4	0	...	—
Hawkswell,	3	0	...	—	...	0 6
Pakelsham,	3	0	...	—	...	—
Great Stambridge,	3	6	...	—	...	0 6
Sutton,	3	9	...	—	...	1 0
Little Wakering,	4	0	...	—	...	—
Great Wakering,	3	0	...	—	...	—
South Shoebury,	3	0	...	—	...	—
South Church,	4	3	...	—	...	2 2
Hadleigh,	3	0	...	—	...	—
Vange,	—	...	3	6	...	—
Langdon Cray,	3	6	...	—	...	1 0

South

<i>Names of Parishes.</i>	<i>Tithes, Great and Small.</i>					
	<i>Composition per Acre.</i>		<i>Composition per Pound Rent.</i>		<i>Increase in 20 Years.</i>	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
South Benfleet,	4	0	—	—	0	10
Thundersley,	3	0	—	—	1	6
Dunton,	3	3	—	—	—	—
Horndon on the Hill,	3	9	—	—	—	—
Little Thurrock,	4	6	—	—	—	—
Orset,	4	0	—	—	—	—
Chelderton,	3	3	—	—	—	—
Great Horndon,	3	3	—	—	—	—
Aveley,	3	0	—	—	—	—
Stambourn,	—	—	4	0	—	—
Hempstead,	3	3	—	—	—	—
Great Samford,	—	—	4	0	—	—
Radwinter,	3	0	—	—	—	—
Wimbish,	3	6	—	—	—	—
Abbots Roding,	3	6	—	—	1	0
High Laver,	2	6	—	—	—	—
Berners Roding,	2	9	—	—	—	—
Margaret Roding,	3	9	—	—	—	—
Leaden Roding,	—	—	4	6	—	—
High Easter,	2	9	—	—	—	—
Roxwell,	3	0	—	—	1	6
Norton Mandeville,	—	—	4	0	—	—
Blackmoor,	3	0	—	—	—	—
Strethall,	2	9	—	—	—	—
Elmdon,	2	6	—	—	—	—
Langley,	3	9	—	—	1	0
Rickling,	3	6	—	—	—	—
Berden,	3	0	—	—	0	10
Clavering,	3	9	—	—	—	—
	G 3			Harlow,		

Names of Parishes.	Tithes, Great and Small.					
	Composition per Acre.		Composition per Pound Rent.		Increase in 20 Years.	
	s.	d.	s.	d.	s.	d.
Harlow,	3	10	—	—	1	0
Nettswell,	2	10	—	—	—	—
Waltham Abbey,	3	0	—	—	—	—
Chigwell,	3	9	—	—	—	—
Stamford Rivers,	4	0	—	—	1	0
Chipping Ongar,	4	0	—	—	1	0
High Ongar,	3	3	—	—	0	10
Navestock,	2	4	—	—	—	—
Stapleford Abbot,	—	—	3	0	—	—
Lambourn,	—	—	4	6	—	—
General Average,	3	5½	—	—	1	1½
					s.	d.
Composition per acre, 1805,					4	9
————— 1794,					3	5½
Raised in 11 years,					1	3½

SECT. IV.—POOR-RATES.

HOWEVER varying this burthen may be, I conceive that there is a singular importance in minuting its progress as carefully as possible. If ever any great measure of regulation and relief be proposed, comparisons of the amount, at different periods, with the price of corn, will be resorted to; and in such cases, as well as in many others that

that might be named, such documents will be found very useful.

Belchamp Walter, 5*s.* in the pound; have been 12*s.* and 13*s.*; were once only 2*s.* 6*d.*

Little Maplestead, 1804, 11*s.* in the pound; 25 years ago, 2*s.*

Hastead, now 12*s.* to 14*s.*; were once 28*s.*

Castle Hedingham, 10*s.*; but on nominal rent.

Bocking, 5*s.* a quarter: lowered by many having left the parish, and by the straw-platting being introduced from Gosfield.

Hempstead, 7*s.* at four-fifths of the rent.

Gosfield, 3*s.* 6*d.* in the pound, real rent; greatly in the straw-plat.

Coggeshall, 16*s.* in the pound, at three-fourths rent.

Kelvedon, 6*s.* 6*d.* or 7*s.* on real rent.

Beerchurch, 5*s.* to 7*s.* 6*d.* on two-thirds or three-fourths rent.

At Witham, about 7*s.* to 8*s.* on an average: not on real rent, but near it.

At Hatfield Peverel, average 5*s.* in the pound.

At Sandon, 4*s.* on real rent.

At Purley, 6*s.* to 8*s.*

At Colchester, poor only, without including other rates, from 8*s.* to 20*s.*; probably, on an average, 10*s.* on the real rent.

At Ardleigh, 6*s.* in the pound on the real rent.

At Bradfield, 3*s.* 6*d.* on the real rent.

At Little Oakley, all parish rates, 3*s.* 6*d.* in the pound, real rent.

At Beaumont, 5*s.* on three-fourths real rent.

At Great Holland, 6*s.* in the pound on half rent, or 15*s.*; *new rents estimated* at 30*s.*; this is 3*s.*

At Great Clackton, 6*s.* on the rack.

At St. Osyth's, 5*s.*

At Layer de la Haye, 3*s.* in the pound, rack.

East Mersea, low; West Mersea, high; 7*s.* in the pound on six-tenths, being rated at 12*s.*; arising from the population and earnings of the oyster-dredgers, which, like manufactures, so often cause high rates by the very means which ought to extinguish them.

At Great Wigborough, rated at 12*s.* an acre rent; it is 8*s.* or 9*s.* in the pound.

At Birch, 5*s.* rack-rent.

At Kelvedon, 6*s.* on three-fourths rent.

At Bocking, 20*s.* in the pound on four-fifths rent; other rates make it 20*s.* on real rent. Mr. SAVILLE has paid, on rather more than 500 acres, 800*l.* in poor-rates, for four quarters, within two years.

At Felstead, 4*s.* 6*d.* rack-rent.

At Dunmow, 10*s.* rack-rent; has been 24*s.*

At Great Waltham, in 1804, 6*s.* in the pound, rack-rent.

Little Leighs, &c. 5*s.* to 7*s.*

In the three parishes of Maldon, average 8*s.* in the pound, nearly at rack.

At Snorum and Latchingdon, 3*s.*; in some parishes in this vicinity, 6*s.* to 8*s.*

In Foulness, 4*s.* to 5*s.* in the pound; but not at rack.

At Southminster, 4*s.* 6*d.* on rack-rent.

At Bradwell, 4*s.* 6*d.* rack, exclusive of highways, which, for 16 years, cost from 500*l.* to 400*l.* a year.

At Assingdon, 5*s.*; at Rochford, 7*s.* 6*d.* rack-rent; in an adjoining one, 8*s.* *poor* only: surveyor, 8*d.* Twelve or thirteen years ago, poor-rates in Canewdon were 1*s.* 3*d.* to 2*s.* 6*d.*

At

At Rochford, in the scarcity, 11*s.* and 12*s.* in the pound, poor-rate only; now, 7*s.* in the pound, rack-rent, and rated for tithes.

At Little Wakering, 5*s.* to 6*s.* rack-rent, and even on more than the real rent; at Great Wakering, 5*s.*

At Aveley, 1*s.* 6*d.* to 2*s.* in the pound, rack-rent.

At Hornchurch, 1*s.* 6*d.*

At Romford, 3*s.* 6*d.* to 4*s.*

At South Weald, average of the last three years, at rack-rents—poor, 3*s.*; church, 3*d.*; constable, including Army of Reserve and Defence Acts, 6*d.*; highways, 1*l.* 7*s.* per 50*l.* per annum: the parish well situated respecting materials.

At Billericay, 5*s.* to 6*s.* on three-fourths rent.

At Ingatestone, 4*s.* to 7*s.*

At Buttsbury, and at Stock, 5*s.* to 6*s.*

At Roxwell, 4*s.*

At Ongar, 10*s.*; at High Ongar, 6*s.* rack-rent; the same at Stamford Rivers.

At Hatfield, in the Roodings, 5*s.*

At Great Chesterford, 8*s.* in the pound, on two-thirds rent; at Little Chesterford, 4*s.*

At Littlebury, 3*s.* to 4*s.* on two-thirds rent.

At Saffron Walden, 4*s.* to 5*s.* on two-thirds.

At Terling, 4*s.* on rack, or very near it; some parishes in the vicinity higher, few lower.

At Langenhoe, 5*s.*

At Great Maplestead, 6*s.* to 8*s.* rack.

At Yeldham, 8*s.* on three-fourths or four-fifths rent.

At Toppesfield, 9*s.* rack.

At Birdbrook, 10*s.* on three-fourths rent.

At Borely, 3*s.* 6*d.*

Average of 46 minutes, 8*s.* 10*d.* in the pound; but I apprehend,

apprehend, that in many cases, perhaps in most, all parochial rates are included.

MR. VANCOUVER'S TABLE OF RATES.

Names of Parishes.	Poor-Rates.			
	Poor-Rates in the Poor-Law.		Increase in 10 Years.	
	s.	d.	s.	d.
Helion Bumstead,	1	0	—	—
Haverhill,	6	6	2	0
Sturmer,	3	0	—	—
Tilbury,	5	0	—	—
Ashen,	3	0	—	—
Ovington,	4	0	—	—
Belchamp St. Paul's,	6	6	3	0
Belchamp Oten,	3	3	1	6
Belchamp Walter,	3	3	1	6
Foxcarth,	4	0	—	—
Bulmer,	3	3	0	9
Middleton,	2	0	—	—
Great Henney,	6	0	3	0
Alphanstone,	4	6	1	6
Great Yeldham,	4	0	—	—
Castle Hedingham,	5	0	—	—
Sible Hedingham,	5	0	—	—
Great Maplestead,	4	6	—	—
Little Maplestead,	6	0	—	—
Finchingfield,	3	0	—	—
Weathersfield,	5	0	—	—
Great Bardfield,	3	6	—	—
Panfield,	4	0	—	—
Halstead,	9	0	—	—

Pebmarsh,

<i>Names of Parishes:</i>	<i>Poor-Rates.</i>			
	<i>Poor-Rates in the Pound.</i>		<i>Increase in 10 Years.</i>	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
Pebmarsh,	5	0	....	—
Colne Engain,	5	6	....	1 6
Wake's Colne,	3	9	...	0 9
Wormingford,	3	6	....	1 2
Mount Bures,	3	0	....	—
Earl's Colne,	4	0	....	2 0
Great Tey,	3	0	....	0 9
Aldham,	3	6	....	—
Coggeshall,	10	0	....	2 6
Cressing,	3	0	....	—
Kelvedon,	4	0	....	0 6
Rayne,	5	0	....	—
Black Notley,	4	0	....	—
White Notley,	4	0	....	—
Terling,	3	0	....	—
Hatfield Peverill,	3	0	....	0 6
Great Waltham,	3	0	....	—
Great Leigh,	3	0	....	—
Little Leigh,	2	6	....	1 6
Felstead,	4	0	....	—
Stebbing,	6	0	....	—
Lindsell,	5	6	....	—
Thaxtead,	5	0	....	—
Great Easton,	3	6	....	—
Little Dunmow,	4	6	....	—
Barnston,	5	0	....	—
West Bergholt,	4	0	....	1 0
Little Horseley,	3	0	....	0 6
Great Horseley,	4	0	....	1 0
Boxted,	3	0	....	1 0
Langham,	4	9	....	2 0
				Dedham,

Names of Parishes.	Poor-Rates.			
	Poor-Rates by the Parishes.		Increase of Taxes.	
	s.	d.	s.	d.
Dedham,	8	0	3	0
Ardleigh,	3	6	—	—
Lawford,	2	6	—	—
Mistley,	3	6	—	—
Wrabness,	3	6	0	10½
Little Bromley,	4	6	0	9
Frating,	4	0	1	6
Allesford,	3	6	1	0
Wivenhoe,	6	0	—	—
Lexden,	5	0	—	—
West Donyland,	3	6	—	—
East Donyland,	5	9	1	0
Fingringhoe,	3	6	0	6
Coptford,	4	6	0	6
Stanway,	4	6	—	—
Great Bromley,	4	6	0	9
Little Bentley,	4	0	—	—
Torrington,	2	6	—	—
Britlingsea,	3	9	1	6
St. Csyth,	2	6	0	6
Great Clackton,	2	6	—	—
Little Holland,	1	6	—	—
Little Clackton,	3	6	1	0
Weeley,	2	4	—	—
Great Holland,	2	6	—	—
Walton,	3	6	1	0
Kirby,	3	6	—	—
Thorpe,	3	6	0	9
Beaumont,	4	6	0	9
Mersea Island, general average,	4	0	2	0
Aberton,	3	0	—	—

Peldon,

Names of Parishes.	Poor-Rates.			
	Poor-Rates in the Pound.		Increase in 10 Years.	
	s.	d.	s.	d.
Peldon,	2	3	—	—
Little Wigborough,	1	0	—	—
Great Wigborough,	3	0	—	—
Layer Marney,	4	6	1	0
Layer Breton,	4	0	—	—
Langenhoe,	2	0	0	6
Feering,	4	0	0	6
Inworth,	4	0	1	0
Great Broxted,	4	6	—	—
Little Broxted,	4	6	1	6
Great Totham,	4	6	1	0
Toleshunt Major,	4	0	—	—
Goldhanger,	4	6	—	—
Toleshunt Darcey,	4	0	—	—
Tolesbury,	4	0	—	—
Maldon,	5	6	0	9
Woodham Walter,	4	6	—	—
Woodham Mortimer,	2	0	—	—
Little Baddow,	3	0	0	6
Sandon,	1	0	—	—
Great Baddow,	2	9	—	—
Chelmsford,	4	0	0	9
Downham,	3	0	—	—
Stock,	2	6	—	—
Buttsbury,	5	0	—	—
Mountneysing,	1	8	—	—
Great Burstead,	3	6	—	—
Little Burstead,	3	0	—	—
Purley,	4	0	—	—
Mundon,	3	0	—	—
Latchingdon,	3	6	2	0

St.

<i>Names of Parishes.</i>	<i>Poor-Rates.</i>			
	<i>Per-Rates in the Pound.</i>		<i>Increase in 10 Years.</i>	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
St. Lawrence,	2	9	0	10
Tillingham,	3	6	—	—
Southminster,	2	6	0	6
Cricksea,	2	6	—	—
Althorne,	2	0	1	2
North Fambridge,	1	9	—	—
Woodham Ferrars,	3	6	0	6
Rettenden,	3	0	1	6
South Fambridge,	2	6	—	—
Hawkswell,	2	0	0	6
Rochford,	5	0	—	—
Pakelsham,	4	0	—	—
Great Stambridge,	3	0	1	2
Sutton,	3	6	—	—
Little Wakering,	3	0	—	—
Great Wakering,	3	0	—	—
North Shoebury,	3	0	—	—
South Shoebury,	3	0	—	—
South Church,	2	6	—	—
Hadleigh,	2	6	1	6
Vange,	2	0	—	—
Langdon Cray,	4	0	—	—
Ramsden Cray,	4	0	1	0
Ramsden Bellhouse,	4	0	1	0
South Benfleet,	1	8	—	—
Thundersley,	2	0	—	—
Dunton,	3	0	—	—
Horndon on the Hill,	2	9	—	—
West Tilbury,	2	9	—	—
Little Thurrock,	1	3	—	—
Orset,	3	6	—	—
				Chelderton,

<i>Names of Parishes.</i>	<i>Poor-Rates in</i>		<i>Increase in</i>	
	<i>the Pound.</i>		<i>10 Years.</i>	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
Chelderton,	5	0	1	0
Great Horndon,	2	0	—	—
Ingrave,	6	0	—	—
Great Worley,	2	9	—	—
Cranham,	2	6	—	—
Upminster,	3	6	—	—
North Okendon,	1	9	—	—
Aveley,	2	9	—	—
Hornchurch,	1	6	—	—
Stambourn,	4	0	—	—
Hempstead,	4	6	—	—
Great Samford,	4	6	—	—
Radwinter,	3	0	—	—
Wimbish,	3	6	0	8
Broxted, or Chawreth,	4	0	—	—
Aythorp Roding,	4	6	—	—
Abbots Roding,	4	8	1	0
Roding Beauchamp,	4	0	0	10
Matching,	4	0	—	—
High Laver,	3	6	—	—
North Weald,	3	0	—	—
Shelly,	4	0	1	0
Willingale Spain,	4	0	2	0
Willingale Doe,	4	0	2	0
Berners Roding,	2	0	—	—
Margaret Roding,	4	0	0	9
Leaden Roding,	4	6	—	—
High Easter,	4	0	0	9
Pleshey,	4	0	1	0
Roxwell,	3	4	*	*

* Poor-rates decreased.

<i>Names of Parishes.</i>	<i>Poor-Rates.</i>			
	<i>Poor-Rates in the Pound.</i>		<i>Increase in 10 Years.</i>	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
Norton Mandeville,	3	0	....	—
Blackmoor,	4	0	....	—
Little Bury,	5	6	....	—
Strethall,	2	6	....	—
Elmdon,	4	6	....	1 0
Langley,	4	6	....	—
Rickling,	3	6	....	—
Elsenham,	4	6	....	—
Clavering,	5	0	....	—
Harlow,	4	6	....	1 8
Nettswell,	3	6	....	1 6
Waltham Abbey,	2	6	....	—
Chigwell,	2	6	....	—
Stamford Rivers,	4	6	....	1 6
Navestock,	5	0	....	—
Stapleford Abbot,	3	6	....	1 4
Lambourn,	4	0	....	—
Average,	3	6	....	1 1½

“The amount of the poor-rates in this county, according to the return made to parliament on a medium of three years 1783, 84, and 85, was 103,255*l.* 5*s.* 10*d.* By Mr. VANCOUVER’s survey in 1794, it appears to have increased in the subsequent nine or ten years nearly half of that sum; this would make the amount in 1794 upwards of 150,000*l.*; and I am inclined to believe, that the average addition of the two last years, 1795 and 1796, has been above 50,000*l.* more. So that the present aggregate amount of expense cannot be much less than 200,000*l.*; though probably this would not appear altogether so high in the rates themselves,

themselves as prodigious sums have, in different places, been raised by voluntary contributions, and in some an increase may have been prevented by a small advance of wages; which, however, I am afraid will not be continued.

“ The above was written in the year 1797; since that time the rates, from the very uncommon deficiency of the crops in the year 1799, and 1800, and the consequent dearness of provisions, on an average of these two years were, I believe, more than doubled throughout the county, and could scarcely have been upon the whole amount less than 500,000*l.* a year, especially the year comprehended between the harvest of 1800 and the harvest of 1801. In the present year, from the comparatively abundant produce of the last crop, it will probably again be reduced to between three and four hundred thousand pounds; nearer perhaps to three than four. But of this I venture not to indulge any sanguine expectation. Much will depend upon the prospect of the next crop in the months of June and July, and its real amount when gathered in*.”

SECT. V.—LEASES.

“ WITH respect to leases, there is but little room for complaint in this county, as the farms in general are held under running leases for three seven years, which are virtually, and in fact, leases for twenty-one years; hence the general spirit, and costly improvements of the Essex farmer, stand unrivalled in any part of the kingdom†.” But a change for the worse has ever since been taking place.

“ The refusal of leases is a practice, I fear, very much

ESSEX.] * Howlett.

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† Vancouver.

increasing.

increasing. The smaller land proprietors seem eager to imitate the larger, in one of the most exceptionable parts of their conduct, as well as the most disadvantageous to themselves and the public*.”

I am very sorry to say that Mr. VANCOUVER's remark is no longer applicable; and that I found the circumstance which excited the observation of Mr. HOWLETT becoming every day more general. I am afraid that leases are going rapidly out of fashion in this county; and I cannot but lament it, as a sure sign that the great exertions, which have long been such a credit to Essex agriculture, will gradually wear away on the estates where this pernicious system shall take place. There is certainly a great difference in the *necessity* of leases; and that this necessity will ever be in proportion to the expense of the improvements wanting on an estate. This is certain; but let it not be imagined that a farm will be kept in proper order where no very great improvements are wanted. And by *order*, I mean that state and condition that affects its rental value. The difference between lease and no lease, or between long and short lease, affects almost every operation that ever takes place on a farm; and it is impossible that a universal effect following, however imperceptibly, so general and powerful a cause, can operate without very palpable consequences. To a certain degree, the gradual degradation of the land must be the result; but as to that regular improvement generally going forward on the lands of men, who have the certainty of a long lease ever in their pocket, and renewed before the expiration of the old one, it would be folly to look for it. I know there are cases, in which a certain confidence in their landlord does much with farmers; but they are exceptions, and cannot, in their nature, be general.

* Howlett.

Of all the pernicious and mischievous doctrines that ever were broached, that of arguing against leases, as being contrary to the interest of landlords, because of a supposed fall in the value of money ;—a fall, by the way, which has not raised the year's purchase of land one penny in the last forty years ; which has not raised the price of corn ; and which, till other causes operated, did not raise the price of labour—of all doctrines, this is the most absurd, and the most contradicted by experience. Of the estates which, in Essex, have been raised in their rents the most considerably, and of which I heard most in conversation, all have been by leases of fourteen or twenty-one years, generally the latter ; those that have been lett at seven years, or without any lease, will not bear the comparison, and no wonder. He who has farmed land for seventeen or eighteen years under a twenty-one years' lease, has two points which he attends to ; first, the profits of his business ; and secondly, what there is in the land, which he must leave if he quit. The first object, profit, is that of a man who has taken advantage, through his period, of all the improvements that could be effected on the soil ; buildings, fences, and every other circumstance : compare this profit with that of a man who fears every expense, which he cannot recall by one, or, at most, by two crops : men who are acquainted with the practice of husbandry know, that there is not a comparison to be made between these descriptions of profit ; the difference cannot be estimated too highly. And what inducement upon earth can landlords suppose to actuate tenants in the offer of rent, but the expectation of profit : in proportion to this expectation necessarily must be their offer. He who knows that the length of lease will justify all exertions, will freely make them, of which Essex abounds with instances ; but he, on the contrary, who

holds by no tenure, or a short one, cannot and will not make them; and the minor advantage received must be proportioned to the deficiency. Can any one dream that the rent will be the same? is the prospect the same? is the inducement the same?

Next, as to the reluctance to quit what a long or a short lease has invested in the land. This is surely decided in a moment. In one case, the exertions of good husbandry have been carried into every branch of the business; money never withheld that promised reimbursement; manures amply purchased, lime, chalk, marl, town dung, &c.; drains dug deep, and filled for duration; convenient buildings for cattle erected, and without application to landlords; crops hoed in the last perfection: in a word, all the features of good management decidedly prominent. Reverse the medal, and what are these on lands held without lease, or under one of seven years? A blank. Who, then, has the inducement to bid high for a farm? the man who has done nothing to it, and knows that in its present state, little is to be got from it; or he who has poured into it all that it demands, from the liberal fund of an ample profit?

The remark made to me at Birdbrook on drilling, is applicable to the present subject. *I do not know that a drilled acre is superior in produce, at first, to a broad-cast acre; but in a succession of years, the progressive effects of constant hoeing will render it greatly superior.* It is the same with every branch of husbandry under a long lease; the progression imperceptible, perhaps, at any early moment, becomes, at last, an accumulation of effect truly important: accumulation of fertility is accumulation of rent.

It is rarely safe to judge of land by the crops on it; and if the custom of not giving leases continues to prevail in Essex, a traveller must look only at the fallows to estimate

mate the land, and regard the texture alone. The fields will be covered with crops inferior to the quality of the land. In the Norfolk Report, I give an instance of a farmer occupying two farms, the soil of one very good, and that of the other but middling; the former held under a seven years' lease, and the latter under one of twenty-one. The crops were all good on the middling land, and all indifferent on the best. Here is a result for the public good, which ought to make the friends of their country, who are deceived, by fallacious arguments, into the fatal system of refusing leases, to re-consider the matter, and they will not be long in determining, that leases of a certain duration are *equally* beneficial to the landlord, the tenant, and the public.

The Earl of WINCHILSEA, in Foulness Island, twenty-one years.

In general, in Rochford hundred, for twenty-one years.

Mr. HATCH, of Claybury-hall, fourteen years. He observed, that the farmers could not make the exertions necessary, in draining and manuring, under a shorter term.

Mr. HANBURY, at Coggeshall, Bures, &c. fourteen.

It was with no small pain I saw at St. Lawrence, on a fine farm belonging to St. Bartholomew's Hospital, a large field which should have been fallow; but as the lease was suffered to run out before Mr. LAVER had a renewal, and *proposals* received, he, of course, held his hand, but to the damage of the land, and a great loss to himself: such are the effects of letting leases run out, before the tenants know what is to be their fate.

Lord PETRE's leases are in some respects proper enough; but a due estimation is not recognized for beans: these, truly cultivated, should be admitted as a fallow, or hus-

bandry in this country can never arrive at its due perfection.

In Lord SUDLEY's leases, pease and beans are a crop, manage them how you will.

The covenants of the lease under which Rochford-hall is held, prescribe, 1. fallow; 2. oats, or barley; 3. clover; 4. wheat; 5. oats, or barley; and pease or beans not mentioned. Such covenants are a disgrace to an estate; and ought to be laughed out of a county. Mr. WRIGHT, the occupier, never takes two crops of white corn in succession.

Upon covenants, Mr. VANCOUVER remarks: "the tenant should be restrained, and that under the severest penalty that it were possible to devise and enforce obedience to, during the whole term of his lease, from breaking up the prime pastures, or any of the meadow land."

And Mr. HOWLETT annotates: "the propriety of the restriction here proposed, I should apprehend must be determined by particular circumstances. There can be no doubt that meadow land and prime pasture are in general more valuable than when converted to arable, on account of the small expense lying upon them. But there may be situations in which the breaking them up, and turning them into some particular kind of culture, would render them still more advantageous and profitable. In that case, would not the restriction here recommended be extremely absurd? Could any meadow or pasture land be equally valuable as the hop-grounds of Farnham; or as gardens in the vicinity of the capital, and some other large towns?"

The terms of leases are indeed not unfrequently the most capricious and ridiculous that can be; being commonly mere copies of those granted a hundred years ago, notwithstanding the various changes and improvements
which

which agriculture has since undergone. Were their restrictions originally proper, they must before now have become very much otherwise. Hence it is no wonder that they are very often esteemed a mere *dead letter*. I have accordingly heard farmers declare, when reminded of the violation of the articles of their lease, that it was indeed very true, but that no man who regarded the strict and literal sense of his lease, could farm at all*.”

SECT. VI.—CAPITAL AND EXPENSES.

MR. SEWELL, of Maplestead, remarked, that many years ago, farms might be well stocked at the rate of 5*l.* an acre: now it demanded 7*l.*

At Beerchurch, near Colchester, for dry turnip land, 6*l.* to 7*l.* per acre.

At Bradfield, Mr. HARDY is decidedly of opinion, that a farm of their land cannot be stocked under 10*l.* per acre; and that draining and chalking demands 15*l.* more.

Mr. BLYTHE, of Kirby, certainly 10*l.* per acre. At Waltham, and Little Leighs, some farms 10*l.* per acre.

Mr. LEE, of Maldon, is of opinion, after having stocked five or six farms, that 10*l.* per acre is necessary in Dengy hundred, if any improvement is to be effected: if not, 7*l.* 10*s.*

Mr. WAKEFIELD has stocked, &c at the rate of 12*l.* per acre.

At Bradwell 10*l.* per acre. At Ingatestone 10*l.* per acre.

The expenses of husbandry are very high in some parts of Essex: I drew out a calculation for an acre of land at Bradfield, near Mistley, with the assistance of a remark-

* Howlett.

ably able and experienced farmer, which will prove the fact satisfactorily.

1 & 2. ~~FALL~~ FOR BARLEY.

	£.	s.	d.
Eight earths at 8 <i>s.</i> , viz. man 2 <i>s.</i> 6 <i>d.</i> , two } horses 5 <i>s.</i> , wear and tear 6 <i>d.</i>	3	4	0
Twenty harrowings and rollings, at 6 <i>d.</i>	0	10	0
Three bushels of seed, at 4 <i>s.</i> 6 <i>d.</i>	0	13	6
Sowing,	0	0	4
Weeding,	0	1	0
Mowing and harvesting 11 <i>s.</i> , with beer 15 <i>s.</i> , } 6 horses and 3 waggons clear 4 acres, 5 <i>s.</i> }	1	0	0
Thrashing 5qrs., at 2 <i>s.</i> 6 <i>d.</i>	0	12	6
Carrying out,	0	3	9
Fences and sundries,	0	2	0
Interest of capital 10 <i>l.</i> , 2 years,	1	0	0
Rent, tithe, and rates 35 <i>s.</i> , for 2 years,	3	10	0
Draining 7 <i>l.</i> , chalking 8 <i>l.</i> —Interest on that } sum at 10 per cent., 2 years,	3	0	0
	<hr/>		
	£.13	17	1
	<hr/>		

3. CLOVER.

Seed, and sowing,	0	10	0
Mow, make, cart, and stack once,	0	15	0
Fences and sundries,	0	2	0
Rent, &c.	1	15	0
Interest of capital,	0	10	0
Interest of improvements,	1	10	0
	<hr/>		
	£.5	2	0
	<hr/>		

4. WHEAT.

	£.	s.	d.
Manuring, and the expense of London dung,	}	2	6 0
1 load, 1 <i>l.</i> 5 <i>s.</i> ; with labour and team on the farm dung,			
One ploughing,	0	10	6
Harrowing and rolling,	0	4	0
Two bushels of seed, at 8 <i>s.</i>	0	16	0
Sowing,	0	0	4
Water furrowing,	0	1	0
Weeding,	0	1	0
Harvest,	1	0	0
Fences and sundries,	0	2	0
Thrashing 3½ qrs.	0	14	0
Carrying out,	0	3	6
Interest of capital,	0	10	0
Interest of improvements,	1	10	0
Rent, &c.	1	15	0
<hr/>			
4th year,	9	13	4
1st and 2d year,	13	17	1
3d year,	5	2	0
<hr/>			
Divide by 4)28 12 5			
<hr/>			
Per acre, per annum,	£.7	3	1½

Some produce must be named in respect to thrashing and carrying out; but not as an estimate of the land producing any particular quantity: 7*l.* 3*s.* per acre expense, on an average, will clearly enough demand much greater crops, or higher prices, than those charged in this table; or farming here would be a ruinous employment. There was not the smallest question made of the necessity of 10*l.* per acre to stock a farm here; nor any doubt of land draining

draining and chalking, costing besides that capital, the sum charged.

The same object was viewed in a different light; and estimated per 100 acres arable, thus:

	£.	s.	d.
Rent, rates, and tithe 35s.	175	0	0
5 horses, at 30l.	150	0	0
Labour, 5 men, at 44l.	220	0	0
Wear and tear,	25	0	0
Seed,	50	0	0
Interest of capital,	50	0	0
Interest of improvements,	150	0	0
	<hr/>	<hr/>	<hr/>
	£.819	0	0

If such are the expenses, what must be the crops? the soil is admirable, but whether the produce has been equal to giving the cultivator a fair profit, may be a question: with such exertions, and on such land, he ought certainly to make 15l. per cent. on his capital. The whole melted into one sum.

Mr. COTES of Great Holland, admits that the expenses of farming are high in this part of Essex; but he denies that they are higher than on the coast of Suffolk.

Estimate of the expenses of 200 acres of arable land, a strong soil, near Felix-hall, without any assistance of mine, by a very intelligent cultivator.

No. 1.

General Expenses in Stocking a Farm, and Charges of One Year: the time of Hiring it at Michaelmas.

	£.	s.	d.
5 Horses, 30l. each,	150	0	0
4 Cows, 12l. each,	48	0	0
30 ewe sheep, 30s. each,	45	0	0
			20 pigs,

	£.	s.	d.
20 pigs, 20s. each,	20	0	0
4 sows, 50s. each,	10	0	0
Poultry of sorts,	3	0	0
2 waggons, 36l. each,	72	0	0
3½ chaldron carts, 14l. each,	42	0	0
2 foot ploughs, with iron breasts complete, } 4l. 6s.	8	12	0
1 set of heavy harrows complete, 5 to the set,	6	10	0
1 ditto for wheat seeding,	5	10	0
1 ditto light, for spring corn,	4	4	0
Whippletrees for ditto; long ones at 6d. } per foot, short ones 1s. each,	0	12	0
1 heavy roll complete,	5	5	0
1 light ditto, ditto,	2	15	0
1 ridge roll ditto,	1	12	0
5 pair of plough chain traice, weighing 7lbs. } 8½d. per lb.	1	8	4
5 pair of plough seals and leathers com- } plete, at 4s.	1	0	0
5 back leathers, &c. complete, at 5s. 6d.	1	7	6
5 plough collars, 6s. each,	1	10	0
5 plough halters, 8s. 6d. each,	2	2	6
3 plough lines, 1s. per lb.	0	10	6
4 pair of waggon traice, weighing 20lbs. } per pair, 7½d. per lb.	2	10	0
4 back leathers, &c. complete, 18s. each,	3	12	0
4 cruppers, and hip strap to traice, at 12s.	2	8	0
4 pair of waggon seals complete, 6s. 6d. each,	1	6	0
5 cart collars, 7s. 6d. each,	1	17	6
5 bit halters for waggon and cart use, 10s. } 6d. each,	2	12	6
3 thill saddles, breechins, cruppers, &c. } complete, at 2l. 10s. 6d.	7	11	6
			3 ridge

	£.	s.	d.
3 ridge ropes, weighing 6 lb. each, 3s. per lb.	0	12	9
3 pair of timber-bands, 18s. each, complete,	1	19	0
2 cart ropes, 1s. per lb.	2	10	0
5 leaders and legs, 6s. each,	1	10	0
3 belly wanties, at 2s. 6d.	0	7	6
1 long whip for waggon use,	0	7	0
4 good cow cribs, at 17. 1s. each,	4	4	0
50 sacks, at 5s.	12	10	0
1 bushel and strike,	1	0	0
1 corn screen,	3	0	0
4 tins, 2s. each,	1	7	0
4 axes, 4s. each,	1	0	0
1 pair of axes, at 6s.	0	18	0
1 pair of axes, at 7s.	0	15	0
1 pair of digging shovels, at 4s.	0	12	0
1 pair of axes,	0	6	0
1 heavy fork, 1s. 1d.	1	1	0
1 dew cloth, 2s. each,	4	0	0
1 oak barrel,	1	11	6
1 cord of rope,	1	5	0
1 long handle, 18s. 6d. per stave,	1	1	0
1 heavy iron, 18 inches, 2s.	0	10	6
1 heavy iron, 18 inches, 2s.	1	1	0
10 loads of manure, at 3s. 6d.	5	0	0
5 loads of manure, at 2s.	10	0	0
10 loads of grass hay allowed for, when taking the farm, at 8s. 10d. per load,	35	0	0
10 loads of clover hay allowed for upon the premises, in taking the farm,	70	0	0
200 loads of manure allowed for upon the premises, at 3s. 6d. per load,	35	0	0
100 loads of manure not carried out of the yard, at 2s.	10	0	0
		12	½ acres

	£.	s.	d.
12½ acres of young clover, 14 lbs. of seed per acre, at 1s. per lb. for seed, and 3d. per acre sowing, 14s. 3d.	8	19	6
25 acres of fallow allowed to the out-going tenant, 6 ploughings, harrowing, rolling and water-furrowing, at 10s. or 3l. per acre,	75	0	0
Rent allowed to out-going tenant for 25 acres of fallow, at 1l. per acre,	25	0	0
Tithe, great and small, 6s. per acre; parish rates 6s. or 12s. per acre allowed to out- going tenant for 25 acres of fallow,	15	0	0
Thrashing 25 acres of wheat for the out- going tenant, at 4s. per qr., at 3 qrs. per acre, the in-coming tenant having the straw and chaff,	15	0	0
Ditto 25 acres of soft corn, at 2s. per qr., at 5 qrs. per acre,	12	10	0
Ditto 12 acres of beans, at 1s. 3d. per qr., at 4½ qrs. per acre,	3	10	0
25 acres of wheat sowed, at 10 pecks per acre, at 8s. 9d. per bushel, or 17l. 10s. per load of 5 quarters,	27	6	10½
25 acres of soft corn, at 4 bushels per acre, at 30s. per quarter,	18	15	0
12½ of beans, at 2 bushels per acre, at 32s. per quarter,	5	0	0
12½ acres of clover, at 14 lbs. of seed per acre, at 1s. per lb.	8	15	0
5 acres of turnips, at 1½ pint per acre, at 9d. per pint,	0	5	7½
5 acres of ditto bought of the out-going tenant, 10 acres	15	0	0

“I will suppose this farm to contain 100 acres arable land, and ten acres of old pasture, in the centre of *good roads* and *market towns*. It is further to be considered and observed, that these calculations are made upon the supposition of a farm upon good corn clay-bottom land (too wet to grow turnips, except a few for *spring feed*), in a state of perfect good order and tillage. The profit at the foot of the account appears rather large; but it must be recollectcd, that before a farm is brought into this state, there are *four years* of a lease must probably elapse, and an additional capital must be sunk: it is difficult, if not impossible, to estimate what this may amount to, as it must be a calculation upon the particular farm you have in your consideration. The principal improvement to be made in an Essex farm is land-ditching, or hollow-draining (as sometimes termed), to take off the top-water; claying or marling chalking or liming, where within the reach of these latter articles.

“The expenses of these improvements per acre I shall remark at the bottom of the account. The produce of the farm I have laid rather high, but not beyond the average produce, I think, of a good farm in this county, in a high state of cultivation; nor is the price of corn, I think, estimated too high: the profit of live stock is low, but an allowance is made for casualties. The method in which I conceive this farm should be managed is as follows:

“In the first place, the ten acres of pasture, half of which should be mowed every year, that part being fed one year to be mowed the next, and so on every year; they will both then share equal benefit by feeding. That twenty-five acres of fallow be made every year, five acres of which to be sown with turnips, and ten acres with tares (before the fallow is made), upon that land intended

to

to be so fallowed, which should be fed off in proper time; this may easily be done, if the tares are sown immediately after harvest. That one-fourth, or twenty-five acres, be sown with soft corn; one-fourth, or twenty-five acres, with wheat; one-eighth, or twelve acres and an half, with beans and pease; there will then remain one-eighth, or twelve acres and an half of clover. By this succession of crops, twelve acres and an half, or one-eighth part of the farm, will come in course for clover every eighth year, which will allow twelve acres and an half every year, and that should not be mowed more than once.

“At the end of the general account, I have endeavoured to shew the balance of the *stock* account, or profit: it may be remarked, that there is too much green food charged to the stock; but I am afraid there is no more than what will be consumed as it comes in course to be fed. The five acres of turnips for four cows, sixty ewes and lambs, besides breeding sows and pigs, will not last long; after these are off, they have no other resource but to ten acres of pasture, which ought to be in good order for feed, and will maintain the sheep and cows, with the help of hay, till the ten acres of tares are ready, which, I will suppose, will be by May-day; I have no doubt but these will be cleared off the land before the after-crop of clover becomes fit to stock. It is to be understood, that hogs are great devourers of tares, and that much waste is made by trampling, more so than any other feed, owing to their juicy and tender qualities. A mere trifle only can be charged to the horses, for their feed in the after-crop of clover much depends upon season. The horses will want some little green food, which they can share with the rest of the stock, on the twelve acres and an half of after-clover, but must be charged to their account. Some of the lambs will now be drawn off by the butcher; consequently,

	£.	s.	d.
Seed, and sowing,	0	16	3
Harrowing,	0	0	6
Mow, make, and thatch,	0	9	0
Team,	0	2	6

WHEAT.

Ploughing,	0	8	0
Harrowing,	0	4	0
Seed, and sowing,	0	19	0
Hoeing,	1	0	0
Harvest, thatch, and cart,	1	3	0
Thrashing Sqrs.	0	12	0
Carrying out,	0	4	0
Rent, &c.	1	14	0

Here the horses announced, and we left the pen for the field.

Mr. RUGGLES has kept an extract account, though a running one, without a balance, for four years: I examined his book, and extracted from it enough to balance the account for Michaelmas 1805. The farm is about 300 acres, valued rent 362*l.* The expenditure in four years has been 4948*l.*, and the receipt, including the valuation of the crop now on the ground, 5811*l.*; balance 863*l.* for profit, or 215*l.* per annum. In the articles expended, is included what would properly be called stocking the farm, except the articles of team and implements originally brought here, which have been kept up to their original value, and would now sell for that value. The amount of capital employed, therefore (further than the expenditure of 4948*l.*), has been nothing more than such team and implements; and may amount probably to about 400*l.*

the

the interest of which sum would reduce the profit to 195*l.* and leave an immense advantage, if counted by a percentage on capital: and not a bad one if reckoned acreably. The following is the estimate of the present crop:

	£.	s.	d.
18 acres of white pease, 7 <i>l.</i>	126	0	0
9 dun, ditto, 6 <i>l.</i>	54	0	0
13½ coleseed, 12 <i>l.</i>	162	0	0
45½ barley, 6 <i>l.</i>	273	0	0
19 oats, 6 <i>l.</i>	114	0	0
31 white clover seed, 10 <i>l.</i>	310	0	0
14 wheat, 7 <i>l.</i>	98	0	0
4 beans, 5 <i>l.</i>	20	0	0
20 white clover lay, 1 <i>l.</i> 10 <i>s.</i>	30	0	0
11 turnips, 1 <i>l.</i> 10 <i>s.</i>	16	10	0
4 potatoes, 7 <i>l.</i>	28	0	0
1 cabbages, 3 <i>l.</i>	3	0	0
89 grass, 2 <i>l.</i>	178	0	0
	<hr/>		
	£.1412	10	0
Hogs,	30	0	0
	<hr/>		
	1442	10	0
Deduct great tithe gathered in kind, ..	144	0	0
	<hr/>		
	£.1298	0	0

In Dengey hundred, the expense of wear and tear is very high: Mr. SPURGEON, at Bradwell, on 230 acres arable, has paid 40*l.* to blacksmith and wheel-wright, making nothing new but a common roller: and Mr. ANDREWS 50*l.* on 330 acres, having nothing new. Mr. SPURGEON 15*l.* to collar-maker, without any new purchase.

“ Any estimate of the expense and profits of farming

to the mere occupier of farms, in general application to the county at large, must be unsatisfactory. In different districts, in different parishes of the same districts, in different farms of the same parish, according to their different rents, soils, states of culture, and a thousand other circumstances, they must be almost infinitely various. I can only form a very general conjectural computation of them within fifteen or twenty miles of my own residence, and those too subject to numerous exceptions.

“Expenses and capital necessary for entering a farm of only 150 acres, about 110 acres arable, and 40 pasture, rented at 120*l.* or 130*l.* a year, due regard being had to the price of every article on an average of the last seven years, ending at Michaelmas 1801; and supposing likewise that there is no premium, or income, to be given for the lease of the out-going tenant (sometimes amounting to three, four, or more years' rent), will be from 12 to 1500*l.*, before any considerable returns of profit can accrue to the new tenant.

“This estimate goes further, on the supposition that the farm is in a regular course of culture, and the new tenant has only to pay the expense of the artificial raising, and mixture of manures, and what may have recently been done according to the customs of the country, or valuation of skilful persons; that he lays in immediately a full and complete stock of every kind, and of middling quality; that he purchases six or seven good horses; if he dairies, twelve, fourteen or sixteen cows, with a bull; thirty sheep; three or four breeding sows; that he pays a whole year's poor's-rates, at 6*s.* or 7*s.* in the pound, with other taxes; tithes at 3*s.* 4*s.* or 5*s.* an acre; buys household furniture, implements of husbandry, waggons, carts, rolls, harrows, &c.; that he has a wife, children and servants to maintain, and five or six day-labourers to pay
from

from 25*l.* to 30*l.* a year and upwards each. To all this must be added the amount of interest upon his capital, and the gradual decrease of the value of his stock, live and dead, and of his household furniture, &c. and the purchase of all kinds of seed for sowing the land.

“ But it is to be remembered, that the in-coming tenant not only enters upon the farm at Michaelmas, but also takes and thrashes out the crop, paying for it as he carries it to market. This is sometimes done; if it be not done, it will greatly reduce the capital immediately requisite. He will not want the same number of labourers, nor need he complete his stock of any kind till after the subsequent Lady Day.

“ I well know too, that many a farm of the size and description in question, is frequently entered upon with little more than a third part of the supposed capital; but then his farm cannot be fully and properly stocked, nor can he do to the land what he ought to do; and his future profit will be less even in a higher ratio than the difference of expense. His horses will be poor half-worn out creatures, his cows of half price, and perhaps not much exceeding half in number, and every thing else in similar proportion.

“ His annual expenses, supposing him to set forward, and to continue as first above stated, will not be less than 600*l.*; and his annual average produce will not greatly exceed 650*l.*; and the value of this produce goes on the supposition that he grows half a load of wheat per acre, at 15*l.* a load; 4 qrs. of barley at 30*s.* a quarter; 3½ of beans and pease at 36*s.*; and 4 qrs. of oats at 25*s.*; that his cows yield, in calves, butter and cheese, 12*l.* each; and his sheep, in wool and lambs, 40*s.* per head.

“ This annual profit of 50*l.* upon a capital of 12, or 1500*l.* is surely a trifle, to what is sometimes gained in
many

many other professions: in banking, for example, in trade, in commerce, in manufactures, in breweries, to say nothing of government contractors, army and navy agents, &c ; and yet, trifling as it is, I am persuaded it exceeds that of nine-tenths of our farmers, of the size and description now under consideration.

“ It must at the same time be acknowledged, that there are many individual farmers of uncommon spirit, application, industry, and ingenuity, who raise, upon farms of no greater extent than those in question, a produce, instead of 600*l.* or 700*l.* a year, of 1200*l.* or 1500*l.* But such persons usually join other things, distinct from the common course and business of farming; they buy, fatten, and sell live stock, oxen, sheep, and hogs; and have besides, perhaps, a large malt-office: from all these in conjunction, they raise such prodigious quantities of rich manure, as to render the land capable of being cropped every year, and of producing per acre, in one way or other, more than double what it commonly used to do before. It is, however, carefully to be remembered, that even were all farmers equally ingenious, and equally fruitful of expedients, and possessed, likewise, of the requisite capital, they could not, for reasons too obvious to need specification, obtain these peculiar advantages. Our estimate may pass as of general application.

“ It is, however, also to be remarked, that farmers of larger extent of occupation, or who are so fortunate as to meet with farms at low rents, upon long leases, and easily susceptible of great improvements, or are situated in the near vicinity of large opulent towns, where their produce of every kind meets a ready advantageous market, and where a vast abundance of rich manure is procurable in return—such farmers obtain profits much more considerable, and even acquire handsome independent fortunes

tunes, though still vastly inferior to what are acquired in various other professions and departments of the community.

“ But small as are the present profits of the mere farmer, they are, I believe, considerably higher than they were fifty or sixty years ago: the probability of this is apparent from various considerations.

“ No one at all competent to judge, can hesitate a moment in determining, that our agriculture, within the period in view, has been vastly improved, as well as more widely extended. Our new enclosures, which, indeed, are neither very large nor very numerous, have generally been converted from pasture to arable; our coarse pastures in our old enclosures, have undergone the same change; many considerable woods, groves, and hedge-rows, have fallen before the axe and the mattock, and made to produce in abundance all kinds of grain, both for human consumption, and to feed and fatten our prodigiously-increased number of oxen, sheep, and swine; whilst the lands subject to the plough time immemorial, by more judicious and spirited management, have produced one-third more per acre. While the real value of farms has been thus rapidly advancing, such as have been lett upon long leases, cannot probably have increased their rents in an equal ratio; consequently, the profits of farming must in general have been gradually and constantly augmenting.

“ Many collateral circumstances strengthen and confirm this idea. The farmers whose cultivation of land is considerably extensive, make a much more genteel and respectable appearance than heretofore. They give their children, both sons and daughters, a much more expensive education; the former sometimes, and the latter
very

very generally, being sent to boarding-schools; and costing, instead of 20*s.* or 30*s.* a year, as formerly, at some country day-school, from 30*l.* to 50*l.* The general modes of living, too, amongst the larger farmers at their own houses, and the entertainment of their friends, is greatly heightened. Their ordinary expenses at market for the sale of their corn, and the other productions of their farms, are likewise greatly augmented. Fifty years ago, their dinner at these places, together with the liquor they drank, seldom amounted to above a shilling or eighteen-pence; now it is commonly four, five, or six shillings. Part of this, indeed, arises from the advanced price of provisions; but principally from the superior quality of their drink, they having exchanged good *strong beer* for *red port*.

“ These several kinds of increased expensiveness must, doubtless, have considerably diminished the profits of their business, and retarded the growth of their property. The same cause will, perhaps, in some measure, account why it happened, that, in prior periods, some few farmers improved their circumstances from very different original capitals. I recollect two instances of this kind, which took place even before the year 1740. The one began with about 50*l.* the other with 500*l.*; the former, in about 35 years, was worth upwards of 1000*l.*; the latter, between 5 and 6000*l.* Both these instances were, at that time, very extraordinary: the former is so now; nay, it rarely happens, that, with so small beginnings, disproportionably burdened as he is with rates, and the numerous and peculiar difficulties he has to struggle with, that he can stand his ground, and not lose the little he set out with, and sink into hard daily labour for his support; but of the latter, where there is a capital proportionable

tionable to the difference of the times, that is, instead of 500*l.*, 1200*l.* 1500*l.* 2000*l.* the examples are, I believe, two or three times as many within the last thirty or forty years, as in any prior period of the last century; and may such instances long continue to multiply! They would sharpen the spirit of agricultural ingenuity and exertion; they must, of course, greatly advance the value of landed property, and the general wealth and prosperity of the kingdom. Nor need the farmers envy or repine at the greater affluence acquired in other professions: the more opulent persons engaged in such professions become, the greater will be their consumption of the productions of the earth, of one description or other, and the better price will the farmers obtain for their goods. All occupations and professions mutually assist and befriend each other. The banker, the brewer, the trader, the merchant, the manufacturer, the lawyer, the contractor, &c. can scarcely flourish and grow rich, without causing the farmer to flourish and grow rich also*.”

* Howlett.

CHAP. V.
 IMPLEMENTS.



A MATERIAL deficiency in most of the Reports, and in my own as well as in those of the other gentlemen who undertook the Surveys, was the want of plates to represent the various tools met with in the respective counties. To execute drawings of these is impracticable, without skill in that art, or being accompanied by an artist for the purpose. Fortunately, I met with one who engaged to travel the county, without any salary for his time, on being paid a very moderate price for such drawings as he should be required to make: this advantage has enabled me to detail the implements of Essex in a much more satisfactory manner than it would have been possible to effect without the occurrence of such a circumstance.

THE PLOUGH.

There is scarcely a circumstance in the agriculture of the kingdom more surprizing, after so general an attention has been paid to it, than the extreme uncertainty in which the true structure of the plough yet remains. That variations for different soils and circumstances, must and ought to occur, is admitted; but one plough for one specific object, might have been produced, its superiority to others ascertained, and the principles in its construction,
 on

on which such merit depended, fully developed, and laid down in accurate drawings: yet this has not been done; and the only approximation to it is in a paper by the late Mr. ARBUTHNOT, which I published, near forty years ago, in my *Eastern Tour*. Farming mechanics look to the Board of Agriculture for supplying this great deficiency, which can be supplied only by a series of experiments, demanding a considerable expense, and more attention.

Mr. ROGERS bought the Norfolk plough, which, on the behalf of T. W. COKE, Esq. beat the Essex ones at Mr. WAKEFIELD's sheep-shearing, at Burnham, and has had others made by it. He prefers it, in two circumstances, to the Essex wheel-plough: the point of the share is nearer to the points in the wheels where they touch the earth, a shortness which, in his opinion, eases the draught; and the mould-iron, or plat, as it is called in Norfolk, turns the furrow, in his opinion, better.

“Both swing, or foot, and wheel ploughs, are used around Kelvedon, and it is much disputed which is preferable. In favour of the swing-plough it is contended, that it is better calculated for fallowing, as the soil can be broken up to a greater depth*, and it does not rise at the headlands, which is the case with the wheel-plough; the ends of the furrows being shallower, from the wheels, as soon as they get upon the headlands, throwing the share up. The foot-plough is easier of draught, the prime cost is less, and it is kept in repair at a smaller expense.

* This was stated to me as the opinion of a very intelligent farmer; others contend, that very deep ploughing can hardly be effected without the assistance of wheels. If the land is broken up for fallow late in spring, and the soil comes up in large blocks (which is sometimes the case in wet land and late fallowing), the foot-plough is apt to be thrown out of the furrow, and does not perform its work so well as the wheel-plough.

“The

“The wheel-plough, on the other hand, keeps a more regular depth, and will turn a shallower furrow, when the fallows are put upon the ridge, or formed into ridges* ; the work can be done with more regularity, the wheels being put out to the exact width at which furrows are to be made : this is of material consequence.

“Wheel-ploughs, around Kelvedon, can be worked when swing ones will choak on stubbles, and they are varied in *pitch* with more exactness, and they will go deeper than the others ; but swing better, if the land be at all wet †.”

Around Colchester, and at Bradfield, and in the whole hundred of Tendring, I saw nothing but wheel-ploughs.

In Mersea, they use wheel-ploughs on light land, and swing ones on the heavy soil.

Mr. Buxton, at Layer de la Haye, finds swing-ploughs best on wet land, on which wheel-ploughs, indeed, will not do.

Plate V. represents the common wheel-plough of the county, as used around Kelvedon.

From 1 to 2	7 feet 6 inches.
1 — 3	3 — 9
1 — 4	2 — 9
4 — 4	1 — 5
6 — 7	2 — 6
4 — 7	2 — 4
5 — 4	0 — 11
7 — 8	3 — 9
7 — 11	0 — 11
7 — 12	0 — 6

* When the men are accustomed to ridge-ploughing, they will do as well with the foot-plough, but cannot block up hard land late in summer so well.

† Mr. Western.

Common Spur Wheel - Shown as C. C. Hendermi's Copy.

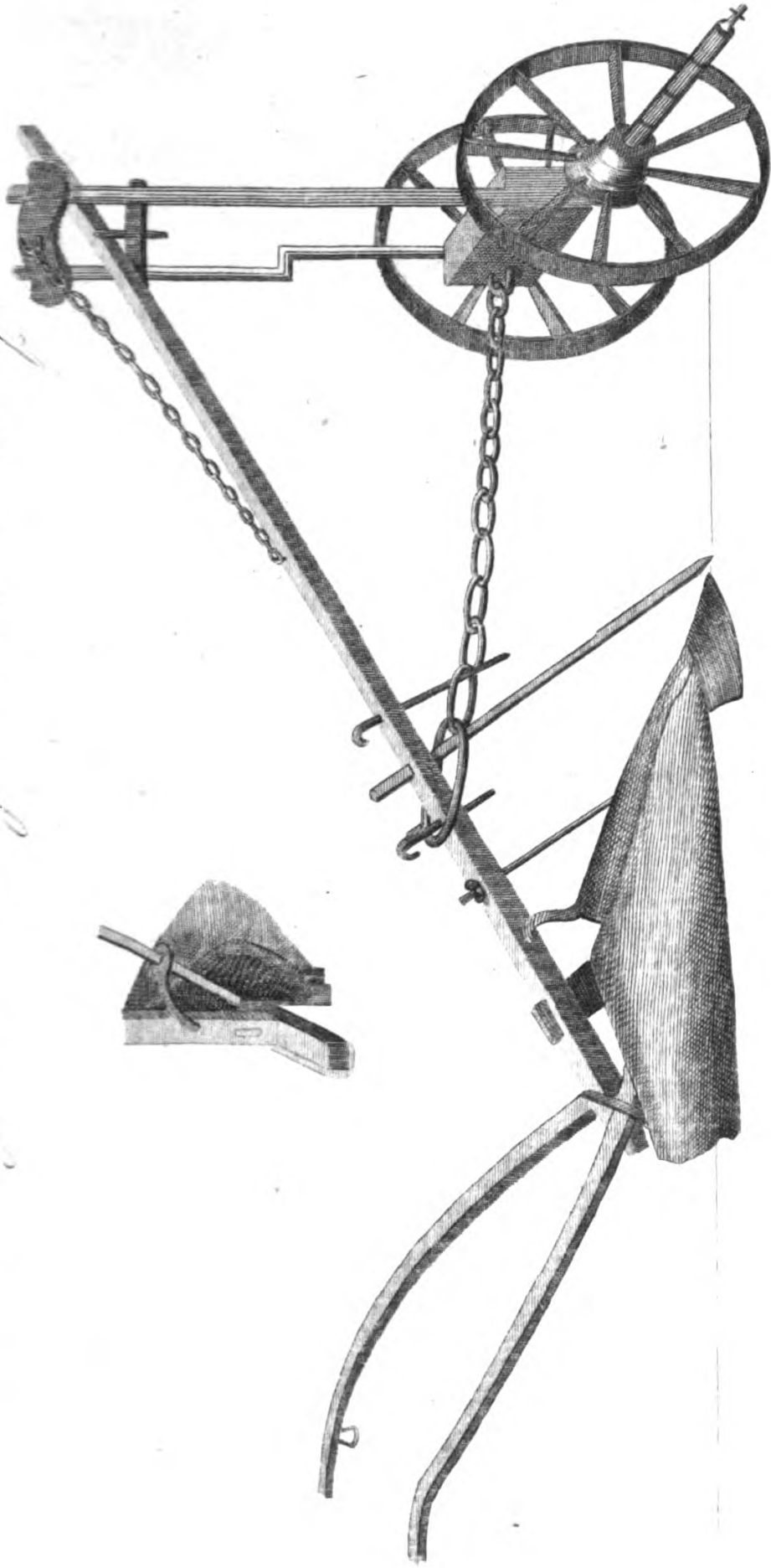
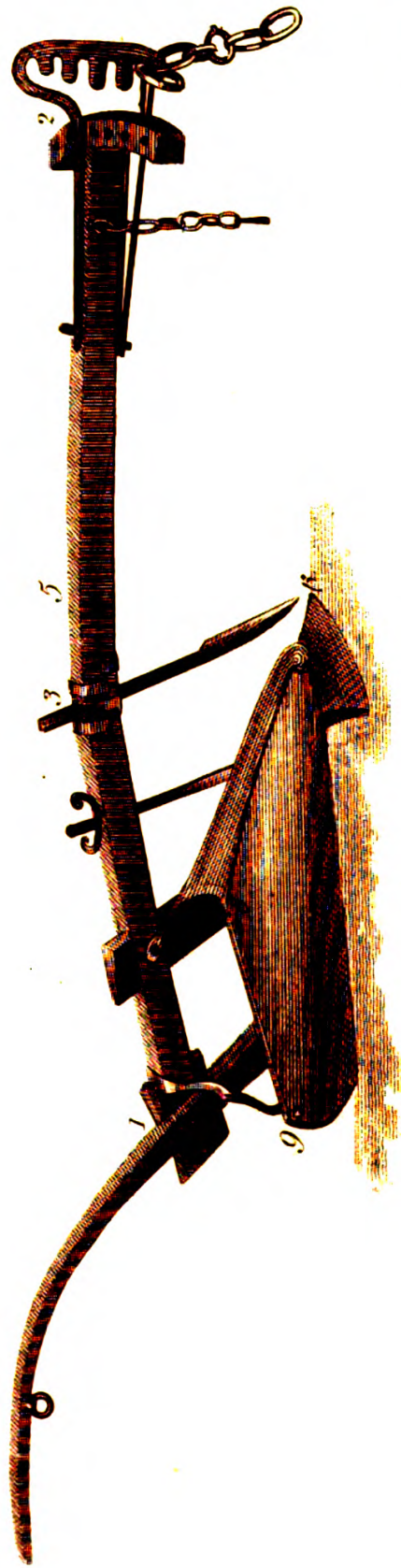


Plate 6. F. 129.



Note: every strand.

Manufactured by the Messrs. J. & C. Broadwell.

Messrs. J. & C. Broadwell, Glasgow.

From 12 — 13	2 feet 0 inches.
13 — 18	1 — 6
13 — 19	1 — 0
13 — 16	1 — 0
At 16 concave, 12 to 18 convex.	
a — b	0 feet 9 inches.
c — d	1 — 5
c — e	1 — 6
Diameter of the wheels,	2 — 3
Distance ditto,	2 — 4

The variations between this and the other wheel-ploughs I examined, are not considerable: this is the tool which Mr. ROGERS thinks inferior to the Norfolk.

In this plough there is a common rein to the share (12, 13), and a fixed tuck (5, 8). In the Hedingham ploughs, these are in the same position; in the latter, also, the ground-rest at the heel extends three, four, or five inches beyond the breast, which is useless: some ploughs at Coggeshall, &c. have the same projection. The two material points in which this plough differs from that of Norfolk are, the distance from the point of the share to the plumb-line of the axle, and the length of the breast, exceeding that of Norfolk by a foot. The former circumstance gives steadiness to the Essex implement; whether it increases the draught to the horses, is an unascertained question. The shortness of the breast, if the curve or sweep be in perfection (that is, wears equally every where), may lessen friction, and probably does, if the earth is loose; it may not have the same effect in the first earth upon a stiff layer.

Plate VI. is the common swing-plough used at Bradwell.

From 1 to 2	6 feet 6 inches.
1 — 3	2 — 9

From 1 to 4	1 foot 3 inches.
5 — 6	1 — 8
6 — 7	1 — 0
6 — 8	2 — 2
8 — 9	1 — 6
8 — 10	1 — 0
4 — 9	1 — 0
1 — 12	3 — 6
Heel 1 to 2	1 — 4
3 — 4	0 — 8½

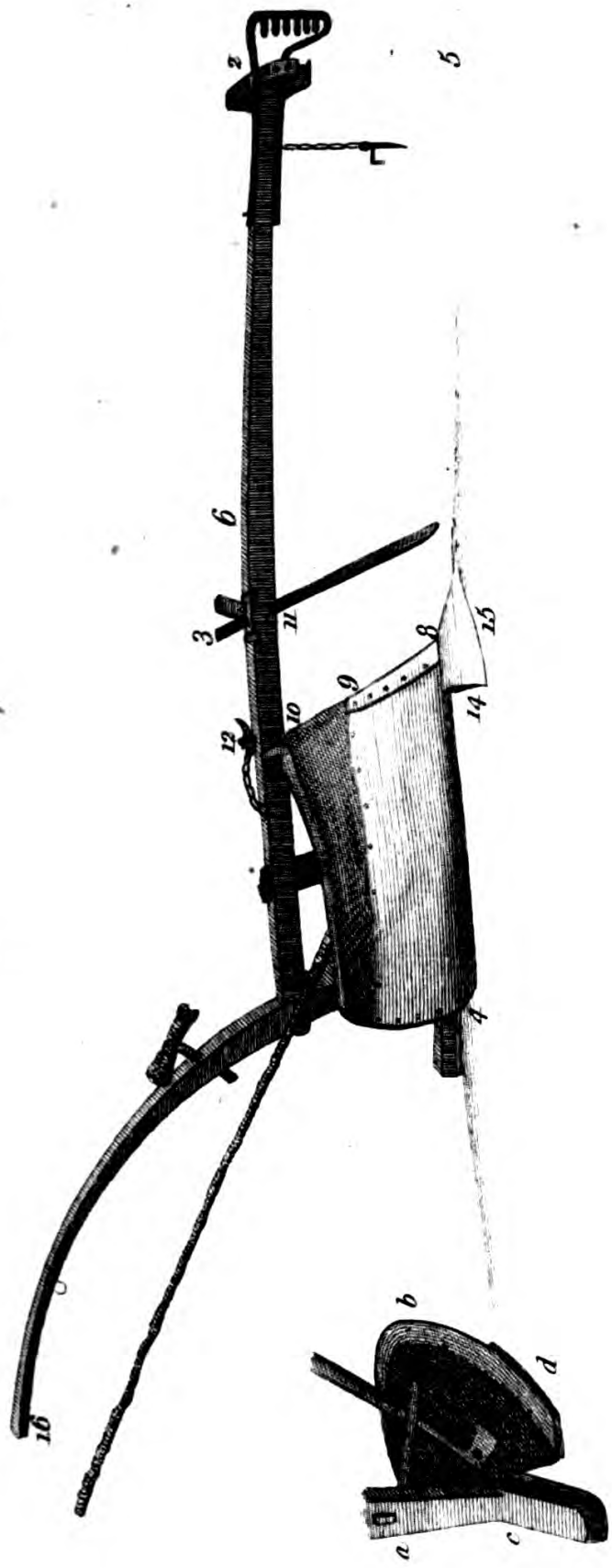
The variety among the swing ploughs is much greater than in wheel ploughs. Several variations are seen in

Plate VII. Mr. MANSFIELD'S common swing-plough at Ongar-park.

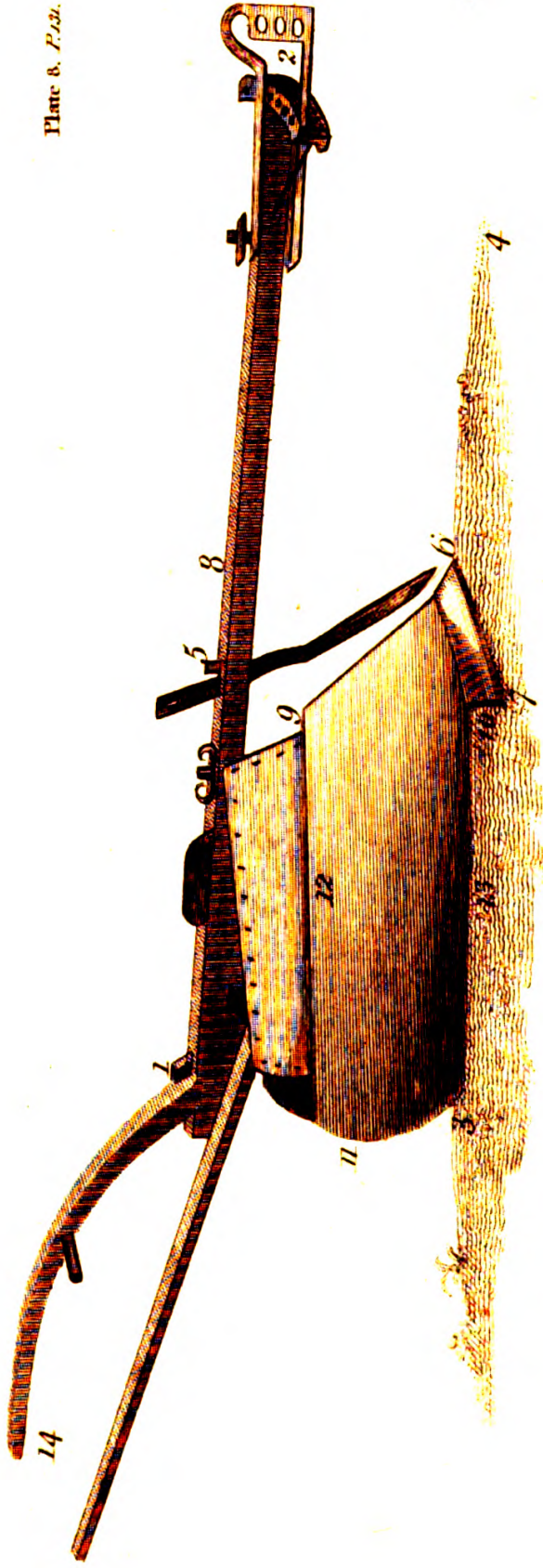
From 1 to 2	6 feet 6 inches.
1 — 3	2 — 9
1 — 4	1 — 3
2 — 5	1 — 3
6 — 7	1 — 5½
3 — 6	0 — 8
7 — 8	0 — 9
8 — 9	0 — 10
8 — 10	1 — 5
10 — 11	0 — 11
3 — 12	0 — 10
3 — 7	1 — 9
11 — 7	1 — 4
4 — 8	2 — 9
8 — 14	0 — 8
7 — 14	1 — 1
14 — 9	0 — 10
8 — 15	0 — 4

From

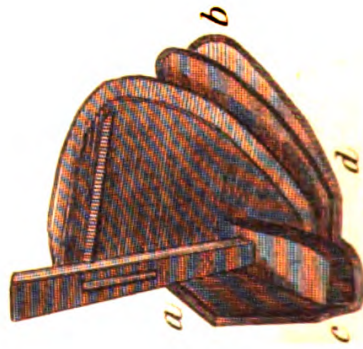
W. Mansfield's Common. Single. Cigar.

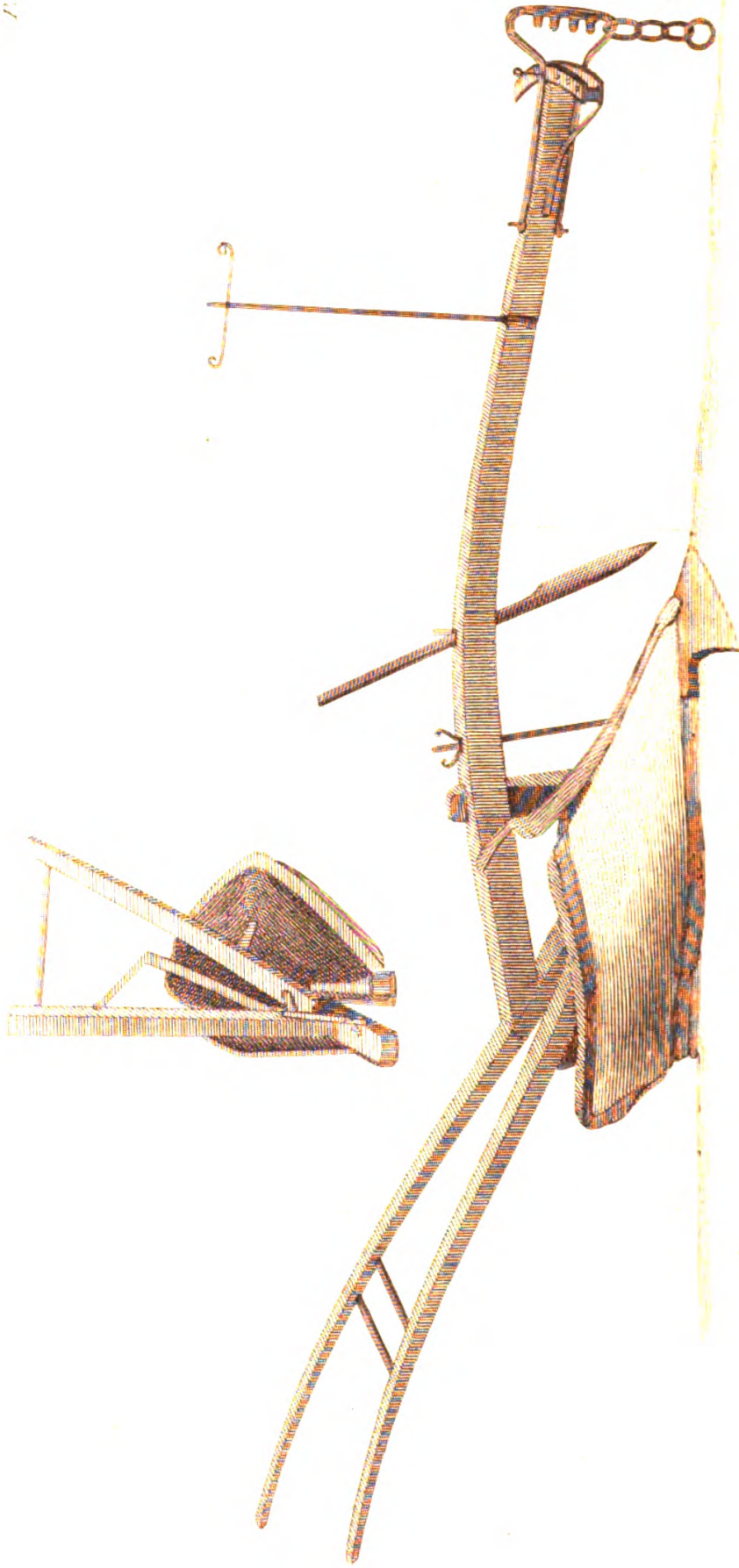






Trubny's Common. Wheel.





(*M. H. & C. improved - Patent.*)

From 1 to 16	3 feet 6 inches.
<i>a</i> — <i>b</i>	1 — 6
<i>c</i> — <i>d</i>	0 — 9

Plate VIII. the common plough of Foulness Island, has other and greater variations, and much for the worse.

From 1 to 2	6 feet 7 inches.
1 — 3	1 — 4
2 — 4	1 — 3
1 — 5	2 — 9
3 — 6	3 — 7
7 — 6	0 — 11½
8 — 6	1 — 5
1 — 8	2 — 9
5 — 6	1 — 8
6 — 9	1 — 5
9 — 10	1 — 0
11 — 9	2 — 5
11 — 3	1 — 0
12 — 13	1 — 0
14 — 1	3 — 3
5 — 8	0 — 8
<i>a</i> — <i>b</i>	1 — 6
<i>c</i> — <i>d</i>	0 — 10
<i>a</i> — <i>c</i>	0 — 9

Plate IX. is an improved swing-plough by C. C. WESTERN, Esq.

From 1 to 2	6 feet 6 inches.
1 — 3	2 — 6
4 — 5	1 — 7
3 — 4	0 — 9

From 3 to 5	1 foot 10 inches.
5 — 6	3 — 7
5 — 7	0 — 10½
1 — 8	4 — 0
9 — 10	1 — 9
11 — 9	2 — 2
1 — 6	1 — 3
2 — 12	1 — 2
6 — 10	2 — 10
<i>a</i> — <i>b</i>	1 — 4
<i>c</i> — <i>d</i>	0 — 7

At *c* the breast concave 1¼.

Now, if we examine the four swing ploughs, Plates VI. VII. VIII. and IX. we shall in the first place find that the length of the beam is nearly the same in all; viz. 6 feet 6 inches. In swing ploughs this is a point of consequence, and I could not on inquiry find any motive, or reason, or rule assigned for this length; nor the smallest knowledge of the rule that was ascertained by Mr. ARBUTHNOT for regulating the lengths of beam; that of the line of traction from the tug at the horse's shoulder to the centre of gravity and resistance, which is a little behind the point of the share: a rule by which he determined to make his beams 6 feet long.

In the next place, I have to observe, that the throat* of all these ploughs, as well as that in Plate V. is in every one erroneous. It is a clear position, and proved by experiment, that a semi-elipsis is the true form. In Plate VI. this throat swells out towards the share, and then withdraws into a straight line: in Plate VII. it forms a direct angle with the share, and then rises in as direct a resistance to

* The space from the share point to the junction or approach of the breast to the beam.

entering

entering the earth. Plate V III. is nearly as bad. In Plate IX. it is much better, and had it from *c* curved upwards to the fore standard, would have formed no bad throat.

“*The Throat*—at the fore end or neb of the plate (*breast*) in the Norfolk, and most other ploughs (the Rotherham excepted), rises from the upper surface of the share too perpendicularly, and too much at right angles to the line of friction, or pressure of earth the plate has constantly to act against; working thus abruptly in the ground, the slice or furrow is violently torn, or bust from off the ground land, broken and imperfectly turned over, instead of being gradually cut, raised whole, and whelmed over, as will always be the case, when the plough enters the ground obliquely, and at a proper angle, and that the plate or mould-board is properly turned for raising up, and turning the slice completely over*.”

Breasts.—I found a remarkable variation in the form of the breasts, or mould-boards of the ploughs throughout the north of Essex; and chiefly in the degree of concavity or convexity. Some wheel-wrights and farmers prefer a form rather concave, a flatness in the fore part, which joins the share, and which gradually fills up as the sweep recedes; others like it neither concave nor convex, and I found many ploughs with such a degree of convexity, that I could not easily imagine the motive. The object, however, was of such importance, that I had many drawings taken by the draughtsman who I had engaged to accompany me, for the better ascertainment of all the variations I met with. Mr C. C. WESTERN, M. P. for Maldon, and a Member of the Board, had fortunately given much atten-

* Vancouver.

tion to this point, and had ordered some ploughs to be constructed, which materially assisted the inquiry. These I shall here present to the reader's attention.

Plate X. fig. 1, is a breast in much esteem with Mr. POWELL, of Birchholt: this is very convex; and he contends that this degree of roundness and fullness in the bosom, is necessary on heavy land: and that the soil sticks adhesively to the plough, if it be not thus rounded all the way; and he asserts that it turns the furrow the better.

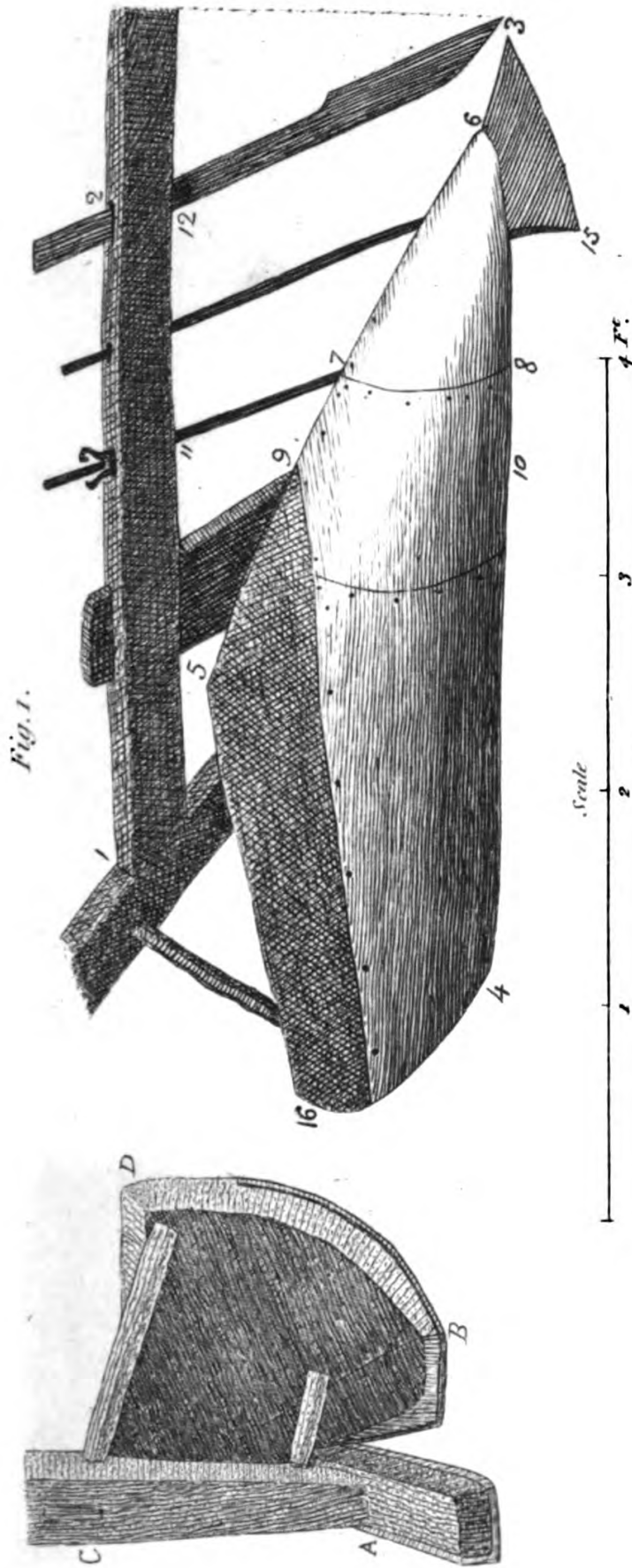
From 1 to 2	3 feet 0 inches.
2 — 3	2 — 0
3 — 4	4 — 7
3 — 5	1 — 0
3 — 6	0 — 6
6 — 7	1 — 3
7 — 8	0 — 9
6 — 9	1 — 9
5 — 3	3 — 3
5 — 6	2 — 0
9 — 10	1 — 0
11 — 12	1 — 0
6 — 4	4 — 0
a — b	1 — 0
c — d	1 — 8

Plate X. fig. 2, represents a much less degree of convexity in a breast of Mr. WESTERN.

From 1 to 2	2 feet 7 inches.
1 — 3	1 — 4
2 — 4	1 — 0
4 — 5	1 — 6
5 — 2	1 — 10
7 — 5	0 — 10
5 — 3	3 — 7

From

(*Common Broadcut. Mr. Powell's (Birch Holt.)*)



C. F. Conner - (Brevet) at. Mr. Hartman's.

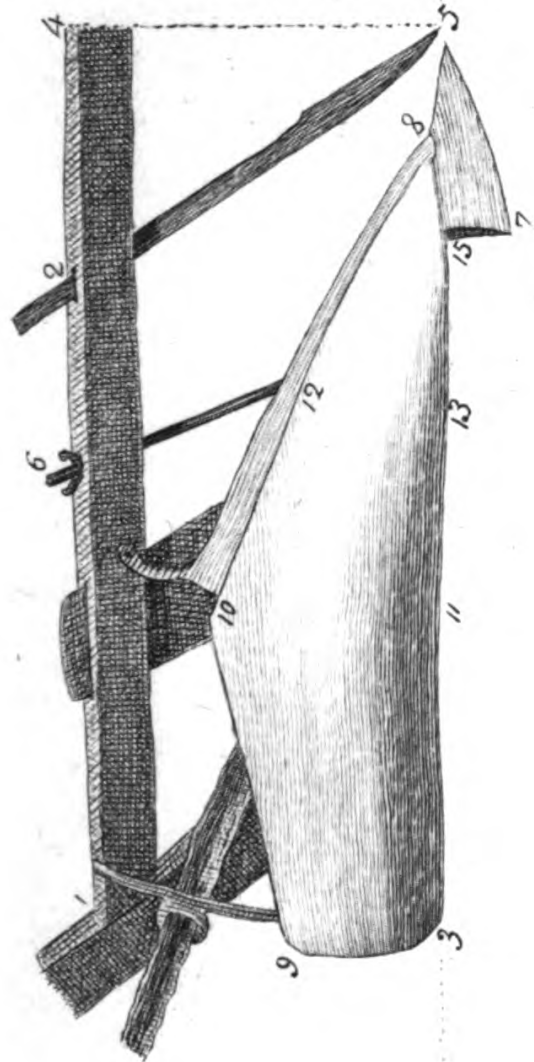
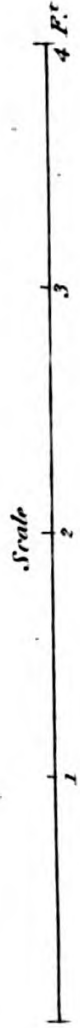
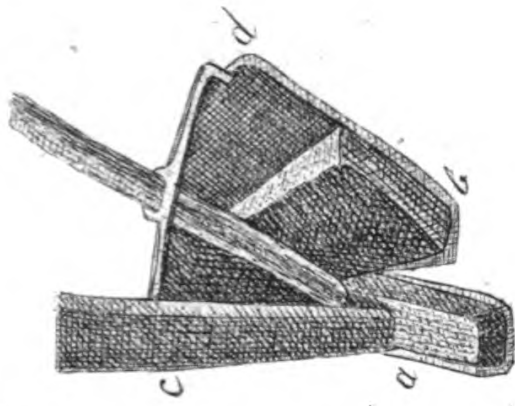


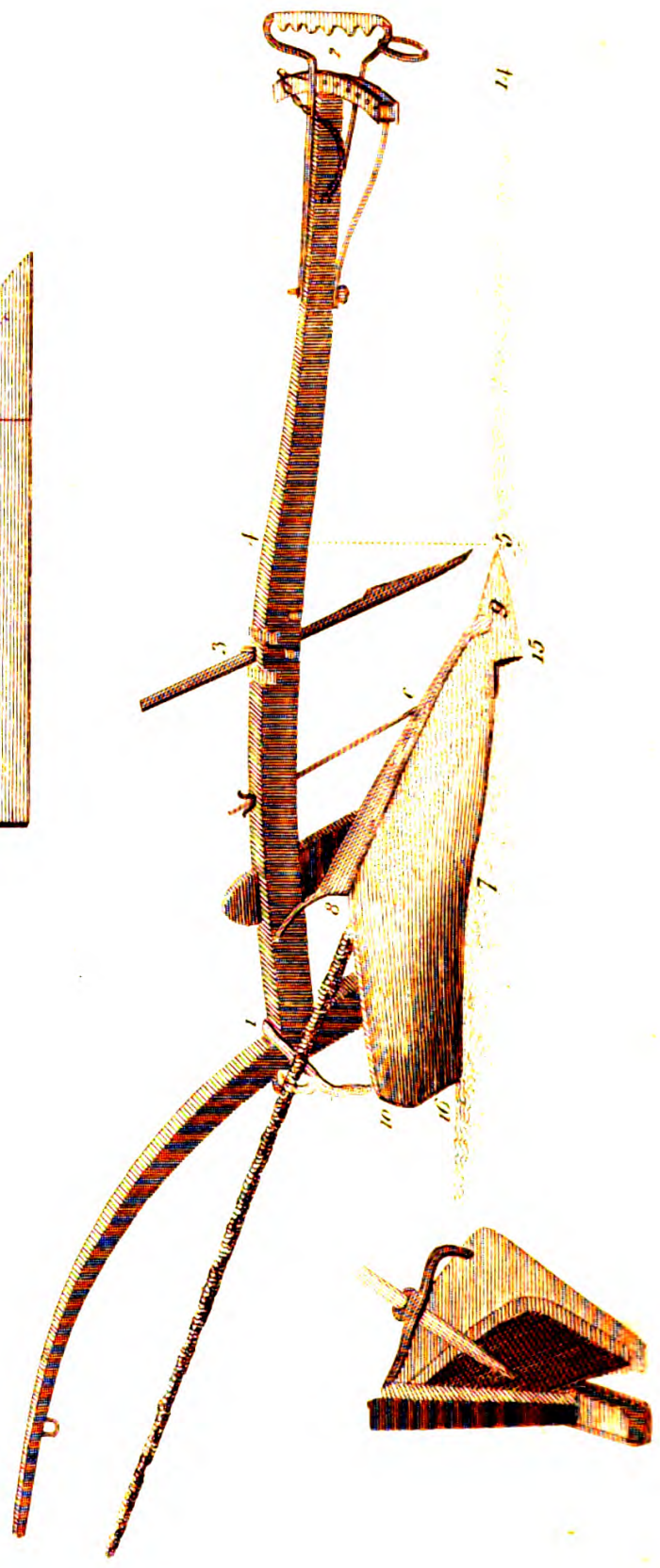
Fig. 2.



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Mr. Goble's improved Chain or Pulley

Plate n. P. 135.



From 10 to 9	1 feet 6 inches.
5 — 10	2 — 6
6 — 2	0 — 10
5 — 8	0 — 6
8 — 10	2 — 0
10 — 11	0 — 11
3 — 15	2 — 10
10 — 12	1 — 0
12 — 13	0 — 7
a — b	0 — 7
c — d	1 — 2

Plate XI. is an improved plough of Mr. POOLEY's at Kelvedon.

From 1 to 2	6 feet 9 inches.
1 — 3	2 — 9
2 — 14	1 — 3
1 — 16	1 — 5
3 — 4	0 — 10
4 — 5	1 — 7½
8 — 9	2 — 2
5 — 15	0 — 10
7 — 8	1 — 0
8 — 10	1 — 5
9 — 16	3 — 2*
17 — 18	3 — 10
17 — 19	2 — 9
19 — 20	1 — 0
17 — 21	0 — 8
20 — 22	0 — 7
19 — 23	0 — 6
a — b	1 — 4
c — d	0 — 8

* At c O 1½ concave.

Plate XII. the common plough at South End, has a degree of convexity in the fore part of the breast, not common.

From 1 to 3	3 feet 2 inches.
1 — 4	1 — 2
5 — 6	1 — 5
3 — 5	1 — 8
5 — 10	1 — 9
5 — 8	1 — 6
8 — 13	1 — 1
8 — 12	0 — 10
8 — 11	2 — 4
7 — 5	1 — 1
At <i>c</i>	0 — $\frac{1}{2}$
Heel, 1 to 2	1 — 7
3 — 4	0 — $5\frac{1}{2}$
5 — 6	0 — $10\frac{1}{2}$
2 — 7	1 — 4

Plate XIII. (Mr. TWEED at Sandon) presents another breast, varying from the rest.

From 1 to 2	2 feet 3 inches.
1 — 3	3 — 5
4 — 5	1 — 7
5 — 6	1 — 8
5 — 7	1 — 2
1 — 6	2 — 9
<i>a</i> — <i>b</i>	1 — 6
<i>c</i> — <i>d</i>	0 — 9

Plate XIV. (Mr. HAYWARD at Kelvedon), still different.

From 1 to 2	2 feet 4 inches.
1 — 3	3 — 4

From

Common Plough at South End?

PLATE 29. P. 430.

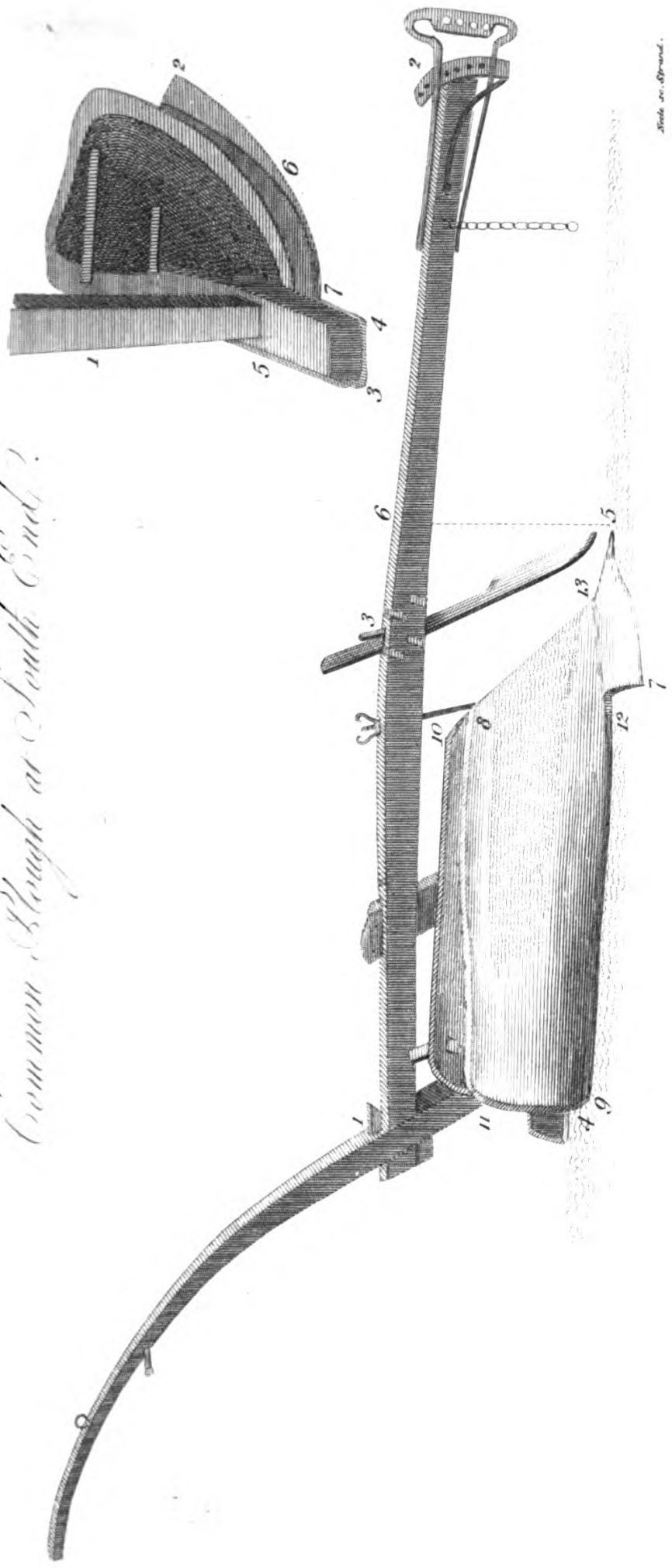
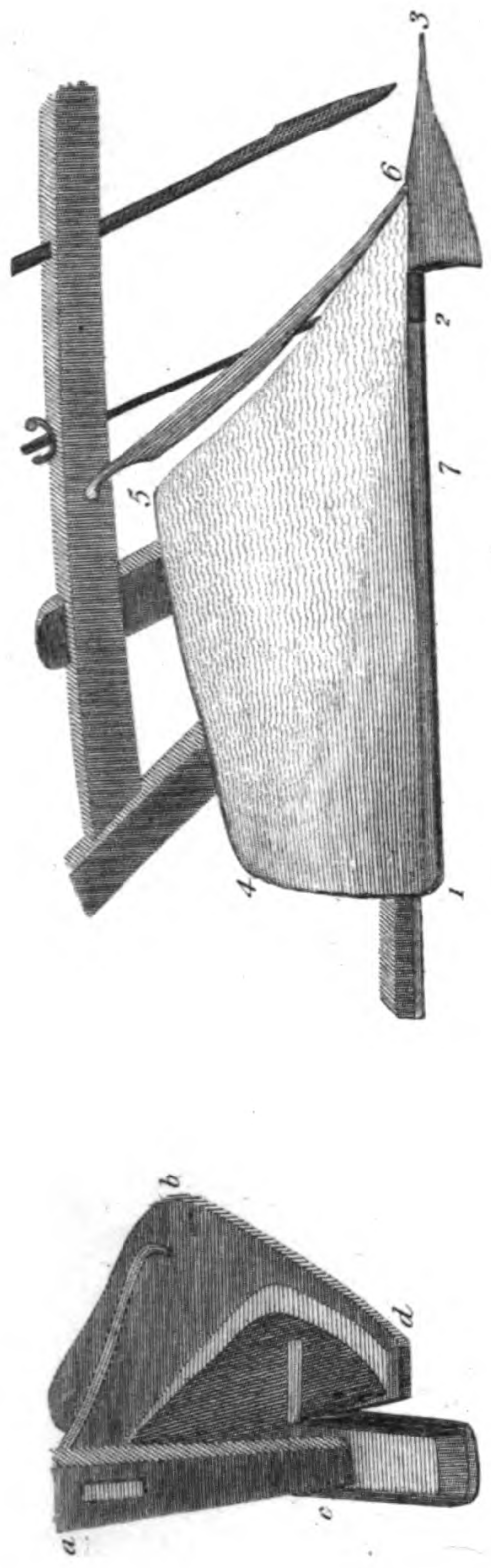


Plate no. 29.

Plate 43. P. 190.

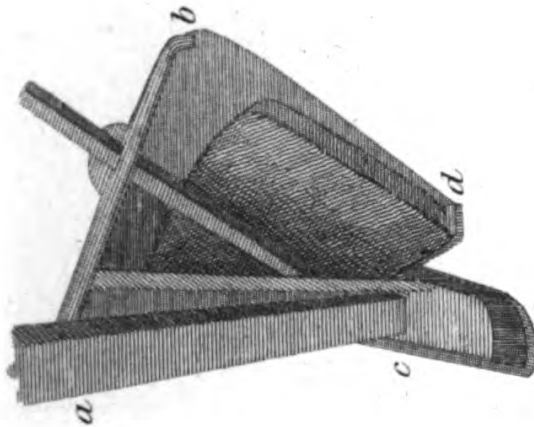
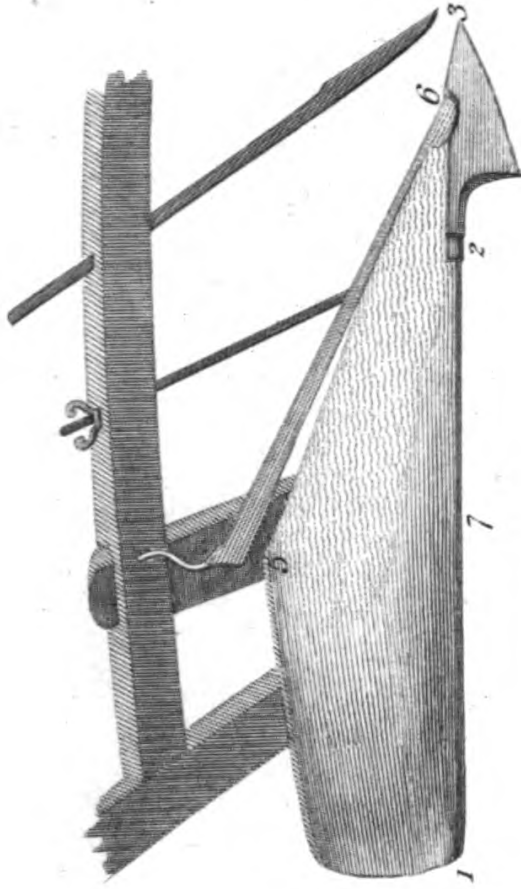
(Mr. Swindell's Breast.)



Made in Sweden.

(Mr. Hayward's Breast)

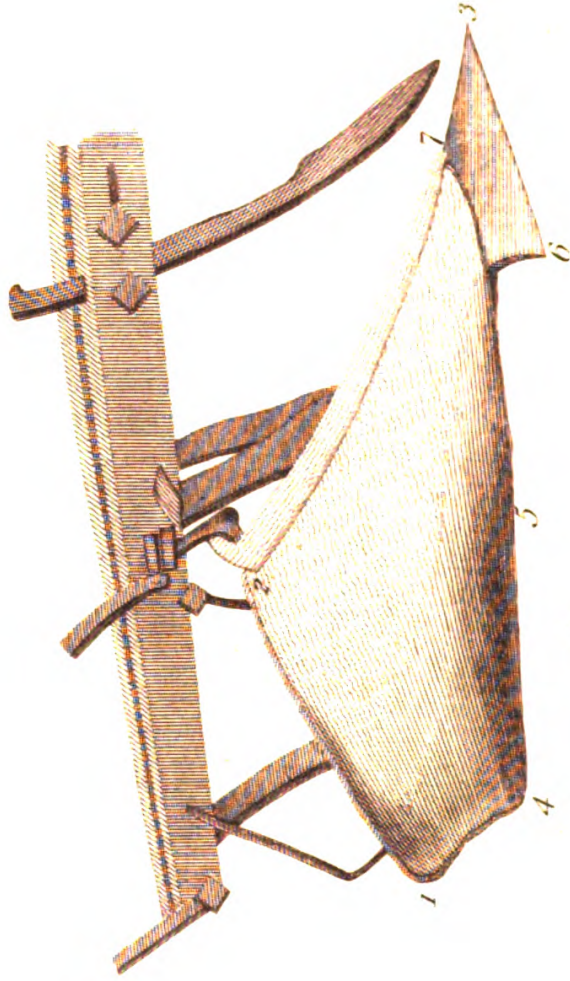
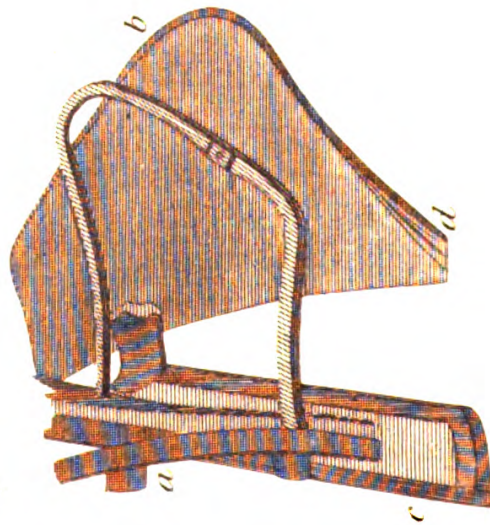
Plate 4. P. 130.



Made at Strand.

(*Hilfsbande - Buntst.*)

Plate 15. Part.



Archie v. Strain /

(*Diagram of a machine for the use of the ...*)

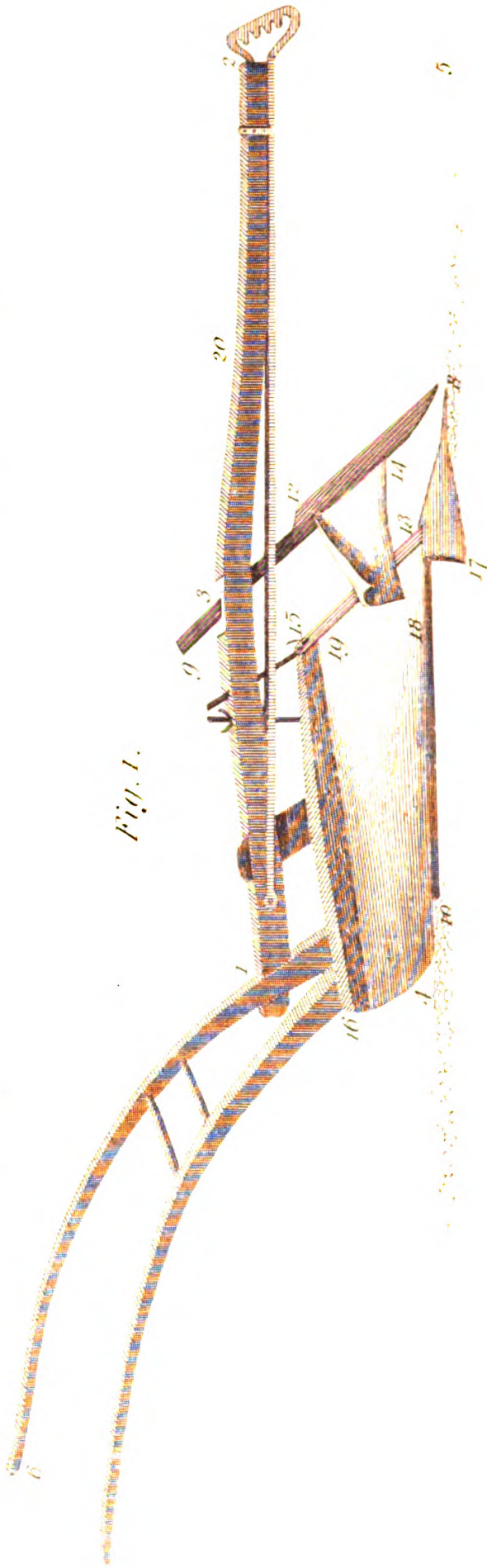
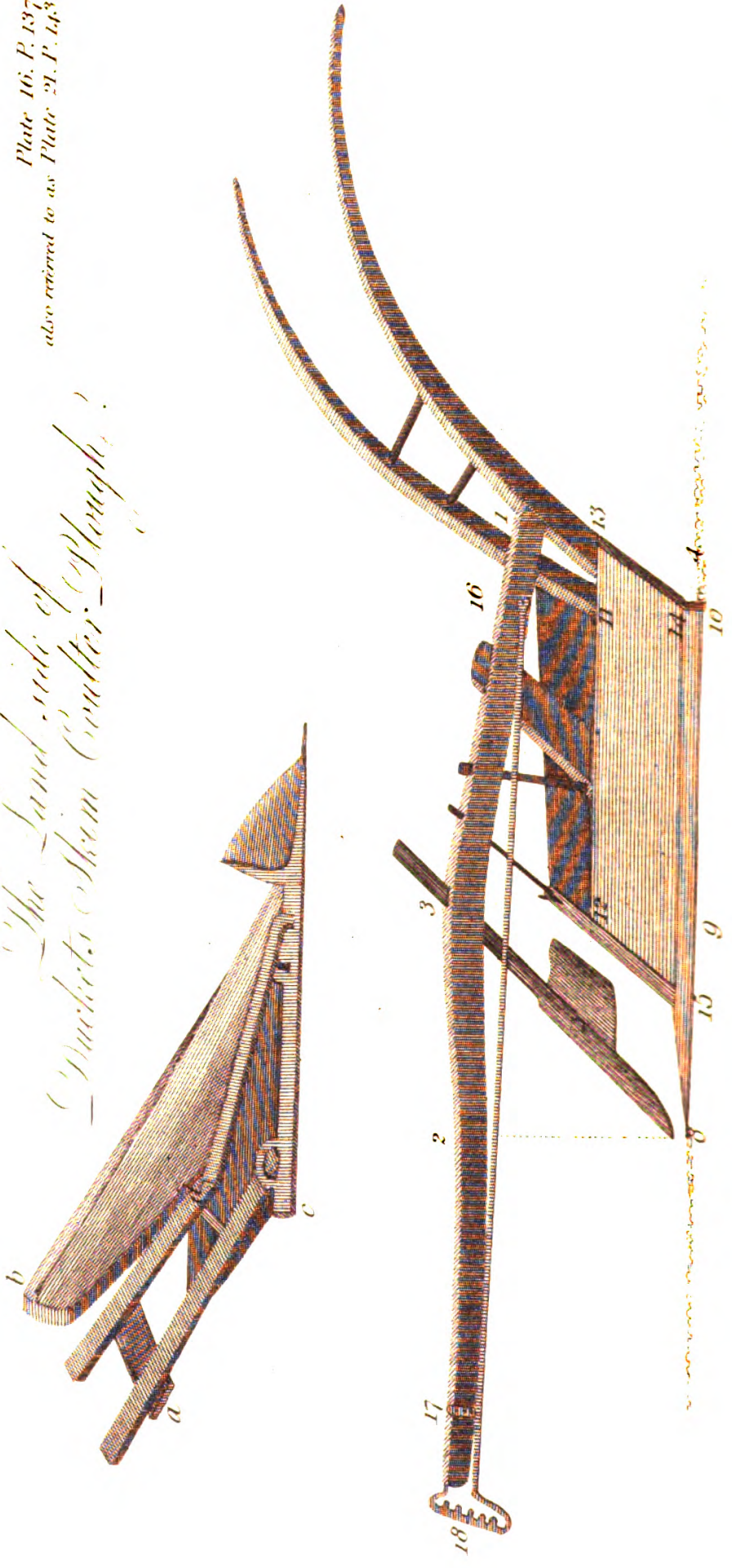


Fig. 1.



*The Land-side of
 Double-bottom Cattle-Plough.*

*Plate 16. P. 137.
 also referred to as Plate 21. P. 143.*



From the original

Board of Agriculture, and first tried by C. C. WESTERN, Esq. at Felix-hall, in Essex.

The first observation I have to make on this variety of breasts (all more or less distinct and different from each other), is, that they will all, on certain soils, and moments of tillage, make very good work; but it does not hence follow, that the form is a matter of indifference: that conclusion would be very erroneous. There is a considerable difference between a breast passing freely through the soil without loading, and driving earth before it, or pressing it after the furrow is turned, and another that has either of those faults, not visible perhaps in the work when finished, but to the great fatigue of the horses. In the construction of the plough there is not a point of more importance.

One of the most extraordinary circumstances in these breasts is, their all (except Mr. JEFFERSON'S), having more or less convexity, and in many to a very extraordinary degree, particularly in that of Plate X. Mr. JEFFERSON'S is formed on the idea, that as the bottom cut of the furrow is, or ought to be, perfectly *flat*, the breast, which comes in direct contact with it, should be flat also; so that there should be no disposition in the mould to sink into any depression or concavity of the breast; nor any projection from a right line in the breast to press or force into the furrow slice as it is turning. The idea is new and excellent: but what on such principles can be said to the convexity of Plate X. fig. 1, the shape of which breast must have a constant tendency to *groove* that furrow slice, from pressing in the centre. It should seem as if this must on every principle be erroneous. Mr. DUCKET was more apparently than really an exception, from the soil he had to work on; fig. 2, Plate XIV. was invented for a very loose sand only, and on such a soil the straight breast is much more

more admissible than on any other. I saw that plough work on his farm many years ago, and it made excellent work; the convex *addition* to the flat surface on the lower part, was probably added to divide the weight of the moving sand, and keep enough of it in a due degree of elevation.

The objection to so much concavity or flatness in the fore part of the breast, as appears in Mr. JEFFERSON'S, is the loose earth of the furrow *loading* there, which in such cases it is very apt to do.

When the ploughs in a single county can vary so much in the breast, or earth-board, and in a district too not at all remarkable for diversity of soil, which might call for considerable variations, it must be remarked as a proof how very undetermined is the true mechanism of this most necessary of all tools. And this ought to excite the endeavours of every scientific farmer to multiplied experiments, to reduce the construction to plain and fixed principles.

The height of the breast from the ground, is another point in which these ploughs seem to be deficient: they are too low behind. In Plates VII. VIII. and IX. we see very awkward attempts to remedy this evil. Mr. WESTERN, in Plate IX. has had an eye to it, and raised the breast. In turning over a furrow of loose moulds with rolling clods, the hind corner of the breast should be high enough to sweep them over, but without pressure.

Let us in the next place examine, what is called in the plates the plough heel, comprising the position of the breast behind, and forming, together with the end of the *rest*, that wedge which fills up the furrow. There are two principal questions in Essex in relation to the form of it—what ought to be the breadth at bottom? (properly speaking the heel); and what should be the breadth at top?

Mr.

Mr. SPURGEON, of Bradwell, thinks the heel should not be more than seven inches wide at bottom; which, he says, is the common width at that place. On examining Plate VI. it appears that the breast closes at heel gradually, being a termination of that convexity of breast, of which so many of the Essex farmers are fond. In Mr. WESTERN'S (Plate IX.), he has retained this narrowness at heel without the convexity *before*, and but slightly behind. The iron plough, Plate XV. is faulty at the top of the breast behind; it overhangs the furrow too much, and appears to the eye to be in a position to *press*: I remember its work, and often noted that effect.

The Pitch of the Plough.—"In the operation of working wheel-ploughs with improperly turned plates or mould-boards, it will frequently happen, from the resistance produced against the plough by stones, the tenacity or compression of the earth, that they are obliged to be let down below the corresponding line of level, so materially necessary to the equal bearing between the pitch of the plough, and to the inclination which is thus given to the point of the shear downwards, and which ought always to be, as nearly as possible, in a line drawn parallel to that of the draught, and with the breast work, which forms the fulcrum from the beam to rest upon. When a plough is so constructed, and set to work, that it bears unequally in these points, the end of the share will be rooting or dragging with its point downwards, kicking up, and sideways at the heel, and rendering it utterly impossible to plough the ground clean, or in any wise to lay the work uniform, or even in a tolerable manner; notwithstanding an excessive and unnecessary degree of labour is thereby produced to the ploughman and horses*."

* Vancouver.



Hand Reel (Cumber.)



Fig. 2.

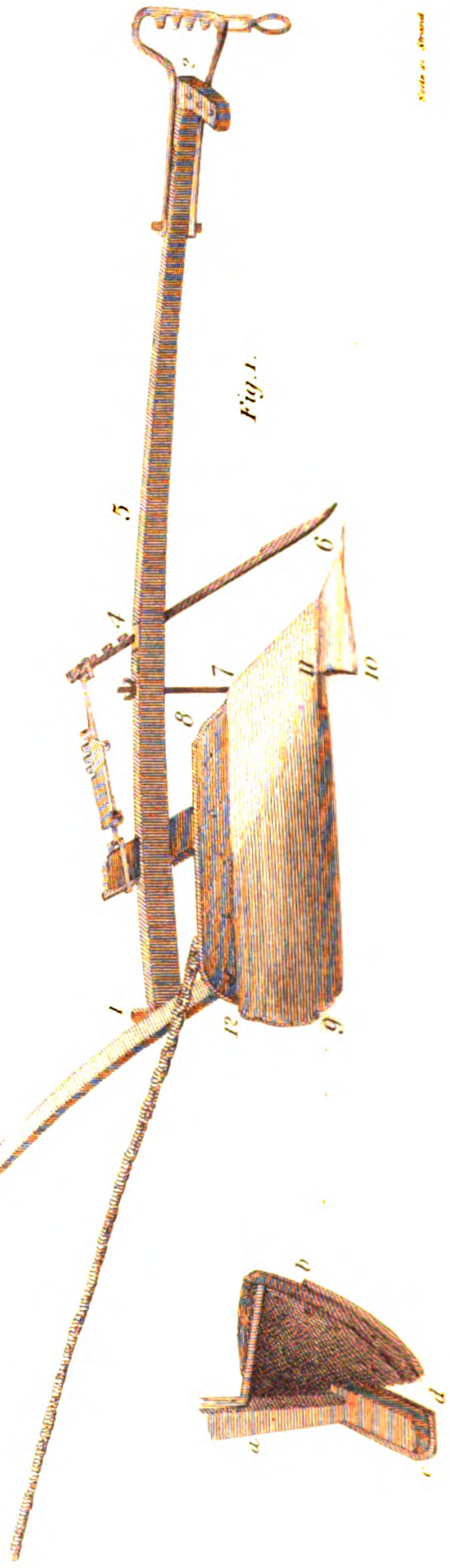


Fig. 1.

I do not clearly understand the author's meaning. But not going close at heel is a very common fault in wheel-ploughs, and often seen in Norfolk, in cases that have not the least reference to the breast. It is a just observation, that the horses suffer much by it. The draught chain, which in Plate V. draws by the hammer, between the coulter and the tuck, is not so parallel with the horizon as it would be, were it thrown more backward. Plate XVI. is in a much better position, and would appear so, were the chain in a state of extension.

The Coulter.—Plate XVIII. represents a very effective addition for the purpose of keeping the coulter steadily fixed. I found it on all the ploughs of Lord PÉTRÉ, and had not seen it before.

Fig. 1, from 1 to 2 6 feet 6 inches.

2 — 3 1 — 3

1 — 4 2 — 10

5 — 6 1 — 4

6 — 7 1 — 6

6 — 8 1 — 10

6 — 9 3 — 6

6 — 10 1 — 0

10 — 11 0 — 3

11 — 7 0 — 10

12 — 7 2 — 6

a — b 1 — 5

c — d 0 — 8

Fig. 2, from 1 to 2 0 feet 5 inches.

2 — 3 0 — 7

4 — 5 1 — 2

6 — 5 0 — 3

6 — 7 0 — 7

7 — 4 0 — 4

Plate

Plate XIX. shews a circular coulter used by Mr. GILBEE, of West Thurrock, with success, on marshy or light land.

From 1 to 2	7 feet 0 inches.
1 — 3	4 — 0
1 — 14	1 — 4
2 — 15	1 — 11
1 — 4	3 — 3
4 — 7	1 — 2
4 — 8	1 — 8
8 — 9	1 — 0
9 — 11	1 — 0
9 — 10	2 — 2
8 — 13	2 — 6
A	2 — 0 diameter.
B	1 — 5
C	1 — 1
d — d	1 — 7
e — e	0 — 9

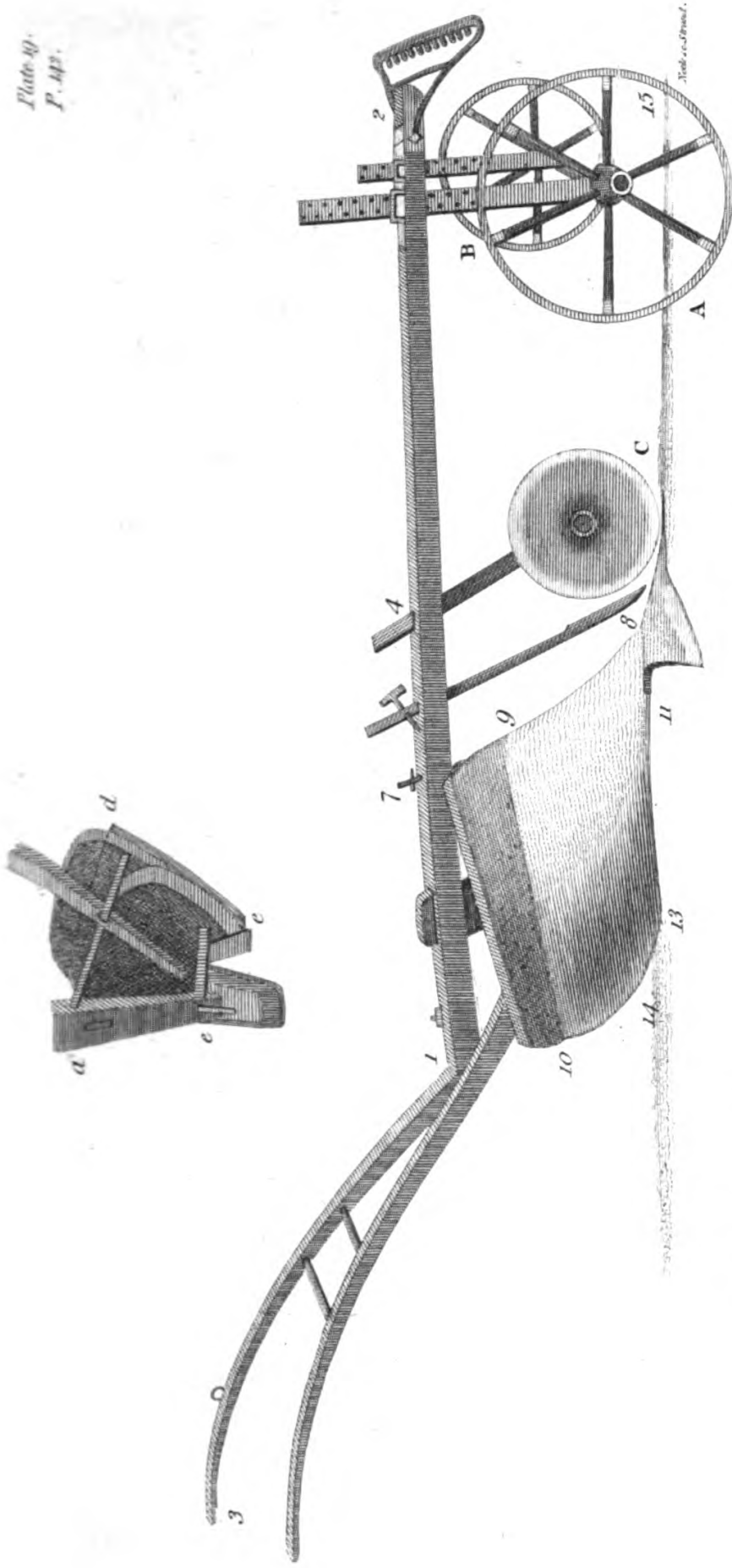
ONE-HORSE PLOUGH.

This tool is very common in Norfolk, but on a construction entirely different from Mr. WESTERN's, and in my opinion much inferior to it. Plate XX.

From 1 to 2	6 feet 2 inches.
1 — 3	2 — 6
5 — 4	3 — 2
2 — 6	1 — 1
3 — 13	0 — 6
13 — 4	1 — 4
8 — 9	1 — 10
8 — 14	1 — 2

From

Plate 49.
P. 43.



(Mr. Gilman's Plough at Gray's with wheel counter for Marsby land.)

11

11

11

11

11

11

11

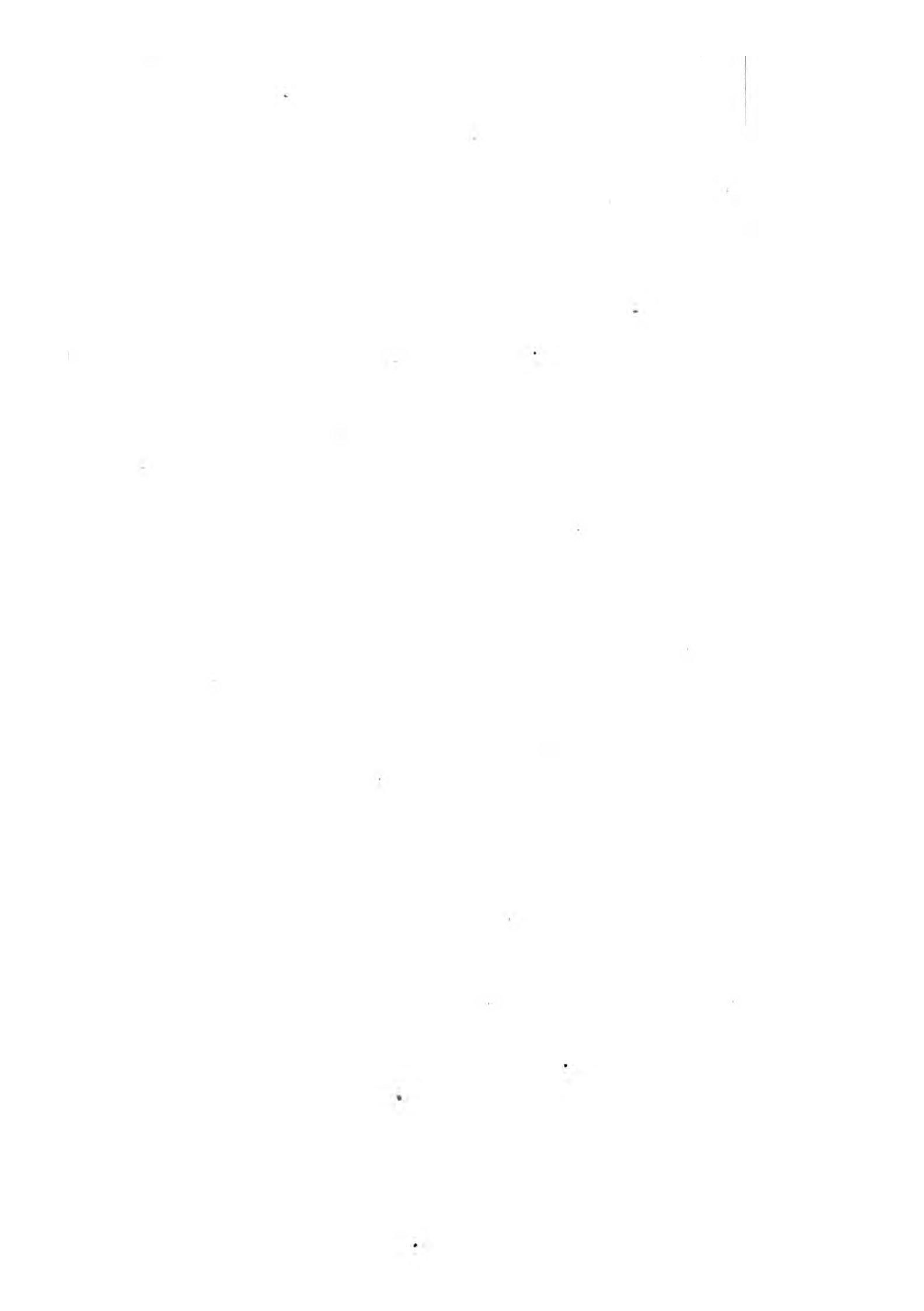


Plate 24
P. 145.

Mr. Lillman's improved Plough.

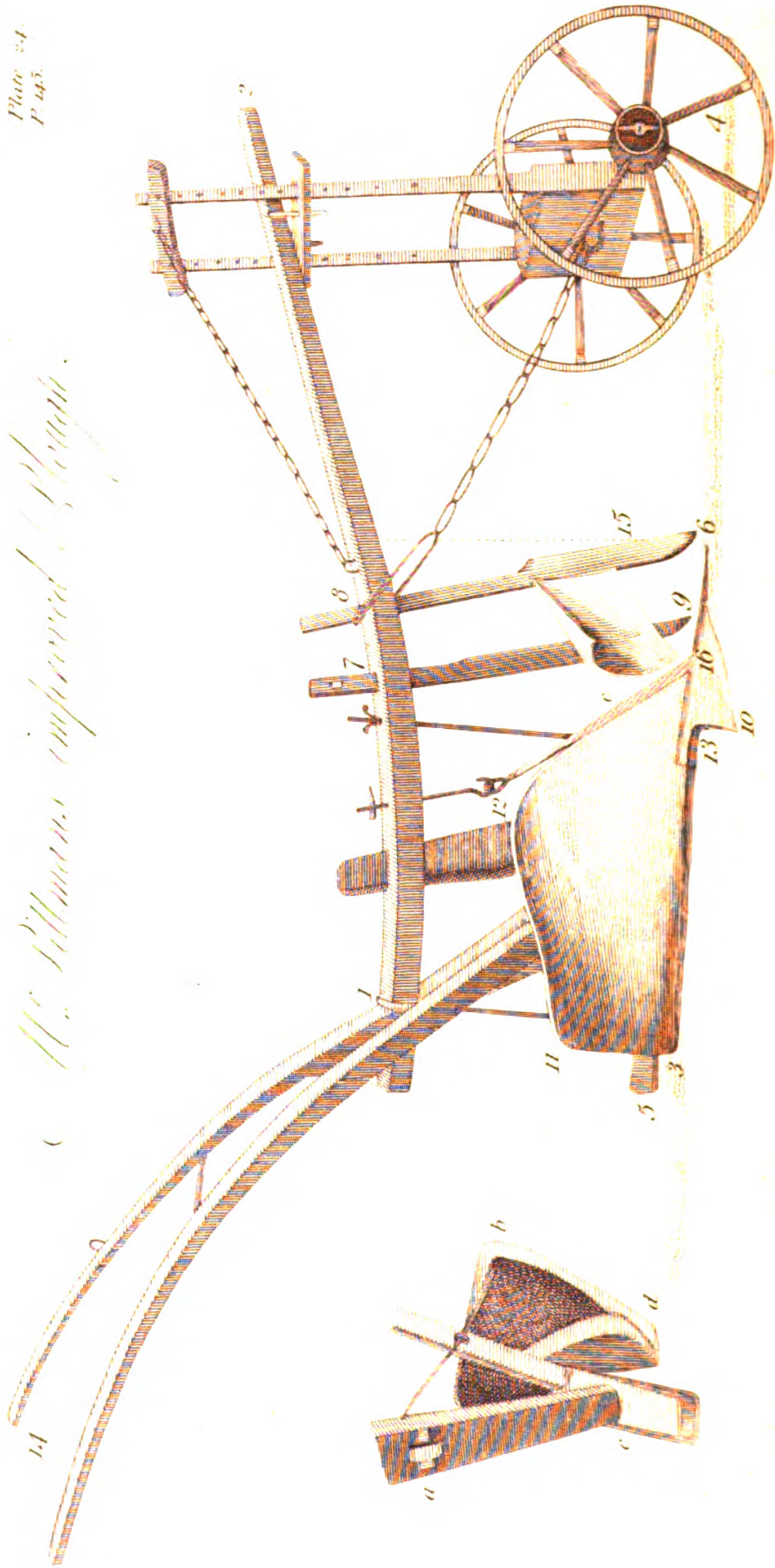


Plate 24. Lillman's

From 9 to 10	0 feet 9 inches.
9 — 6	0 — 11
11 — 6	0 — 11
11 — 9	0 — 8
6 — 12	1 — 3
12 — 17	1 — 7
12 — 13	1 — 0
13 — 14	2 — 0
14 — 15	1 — 2
1 — 16	3 — 9

Plate XXIV. a variation by Mr. PITTMAN.

Diam. wheels,	1 foot 8 inches.
From <i>a</i> to <i>b</i>	1 — 7
<i>c</i> — <i>d</i>	0 — 9
14 — 1	4 — 0
12 — 16	1 — 6
16 — 6	0 — 11
3 — 10	3 — 0
1 — 2	7 — 0
1 — 3	1 — 6
2 — 4	3 — 4
5 — 6	3 — 9
1 — 7	2 — 7
7 — 8	0 — 6
7 — 9	2 — 2
6 — 7	2 — 7
6 — 15	0 — 5
9 — 15	0 — 7
9 — 6	0 — 6
6 — 10	1 — 1
11 — 12	2 — 0
12 — 13	1 — 0
At <i>C</i>	0 — 1 concave.

ESSEX.]

L

These

These varieties to which the skim coulter is applied in Essex, are much to the credit of the farmers of that county; for the use of it is very great indeed.

IRON ROAD-PLOUGH.

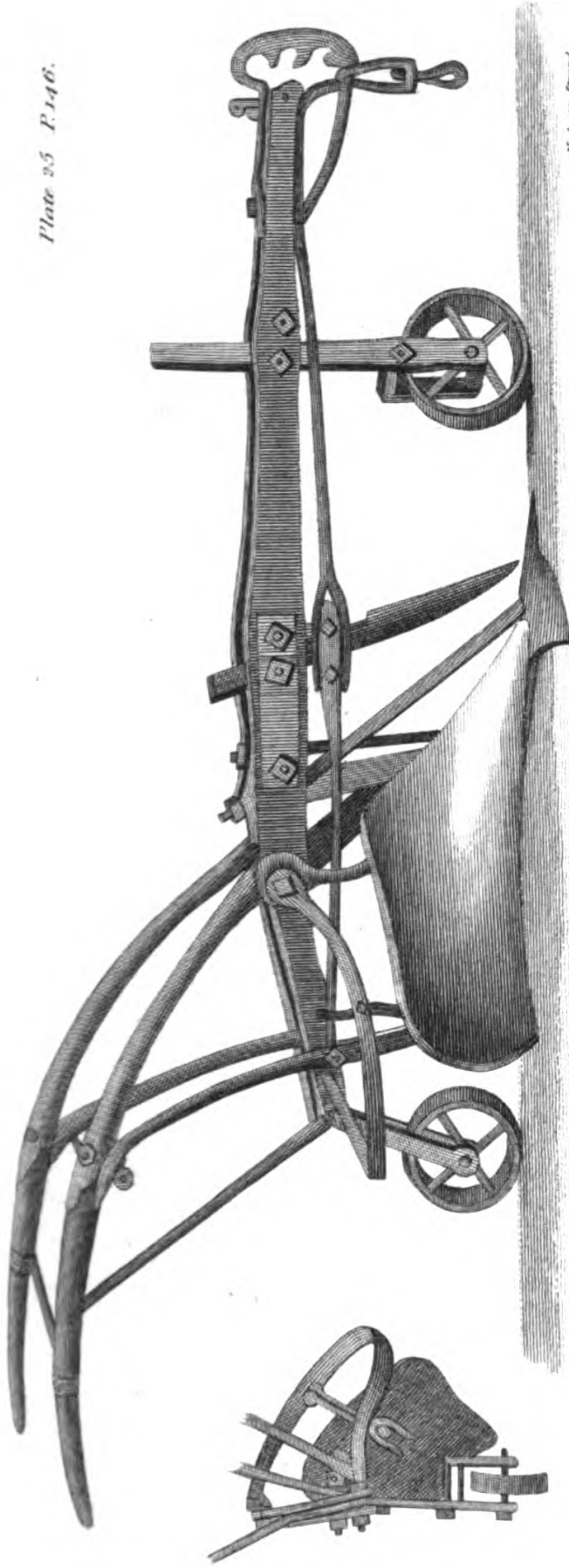
Plate XXV. represents a powerful road-plough, the work of that excellent blacksmith, the late Mr. BRAND, of Lawford, near Manningtree.

From 1 to 2	1 foot 9 inches.
2 — 3	2 — 5
3 — 4	1 — 6
6 — 4	2 — 0
6 — 1	7 — 8
1 — 8	1 — 11
6 — 7	1 — 6
4 — 13	3 — 0
13 — 14	2 — 0
15 — 16	1 — 2
16 — 17	0 — 10
17 — 18	1 — 11
18 — 19	2 — 0
18 — 21	1 — 3
20 — 17	3 — 0
a — b	1 — 8
c — d	0 — 7
Wheel diam.	0 — 9
a — c	1 — 6
a — e	1 — 4

LORD SOMERVILLE'S DOUBLE PLOUGHS.

Mr. TWEED, of Sandon, has a great opinion of these ploughs: he has two swing, and two wheeled; he finds them

Plate 35 P. 146.



Made in England.

Mr. Westons Road Plough?
all Iron.

them of great use in ploughing clover lays, as three good horses will do two acres a day, and execute the work extremely well. He uses them constantly; but much prefers the swing ones.

THE HARROW.

Around Billericay they have in use very large and powerful harrows for their strong land, which they call *ox* harrows, heavier and more effective in deep working than the common *crab* harrow of the county. The name, is a proof that oxen were the teams in use, but before the memory of man.

Lord PETRE has a harrow, which his Lordship has found useful; the teeth are bent so as to form various angles in every direction.

Mr. ROGERS, of Ardley, uses a gang of extremely light harrows, made on purpose for harrowing green wheat in the spring.

Fixed Harrow.—Mr. TWEED, of Sandon, thinks that Mr. COOKE's fixed harrow is a very useful tool for drilled crops; but he has made an improvement on it, by so varying the position of the teeth as to be free from damaging the rows, which he found it apt to do: he has made them rather incline to earth up, than to draw the mould from them. He has also made these harrows in a curve for the crowns of ridges.

THE ROLLER.

Stone Roller.—The wire worm has for many years been so pernicious in depredations among the corn crops in Dengey, but especially in Rochford hundred, that an extremely heavy stone roller is a common implement on

every farm there; they are six or seven feet long, and eighteen inches, and some more, in diameter; weigh from one and a half to two tons.

Concave Roller.—The bellying roller is an implement which has been common for many years in various parts of the kingdom; but till I arrived at Bradwell I never saw a concave one, smallest in the centre, and swelling to a larger circumference at each end. All the farmers I talked with much approved of this tool, and I was assured that the whole parish were nearly of the same opinion; it is of course made of the length that suits the stitch in use. A scraper is attached to it. See *Plate XXVI.*

From 1 to 2	4 feet 3 inches.
3 — 1	7 — 9 —
2 — 4	7 — 9 —
3 — 4	4 — 3 —
5 — 6	7 — 2 —
Diam. at 5 and 6	1 foot 10 inches.
Ditto at 7 the concave	1 — 4
Circumference at 7	4 — 0

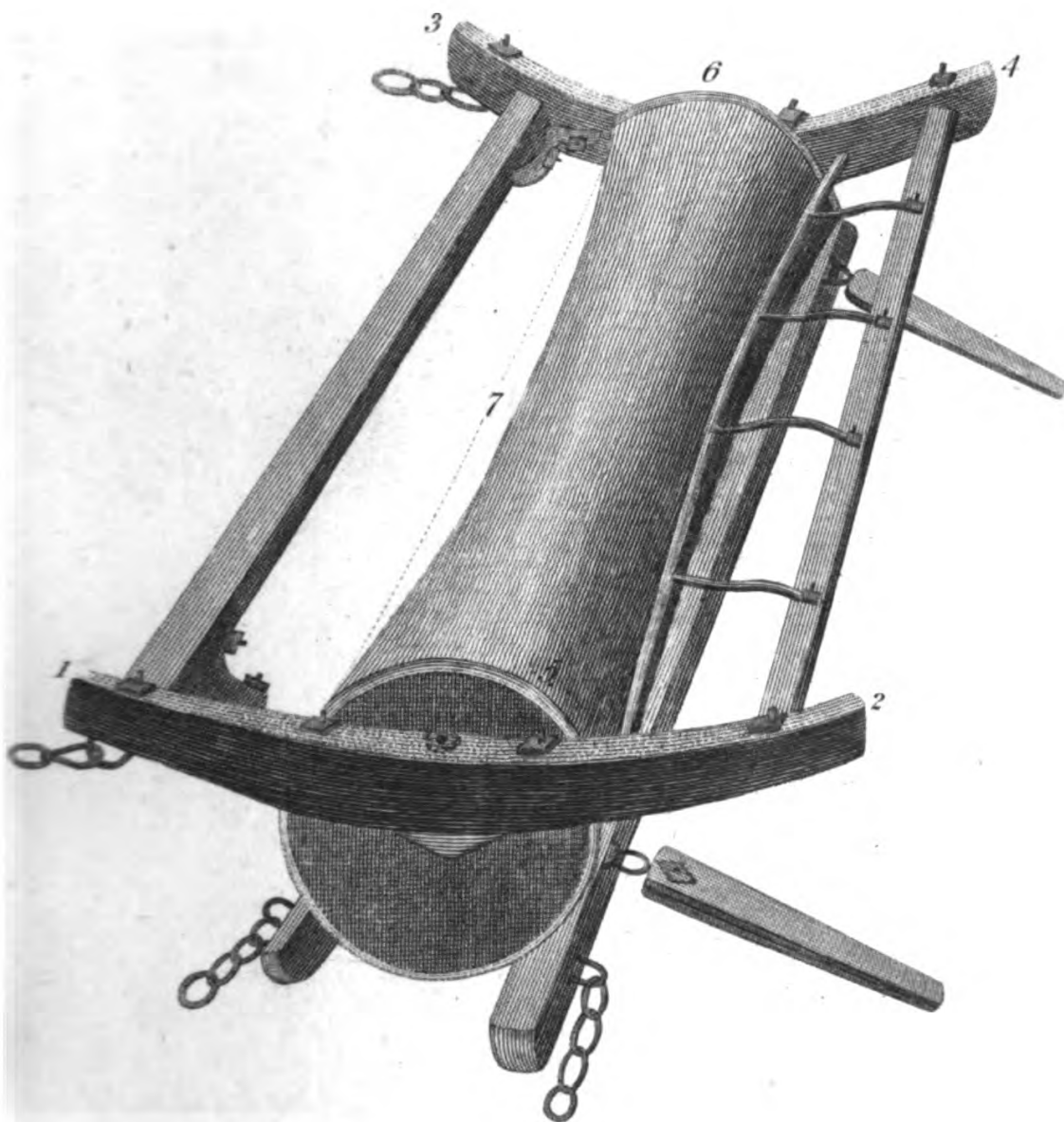
Jointed Roller.—Mr. TWEED has invented a roller, which he finds of very great use; he rolls all his clover land for drilling wheat with it, and whatever rolling he does, is with it. The grand object, to prevent the horses poaching, by going only in the furrow, two horses at length.

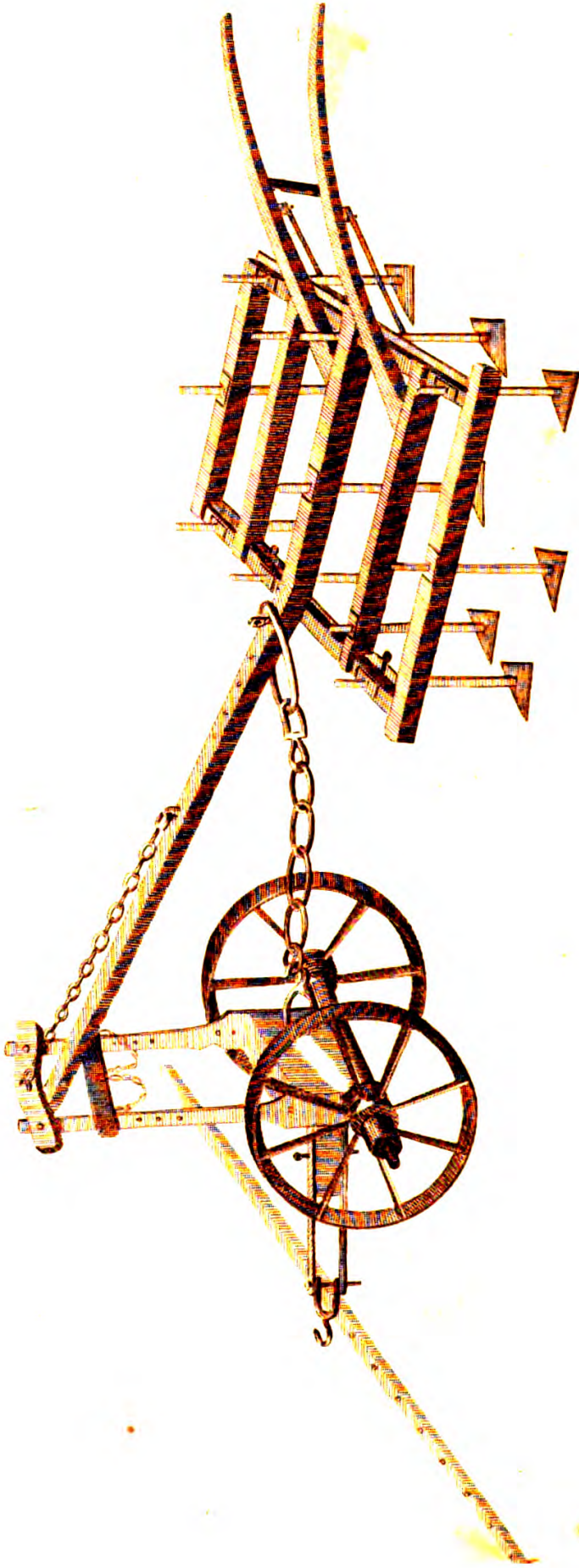
SCUFFLERS.

Eradicator.—Mr. PATTISON, of Maldon, four years ago made an implement which classes with the tools under consideration at present, and claims the invention of it.

Nothing

Concave Roll on its Sledge?





McCormick's (Patented) Steam Engine

Nothing can be more just than that every man should secure to himself the credit of every invention which is really his own; and tools answering the same end may be, and certainly have been, *invented* by more persons than one. The obvious utility of such an instrument as the Kentish nidget, of above a hundred years standing, could scarcely fail to produce in process of time many different tools for answering the same purpose; hence the many shims, scufflers, scarifiers, extirpators, and now an eradicator. Their use is very great, and there are few variations which do not merit noting, as they tend to a perfection which the tool has not attained yet. His centre wheel rises or sinks for moving to and from the field.

Extirpator.—Mr. TWEED had an extirpator constructed from the plate of the Suffolk one, inserted in the Report of that County, but made much stronger for his strong and harsh soil. He has two of them, and made a third for Mr. WRIGHT of Hatfield. He thinks it of incomparable use, and essential to the drill culture. His own expression was, “If any man would give me 200*l.* a year to exclude from me the use of those two extirpators, I would not accept it. No farmer should be without it.”

Plate XXVII. represents it.

Diam. wheels,	2 feet	2 inches.
From 1 to 2	5 —	0 —
3 — 4	3 —	6 —
4 — 5	6 —	0 —
3 — 6	5 —	3 —
7 — 8	2 —	6 —
9 — 10	0 —	9 —
9 — 11	0 —	11 —
13 — 14	7 —	0 —

Mr. HALE, at Bulmer, uses a ridge shim, which I saw at work, and it performed perfectly well. He had a summer-fallow ploughed on two-bout ridges, on which thistles and other weeds had got up: the cutting blade of the shim carried a ridge at a time, and cut to its base, leaving all weeds to die, and the ridge only a little flattened; a stout lad and a pair of horses worked it. The beam close to the block is occasionally loaded by twisting a heavy timber chain around it.

But Mr. RUGGLES, of Spaines-hall, has one on which the boy rides, if necessary. *Plate XXVIII.*

From 1 to 2	6 feet 0 inches.
1 — 3	3 — 3
3 — 4	1 — 3
4 — 5	3 — 0
Diameter of wheels,	3 — 0

Plate XXIX. represents the double cultivator, or scuffler, used on the farm of C. C. WESTERN, Esq.

From 1 to 2	6 feet 0 inches.
3 — 5	1 — 10
2 — 9	1 — 9
7 — 9	1 — 2
7 — 8	0 — 11
Diameter of wheels	2 — 1
9 — 6	6 — 0

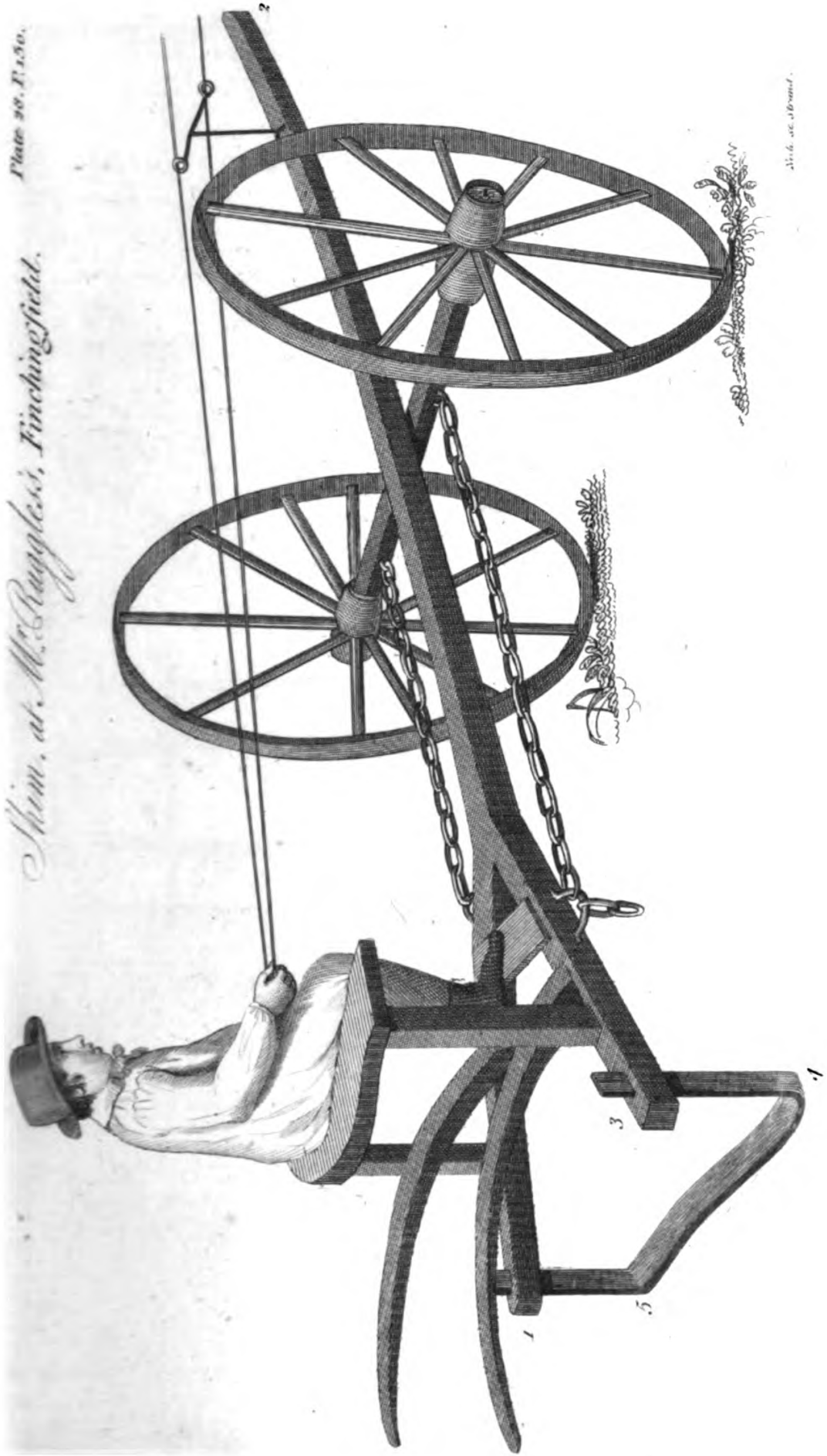
HORSE-HOES.

The number of these found in Essex is pretty considerable, and some have merit enough to demand plates. *Plate XXX.* represents the bean cultivator of Mr. ROGERS, at Ardleigh.

From

Shim, at Mr. Ruggles's, Finchingfield.

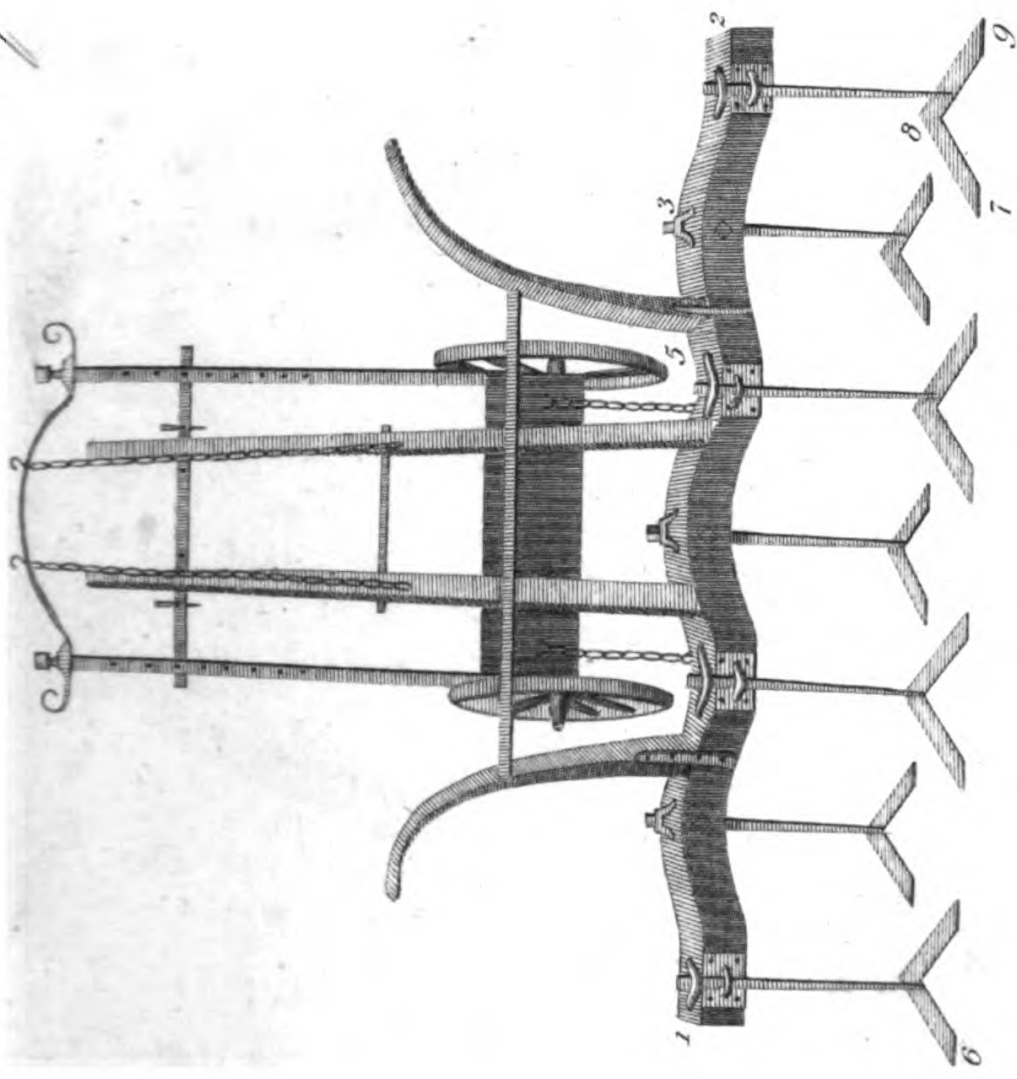
Plate 20. P. 150.



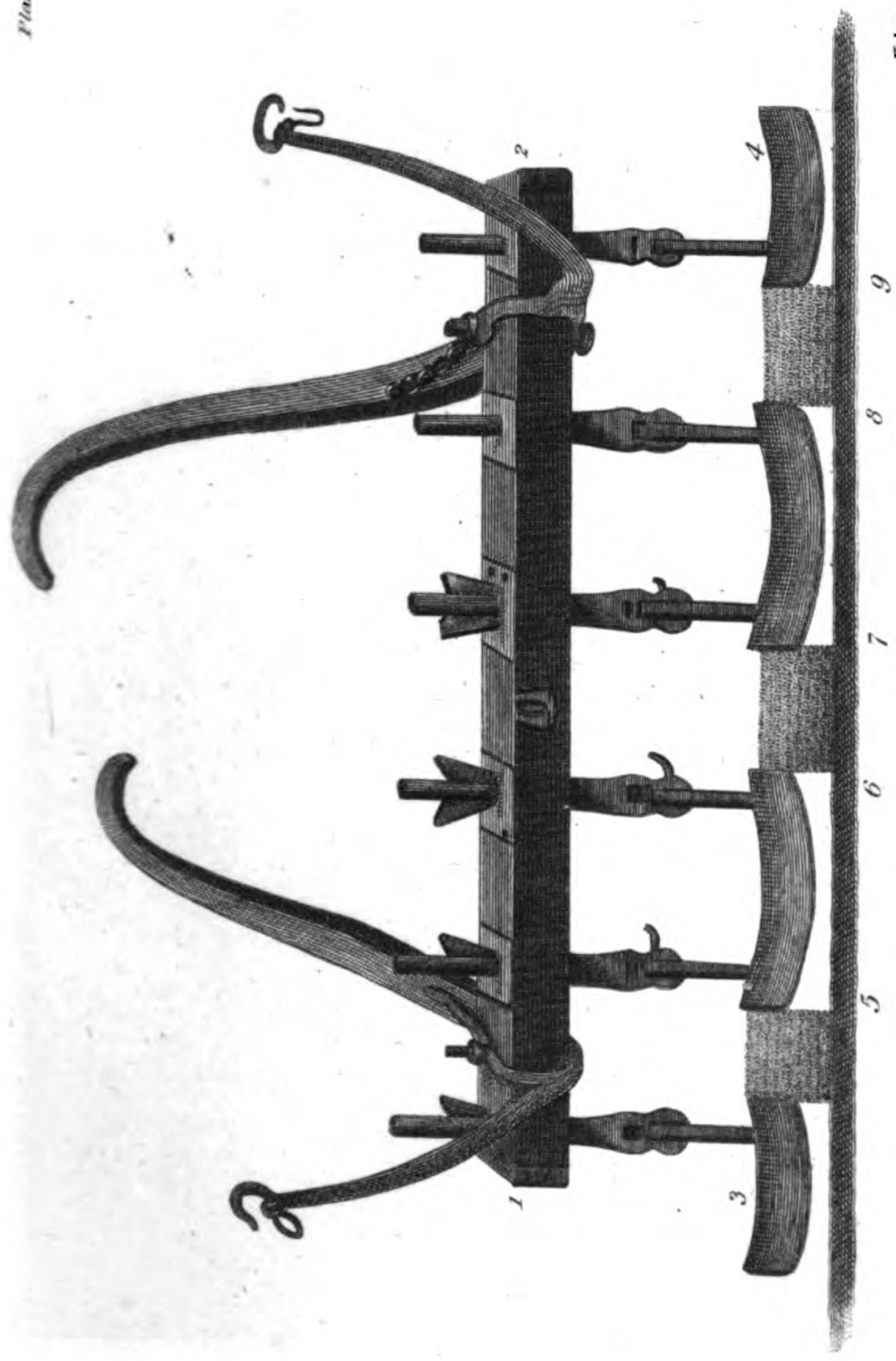
W. G. & J. B. 1840.

Machine à vapeur à double cylindres de C. C. Meubert & Co.

*Pl. 29.
P. 1. 18.*



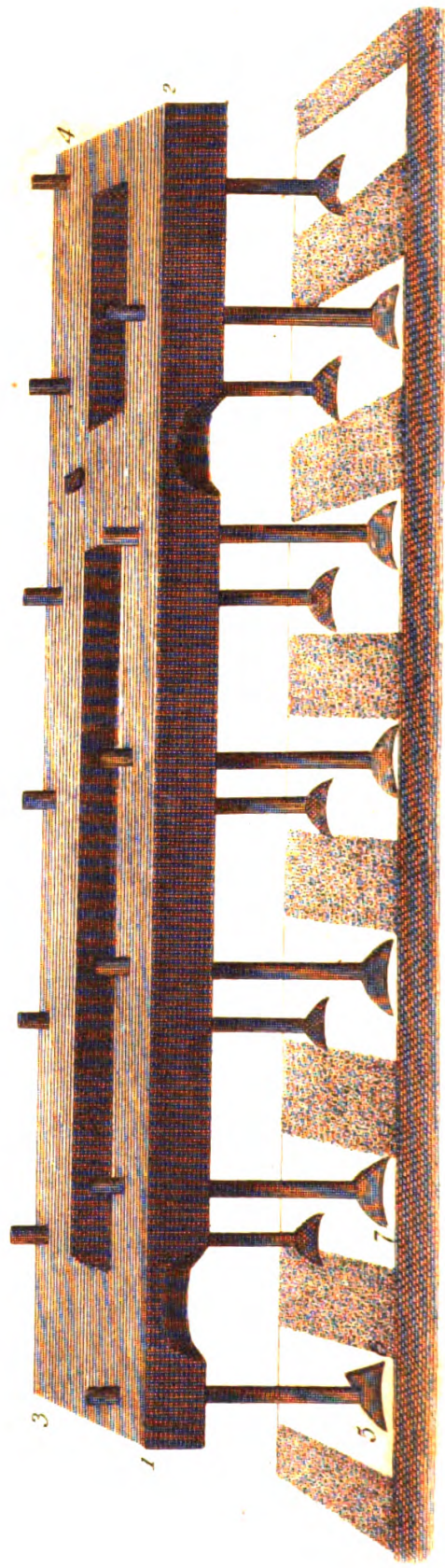
Travail de Meubert.



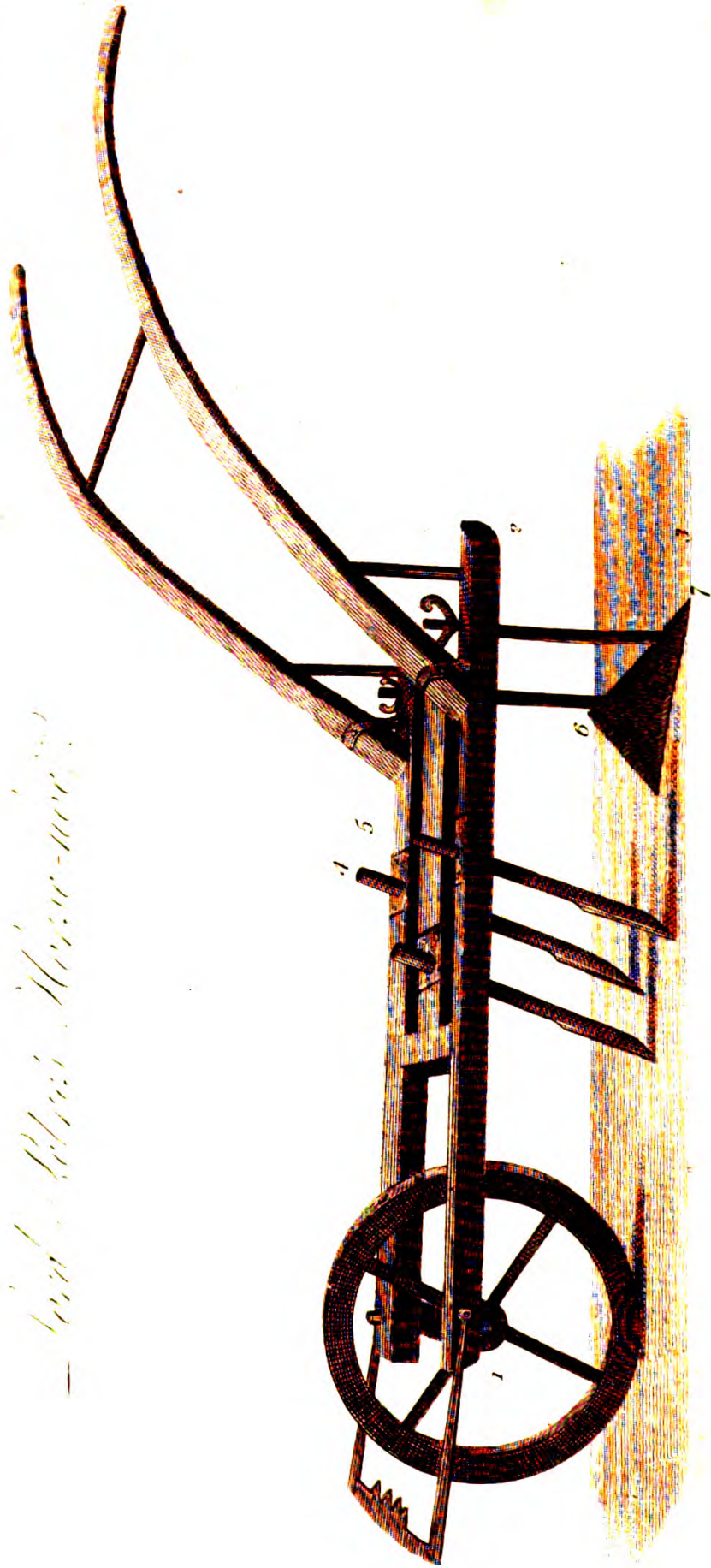
W. & A. B. Brand.

(Messrs. Hoyer & Bean Cultivator.)

(New England Corn Cultivator)



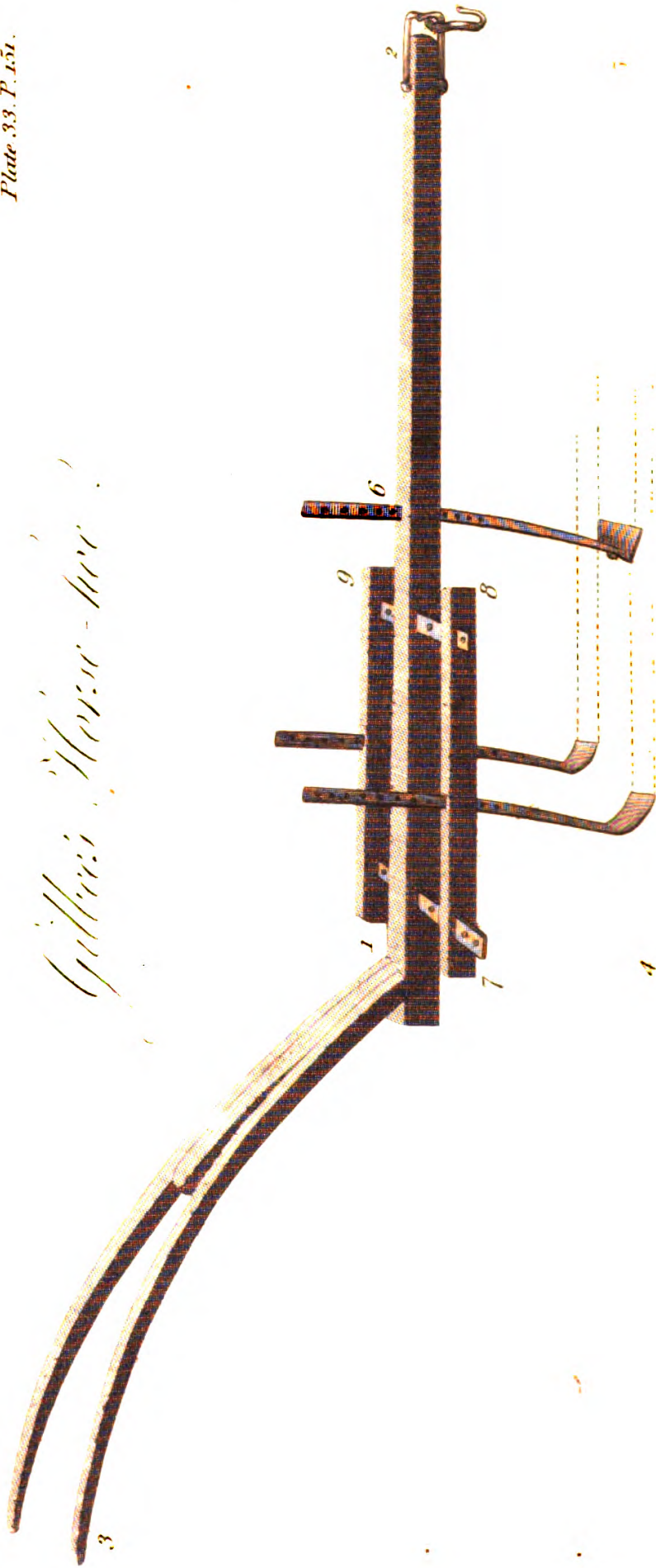
Sticks of wood



Handwritten text, possibly a title or description, written vertically in cursive script.



Gilbert's Horse-see?



From 1 to 2	4 feet 0 inches.
1 — 3	1 — 3
2 — 4	1 — 3
5 — 6	1 — 0
6 — 7	0 — 5
7 — 8	1 — 0
8 — 9	0 — 5

Plate XXXI. Mr. ROGERS, for white corn at narrow intervals. COOKE's handles attach to it.

From 1 to 2	4 feet 7 inches.
3 — 4	4 — 7
3 — 1	0 — 9
4 — 2	0 — 9
1 — 5	0 — 10
5 — 6	0 — 5
6 — 7	0 — 4

Plate XXXII. is a horse-hoe of Lord PETRE's.

From 1 to 2	4 feet 0 inches.
2 — 3	1 — 0
4 — 5	1 — 0
6 — 7	1 — 1
Diam. wheels,	1 — 8

Plate XXXIII. is one used by Mr. GILBEE, of West Thurrock.

From 1 to 2	4 feet 6 inches.
1 — 3	3 — 3
1 — 4	1 — 4
2 — 5	1 — 4

From 1 — 6	2 — 4 inches.
7 — 8	1 — 10
8 — 9	1 — 4

Mr. COKER, at Borely, hoes his drilled wheat, pease, and beans, with a small but effective shim, drawn by an ass, with a boy to lead, and a lad to hold; it does two acres a day, at nine inches; and the ass works twelve hours a day without fatigue. *Plate XXXIV.*

BEAN-STUBBLE RAKE.

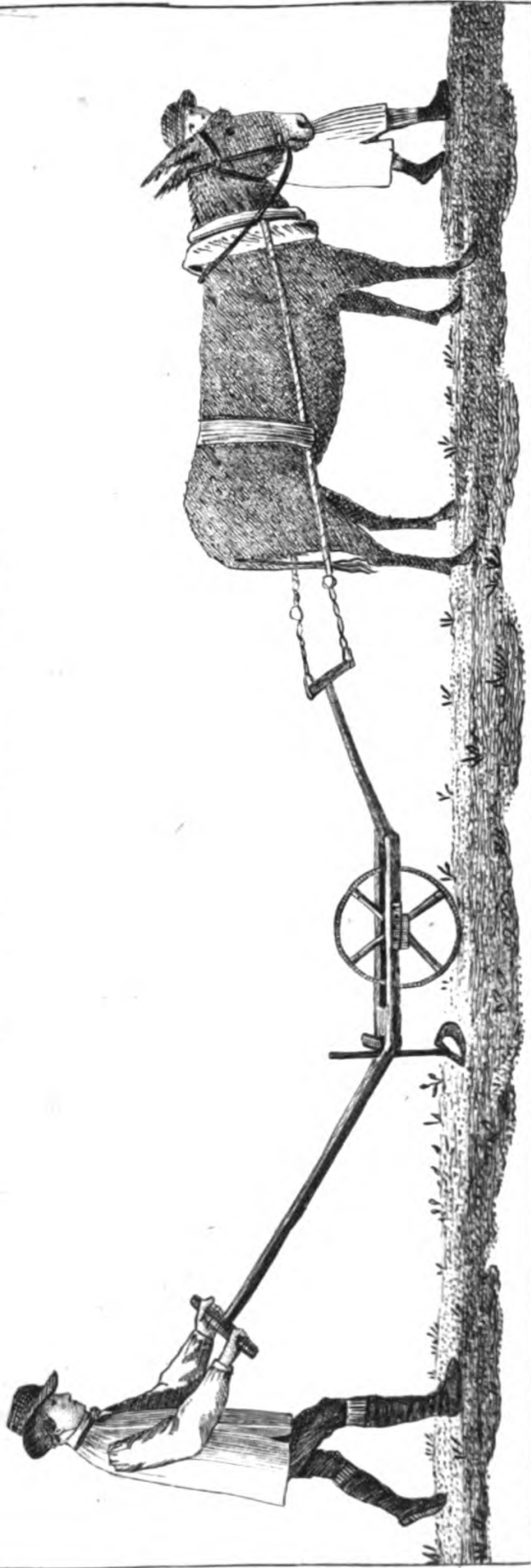
This tool I first saw on the farm of Mr. KETCHER, of Burnham; and as it is apparently well adapted to its use, and, he assured me, answered perfectly, *Plate XXXV.* is given of it.

From 1 to 2	7 feet 8 inches.
1 — 3	1 — 6
4 — 5	3 — 2
Diam. wheels,	2 — 6
5 — 6	4 — 0
Hooks for horse.	

BEAN-DRILL.

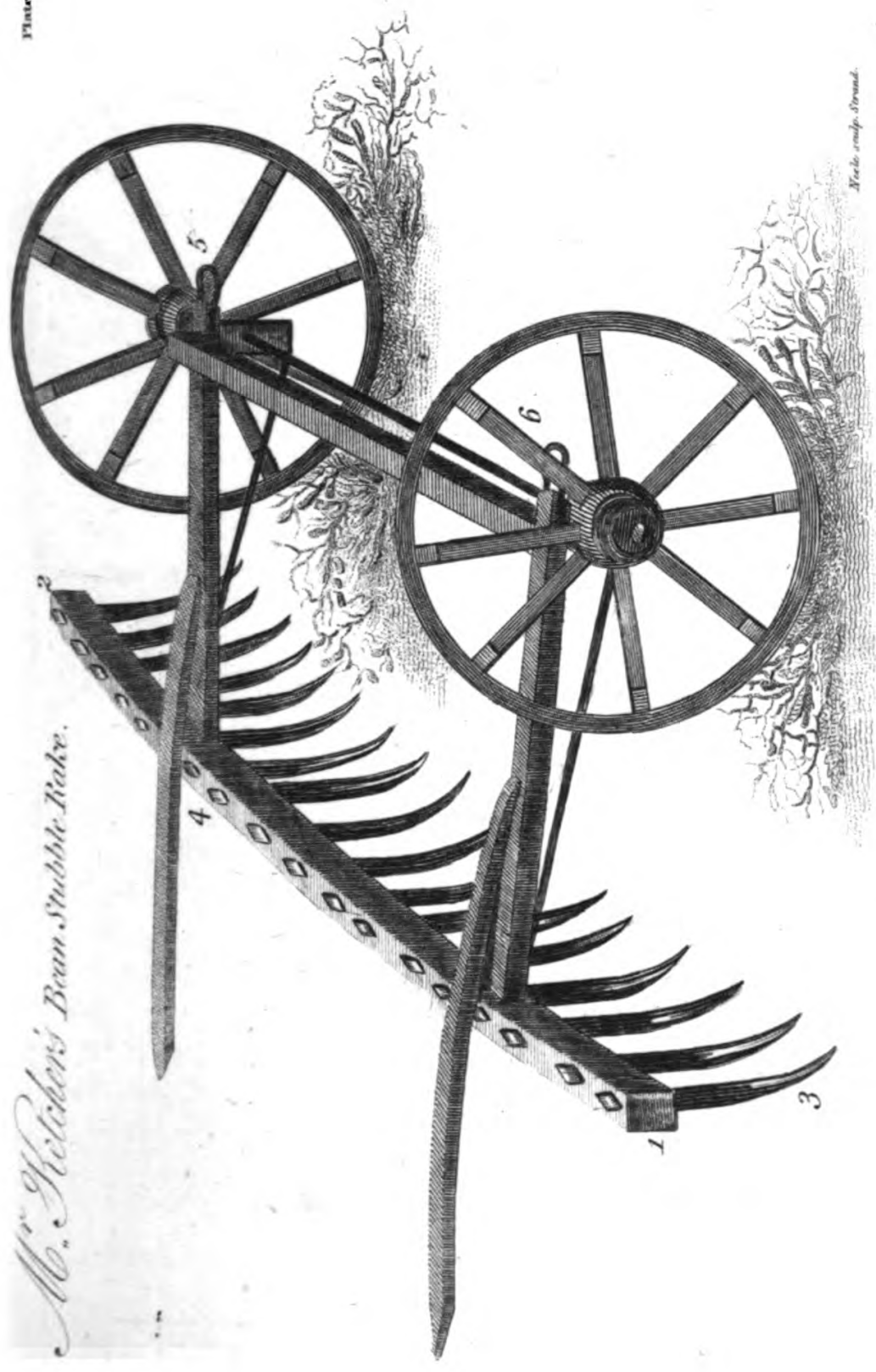
“ An ingenious farmer in Wimbish has constructed and fixed to the tail of his plough, a drilling-box, which moves in a direct line after the plough, and is acted upon by the wheel, which supports it to discharge the seed, and this is done, with great regularity, into the last made furrow; not in a close narrow row (which, by-the-by, is a very material defect in most drill-machines), but scattered evenly in the bottom of the furrow, and with as much

Mr. Coker's Hoe.



Drawn & Engraved by Quinton.





Mr. Helcher's Bean Snubble Rake.

No. 1 snubble rake.

much safety as it is possible or necessary. This box, by a kick of the foot, which stops the discharge of the seed, may be applied to close or alternate drilling, or to any width of interval whatever. The whole contrivance is particularly light and simple, not easily to be put out of trim, and does much credit to the ingenuity of the inventor*.”

I cannot agree with my ingenious predecessor here; and I think a drill which scatters the seed over a space nine inches wide, absolutely good for nothing. In the first place, we have experiments, as well as the practice of dibbling wheat, to prove, that seed being crowded together in a small space, grows the better for that circumstance: De Chateauvreu's trial is decisive; and the common bean husbandry of Berkshire, where the holes are made nine inches apart, and four or five beans put in each, bears directly on the point, and the hoeing is incomparably better performed; but how are we to hoe a space of nine inches scattered with plants? It would become a refuge for weeds, safe from all attack. I have seen the husbandry, and seen it foul from this only cause.

“ Mr. THOMAS KNIGHT, an ingenious watch-maker of Thaxtead, has invented or made improvement in some of our husbandry implements. He has facilitated the conveyance of dung on to our lands in the common tumbrel, or dung-cart, by making the discharge more easy and convenient, and for securing it when up. I cannot at present describe it with sufficient accuracy, to render it perfectly intelligible. A model of it is to be found in the repository of the Society for Encouraging Agriculture, Manufactures, and Commerce. He has also a contrivance to facilitate the passage of the largest harrows

* Vancouver.

through gateways; and has invented a drill machine, which answers its purpose exceedingly, but the soil here is not suited to drilling *.”

THRASHING-MILLS.

Mr. KEMP, of Hedingham, has built two of BURREL'S thrashing-mills; the first a two-horse power, the second admits the use of three or four horses. The price of the first was 70*l.* of the second 50*l.* Neither of them dress, but the winnowing machine easily attached. Two horses, a man, and three boys will, in eight hours, thrash from eight to ten quarters of wheat.

Many at present made by BALLS, of Norfolk; the price, 50 guineas, and do their work very clean and well for all sorts of corn: do not dress. They have been applied for white clover, and done it to the satisfaction of the growers, by passing through twice or thrice.

Mr. WAKEFIELD, of Burnham, has been peculiarly unfortunate in his endeavours to procure a good thrashing-mill. Five years ago, PARSMORE, of Doncaster, erected one for him, which was to have cost 45*l.*; it worked only two days before it fell in pieces, and cost 200*l.* A Mr. MUIR, from Scotland, undertook to repair it; but before he had advanced far in the work, caught an ague, and ran away. Next it was in the hands of a Mr. CLUB; after that, in those of Mr. HALLIDAY, a considerable mill-wright, and after an enormous expense on the whole, never answered the purpose. Mr. WAKEFIELD had planned his building, and executed it for rendering the operation as complete as possible. The machine was placed high enough for a double winnowing-machine, to receive the corn as thrashed from the beaters,

* Howlett.

and to fall from this into the granary, at the same time that the circular rake threw the straw at once down into a division of the farm-yard. Mr. WAKEFIELD has seen a great number of these machines, but never one so good as to do away his objections to a farther experiment. He thinks, that if the dressing-machine does not work at the same time, the expense of dressing after the thrashing-mill is too great; and relative to the straw, he has an objection to the principle of the whole business: the delivery of so much straw at once, to be trampled by cattle instead of being eaten, he conceives to be a losing system; and the having no country workmen that can repair the machine when worn, or out of order, but, on the contrary, to incur the expense of sending many miles for workmen, for every trifling accident that happens, he thinks is a very great objection.

Relative to straw, I could not but urge the practice of the best farmers in Norfolk, who do not wish to have a mouthful of their straw eaten, but all trodden into manure, which I conceive to be an answer to that objection. The others are of a different complexion, and depend on circumstances, upon which various minutes in this journal may be found to bear.

Mr. VAIZEY, of Halstead, has erected one of Mr. BALL's thrashing-mills, which is worked by four horses; one man feeds, two supply, a boy drives, and two men clear away the straw. He has thrashed 60 quarters of oats with it in 18 hours. It cost 52*l.* 10*s.* and 10*l.* putting up; the shed added, about 20*l.*; two winnowing-machines, 15*l.* 15*s.*; in all, complete, about 100*l.* He has no fault to find with its performance, but is very well satisfied. He has applied it to cobbing white clover with great success; by passing it thrice through the mill, he

got

got from three jags, seven bushels of clean seed in four hours.

Lord PETRE, at Thorndon, has one of BALL's machines, which works with four horses, and requires eight hands to attend it; cost 75*l.* and 10*l.* more in small sundries, exclusive of the shed for covering the horse-wheel. His Lordship attended an experiment with it of thrashing 100 sheaves of wheat in fifteen minutes, which produced six bushels and an half; and another, in which ten quarters of wheat were thrashed in eight hours, the work being done in four; but it was necessary to give the horses as much time in rest as in work.

Mr. SANXTER, at Bradwell, has one built by DICKSON at Ipswich, with which he is well satisfied; goes with two or four horses, and cost 50 guineas. He thinks it will thrash 20 quarters of wheat per diem. Mr. SPURGEON, of the same place, has ordered another. It is now 55 guineas, put up and ready to work. Two horses work it, and not hard labour. Last year's wheat, which was very badly thrashed at 7*s.* a quarter, was done by the machine perfectly well.

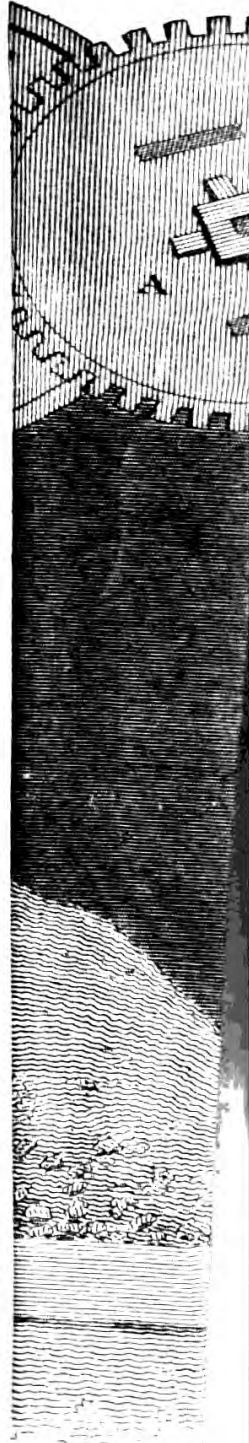
Dr. ASPLIN, at Little Wakering, has a machine which I saw working with one horse, which moved with great ease, driven by a little girl, and did not sweat a hair; one man and two boys work it, and it does 3 quarters of wheat in a day. I examined the straw for about a quarter of an hour, and did not find a single kernel in it. The price, 60 guineas. The construction varies from the others I have seen in the wheels, which communicate the motion. The Doctor thrashes only wheat with it, though it will do for all grain. He thinks it answers greatly, and is perfectly satisfied with it. This machine was made by TURBOT, Bankside, Westminster, but they are now made

2
1
1
1
1
1
1



1811

1811



made by JONES, Clement's-lane, Clare-market. The Doctor has had it five years, and it has thrashed all his wheat.

Mr. NEWMAN, of Hornchurch, was just finishing a thrashing-mill when I had the pleasure of being with him. It is built by two young mill-wrights from Somersetshire, who are paid 50 guineas for work and iron; Mr. NEWMAN finding timber. There are two new circumstances in this machine: there is a movement prepared, by which the person who feeds the mill, by putting his foot on a pedal, lifts one of the fluted cylinders out of its work, so that wheat-ears having been advanced far enough to be thrashed, the straw may be drawn back again, and preserved from breaking. The other is a check, or iron, which admits the horses to be stopped suddenly without stopping the beaters: the connexion is removed for a moment, so that one operates without the other: this is of capital importance.

Plate XXXVI. shews the movement by which breaking the straw is avoided.

From 1 to 2	9 feet 0 inches.
1 — 3	16 — 0
1 — 7	5 — 6
7 — 4	8 — 0
5 — 6	5 — 0
10 — 11	1 — 6
11 — 12	3 — 6

Step for the foot to bear on, which divides the iron-rollers, and enables the workman to draw back the straw.

A 2 feet 9 inches. diam. 45 teeth.

B 0 — 8 — diam. 11 teeth.

Drum

Drum 3 — 6 — long.
 2 — 6 — diam.

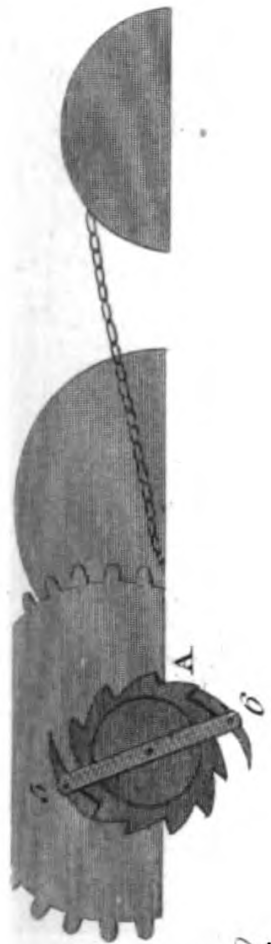
Plate XXXVII. shews the catch or click, by means of which the horses may be suddenly stopped without danger.

From 1 to 2	5 feet 0 inches.
3 — 4	24 — 0
5 — 6	1 — 1
7 — 8	18 — 0
9 — 10	10 — 0 diameter.
13 — 14	7 — 0
Diameter 11 — 12	0 — 10

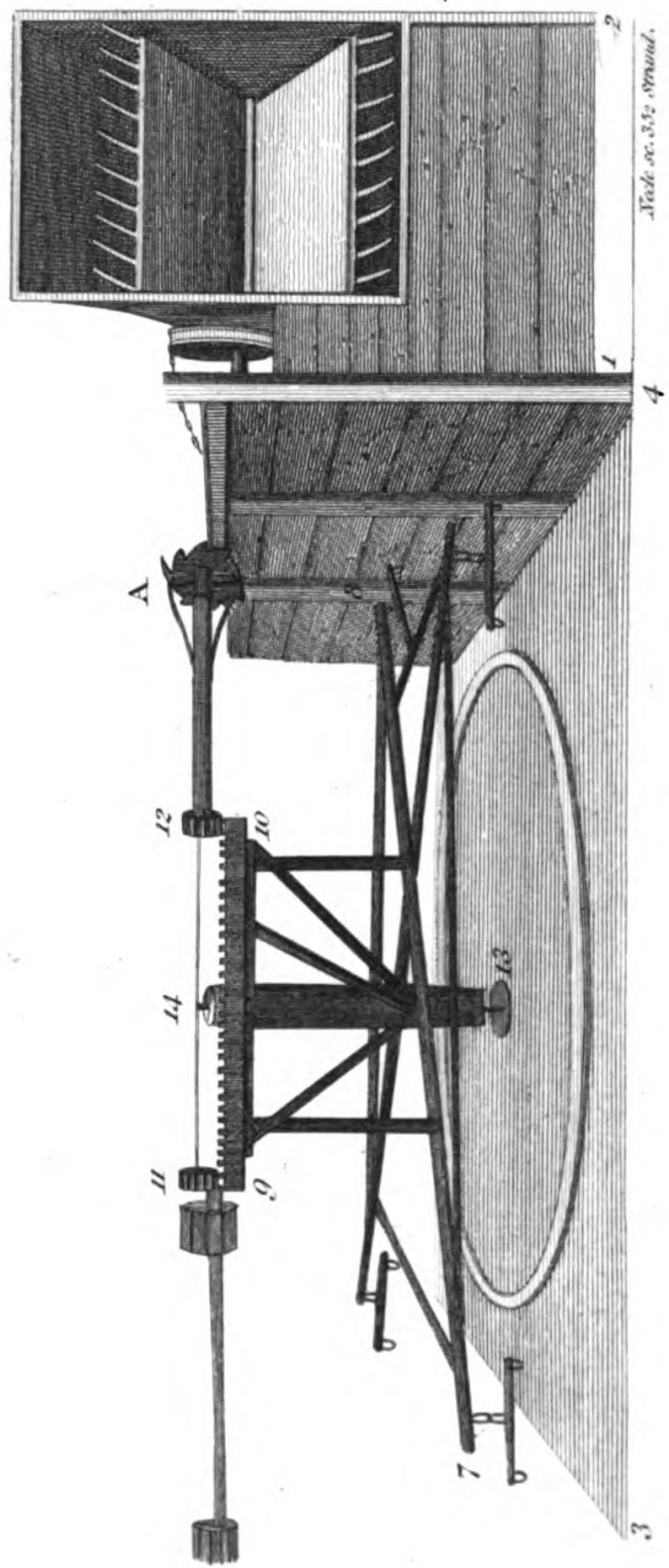
A the click.

Mr. WEDD, at Cryssal Grange, has a thrashing-mill built by Mr. THOMAS HERVEY, mill-wright at Soham, in Cambridgeshire; and his son another at Sampford, near Finchingfield. The expense 100*l.* for four horses: they will thrash and dress nine quarters of wheat in a day, or 20 quarters of barley: the drum wheel about two feet diameter, and has eight beaters. It thrashes every thing to an extraordinary degree of cleanness.

Mr. TWEED, of Sandon, has a mill built by JONES, Clement's-lane, Clare-market, price 31*l.* 10*s.* and as much more for the wheel: he has worked it five seasons, to his entire satisfaction. It works with one strong horse, or two common ones: two blind post-horses will do it perfectly well, being light work. It thrashes four bushels of wheat per hour, but does not dress. It thrashes all sorts of grain and pulse, and perfectly clean; one man feeds it; and another clears away the wheat and straw; one boy hands the sheaves, and one drives the horses. The drum wheel



(Cutting Wheel.)
of the
Threshing Mill.



Scale or 3 1/2 Stroud.

wheel two feet in diameter, and has nine beaters. It has cost in five years very little in repairs.

	<i>s.</i>	<i>d.</i>
2 horses,	4	0
2 men,	4	0
2 boys,	2	0
Repairs suppose,	0	2
	<hr/>	
	quarters 4)	10 2
		<hr/>
per quarter,	2	6½
		<hr/>

But the cleanness of its work is the capital object. The hogs are never at that barn door; instead of keeping six breeding sows, he keeps but three.

Mr. MAYHEW, at Aldham, Mr. BUXTON, at Layer, and Mr. LINGLEY, at Cook's-hall, West Bardfield, have thrashing-mills: the two former are known to be good; the last but lately erected. Mr. ROGERS, of Ardleigh, has one built by BURREL, of Thetford, which works to his satisfaction, with two horses. Price 70*l.* Last year it thrashed 6 bushels of wheat, per hour: with a good crop, 8 bushels, but does not dress.

Mr. HARDY, at Bradfield, has two of these machines; one for two horses, which cost 70*l.*; and the other for four horses, lately built, which cost 50 guineas; both built by Mr. BURREL, of Thetford. The two-horse power will thrash five quarters of wheat in eight hours.

The Rev. Mr. SCOTT, at Little Oakley, has one built by ASBY; cost 100 guineas; is worked by three horses and three men and a boy, at 4*d.* It will, on an average, thrash from nine to ten quarters of wheat in eight hours, or twelve quarters and an half of barley. It performs its work exceedingly well; far better than flails. He has added, in a chamber over the horse-wheel, a pair of stones

stones for grinding, which cost 20 guineas, and a chaff-cutter, worked by the same power, but not at the same time.

Mr. BLYTHE, of Kirby, has one of ASBY's thrashing-mills, which cost 105*l*. With three horses, he thrashes ten quarters of wheat in eight hours. It works to his entire satisfaction.

Mr. COLES, of Holland, has also one by the same maker; works with three horses; and he finds it, in all respects, an excellent machine.

Mr. BAWTREE, at St. Osyth, has one built by BURRELL, of Thetford, with the performance of which he is very well satisfied; he has thrashed 72 quarters of wheat in seven days with it.

Mr. BUXTON, at Layer de la Haye, has one by ASBY, worked by three horses, which thrashes ten quarters of wheat a day; it does its work quite clean, and far better than flails. The price of such now, 50 guineas. A man feeds, two women supply, a lad clears away the straw, and a boy drives. It does not dress.

Mr. EVE, at Barnish hall, a farm of near 500 acres, belonging to Mr. BRAMSTONE, has a thrashing-mill.

Mr. FENN, of Ballingdon, has a thrashing-mill, built by HARWOOD, a mill-wright of that place; it does its work well, but is too heavy, and cost too much money. Five or six horses used in it; thrashes 40 coombs of wheat in eight hours, if the crop is good; but 32 in common.

Mr. BARRINGTON, near Rochford, has two thrashing-machines; one there, and the other in Wallasea Island; built by DELL, of Zoar-street, Gravel-lane, Southwark; cost 50 guineas, but putting up, and shed, add as much more. Two horses, in eight hours, have thrashed six quarters of wheat quite clean. He approves highly of them

them. Beans are not done well; and pease choak, from length of straw: he does not now attempt to thrash pease with them. No flail will equal them for clean thrashing white corn.

Major CARR, of Eastwood, has one of these machines, built by the same man; he paid 60 guineas for it, but shed, and all expenses, made it 100. It is called a one-horse power, but he always works it with two. It requires one man and four boys. He did three quarters and an half of wheat in a day, but the horses were bad, and time was lost: much more might be done. It does not break the straw much. His bailiff thinks it will thrash barley as well as any other grain, as it does loose wheat as well as sheaves.

ONE-HORSE CARTS.

"I have three or four carts with iron axles, pike-boxes, and waggon-frames, to put on the same axles and wheels for hay and harvest, which were built at Edinburgh, and sent by water here; they are cheaper (carriage included) than can be built in this neighbourhood, and are the best constructed, best put together, and the nicest workmanship, I ever saw, and infinitely lighter to the horses. Price of the cart and waggon-frame, 18*l.* to 20*l.* carriage included*."

Mr. WESTERN has now the satisfaction to find, that his horse-keepers prefer them greatly to the heavy tumbrils; the horses do their work with them easier, and with far less fatigue. In forming a piece of water, he was obliged to hire much carting; and the men employed expressed so much eagerness to have the one-horse carts,

* Mr. Western.

that it left no doubt in his mind on their real superiority in preference to the teams: they are also lower and broader, and consequently, much easier to load.

With these carts there came also from Scotland, a harvest-frame, which attaches to the carriage; it carries three-fourths of a waggon-load, and is, in saving of horses, useful as two to three: the inconvenience is its demanding more nicety in loading.

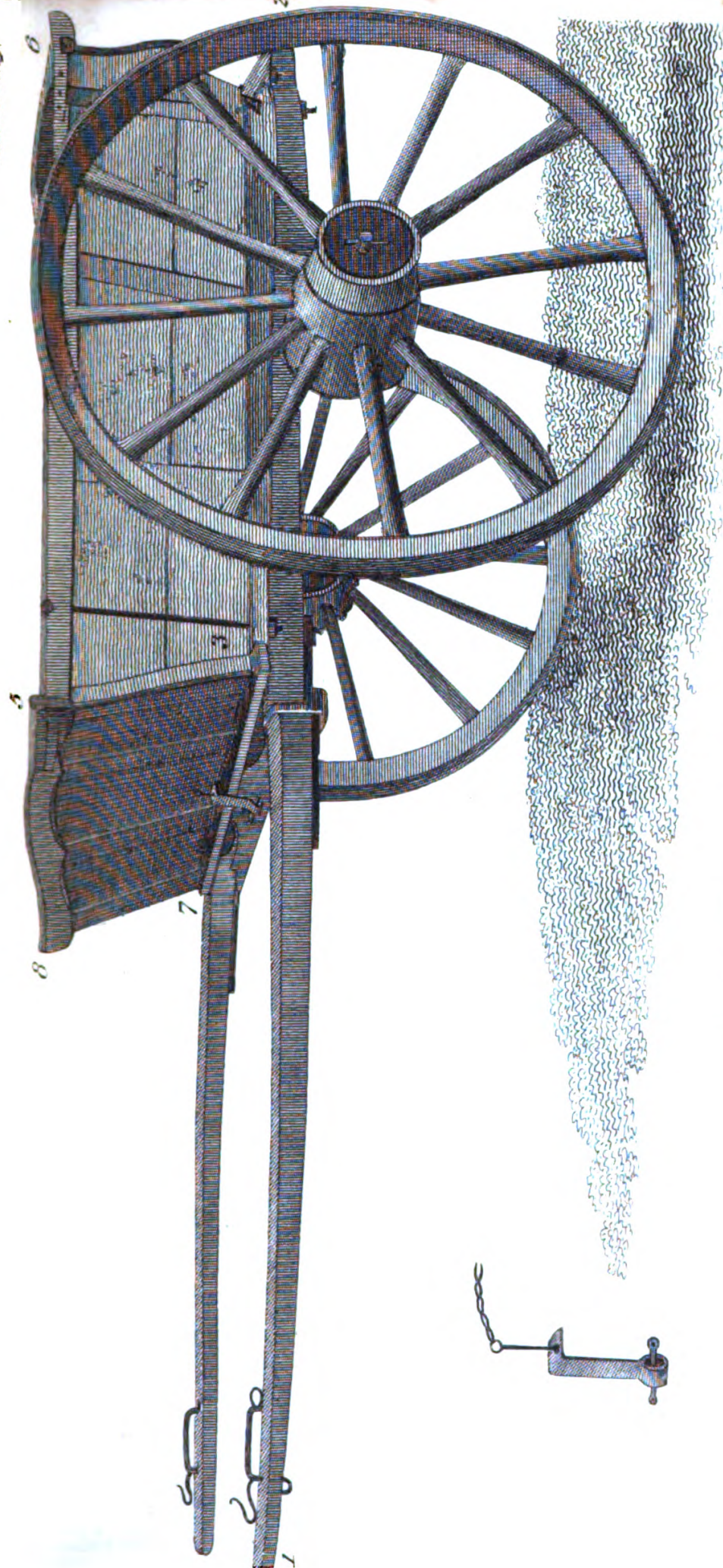
Plate XXXVIII. represents the cart.

From 1 to 2	11 feet 0 inches.
3 — 4	5 — 0
5 — 6	5 — 6
4 — 6	1 — 7
7 — 3	3 — 10
8 — 5	4 — 4
8 — 7	1 — 7
Axletree,	0 — 7 circumference.
Wheel,	4 — 6 diameter.
Wheels, distance,	5 — 0 below.
Ditto,	6 — 0 at top.
Box,	0 — 8 diameter.
Iron streaks,	0 — 2½ broad,
Ditto,	0 — 0½ thick.

ROAD-HARROW.

“Near Maldon, at Munden, I saw one, price 5*l.*: it has a great character, and does the work of levelling ruts, combs, &c. with great expedition.” This note was in 1784; and on coming to Maldon in 1805, and inquiring for the tool, I found the original one at Mr. PATTISON’S, who was the inventor. See the annexed *Plate XXXIX.*

From



Note on 332 Stroud.

Mr. Western's Scotch Cart.

The Original mad Hammer, by Mr. Joseph Fallis, Senr.



ENCLOSING.

CHAFF-CUTTER.

The Rev. Mr. Halliwell, has SALMON'S chaff-cutter, which will do for fifty horses.

40 HILL MACHINE.

At Loughborough, before the pastures were improved, the machine was at ground.

From 1 to 2	-----	4 feet 4 inches.
3	-----	4 — 4
4	-----	5 — 0
5	-----	5 — 0
6	-----	1 — 8
7	-----	2 — 3
8	-----	1 — 8
9	-----	2 — 0
10	-----	4 — 6

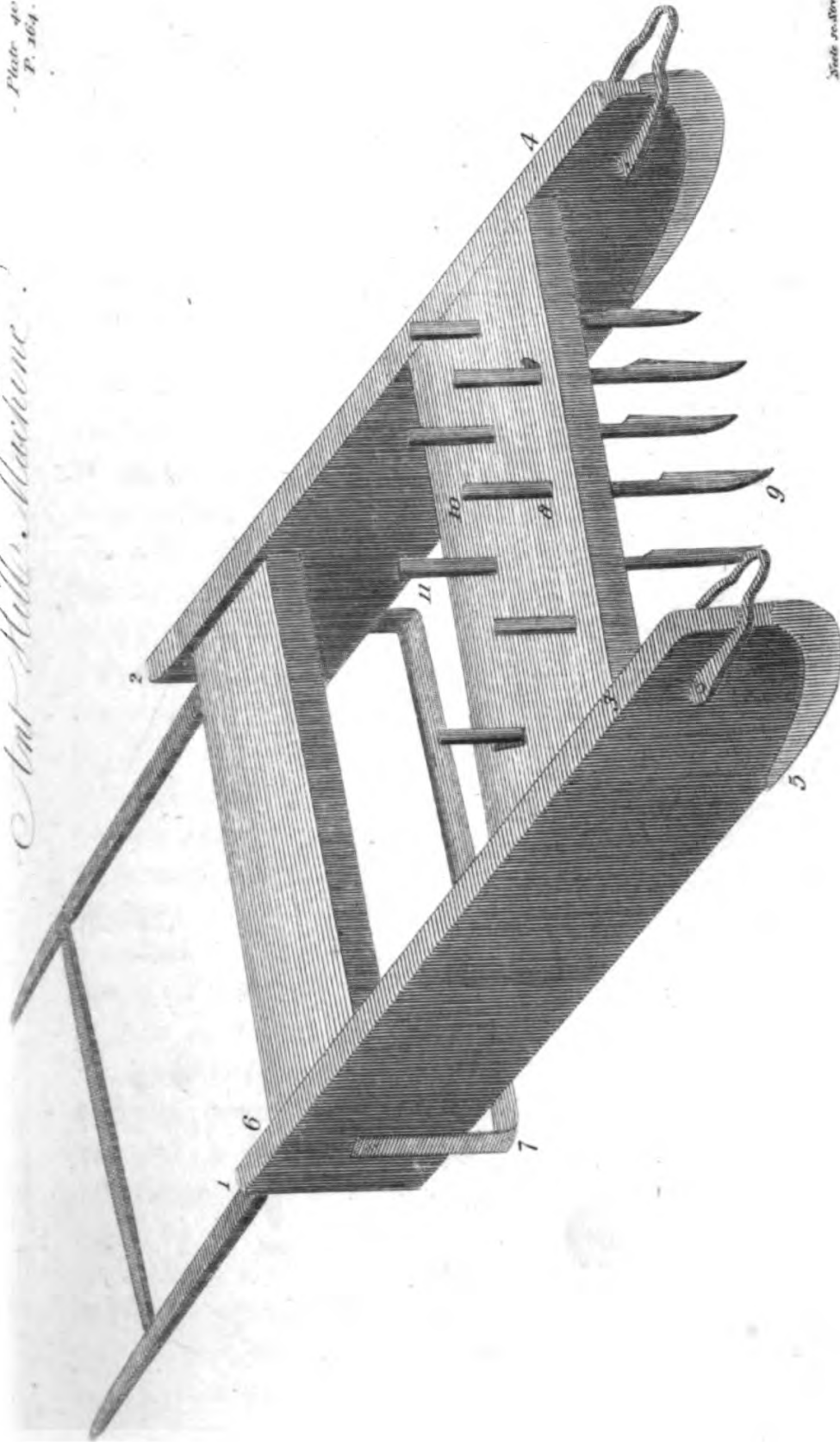
CHAP. VI.

ENCLOSING.

ESSEX has for ages been an enclosed country, so that there was no field here for the great parliamentary exertions which have been made in so many other counties; few applications have been made, till very lately,

Ant-Miller's Machine

Plate 40.
P. 264.



Made in Sweden.

lately, and these are not yet in a state to afford any information that is material: one or two Acts that passed some years since, and which have therefore had time to operate, shall be noted.

About 3500 acres at the two Chesterfords, were enclosed by Act of Parliament in 1803; and the rise of rent from 10, 12, 14, to 20*s*.

Naseing.—This was not an Act of Enclosure, but a very extraordinary regulation of a most valuable common of 453 acres. The case, perhaps, is singular. By an utter neglect of the fences surrounding the common, there was some danger of the bounds being lost, and that encroachments might gradually take in material parts of it; it was also stocked in a manner that deprived the poor of the benefit which they might, under a better arrangement, have reaped from so fine a tract of land. By the Act, it was vested in trustees, who were empowered to levy a tax of 6*d*. per annum for each sheep, and 2*s*. 6*d*. for each head of greater cattle, to form a fund on which to borrow money enough to pay for the Act, and for fencing the common, and other necessary charges; but cut off from paying themselves any sum exceeding 40*s*. per annum for their own expenses. The whole business seemed to have no other object but benevolence to the poor. There are 100 common rights, and all are made equal, from the poorest cottager to the lord of the manor himself; and all are unalienable from the cottages. By the Act, twenty sheep and four beasts were allowed to each right; but every circumstance rested within the power of the trustees, who have reduced this to ten sheep, and two head of horses or cattle. WILLIAM PALMER, Esq. who possesses considerable property here, had the praiseworthy humanity to offer to lay down money to enable every

ing, I copied the following detail from the rate at four shillings.

<i>Farms.</i>	<i>Rent.</i>		<i>Rate.</i>		
	<i>£.</i>		<i>£.</i>	<i>s.</i>	<i>d.</i>
1	145	.....	29	0	0
2	122	.....	24	8	0
3	95	.....	19	0	0
4	84	.....	16	16	0
5	53	.....	10	12	0
6	67	.....	13	8	0
7	55	.....	11	0	0
8	193	.....	38	12	0
9	96	.....	19	4	0
10	166	.....	33	4	0
11	85	.....	17	0	0
12	64	.....	12	16	0
13	290	.....	58	0	0
14	60	.....	12	0	0
15	93	.....	18	12	0
15 farms above 50/.	1668	.....	333	12	0
16	33	.....	6	12	0
17	47	.....	9	8	0
18	20	.....	4	0	0
19	34	.....	6	16	0
20	24	.....	4	16	0
21	32	.....	6	8	0
22	33	.....	6	12	0
23	33	.....	6	12	0
24	20	.....	4	0	0
25	39	.....	7	16	0

ENCLOSING.

169

<i>Farms.</i>	<i>Rent.</i>		<i>Rate.</i>		
	<i>£.</i>		<i>£.</i>	<i>s.</i>	<i>d.</i>
26	21	.....	4	4	0
27	20	.....	4	0	0
28	30	.....	6	0	0
29	41	an error,	4	4	0
30	20	.....	4	0	0
31	22	.....	4	8	0
32	25	.....	5	0	0
33	23	.....	4	12	0
34	42	.....	8	8	0
35	24	.....	4	16	0
36	25	.....	5	0	0
	<u>£.608</u>		<u>£.608</u>	<u>0</u>	<u>0</u>

21 farms from 20% to 50%.

37	6	.....	1	4	0
38	4	.....	0	16	0
39	8	.....	1	12	0
40	18	.....	3	12	0
41	12	.....	2	8	0
42	3	.....	0	12	0
43	12	.....	2	8	0
44	5	.....	1	0	0
45	2	.....	0	8	0
46	5	.....	1	0	0
47	5	.....	1	0	0
48	17	.....	3	8	0
49	11	.....	2	4	0
50	6	.....	1	14	0
51	3	.....	0	12	0
52	12	.....	2	8	0

53

	<i>Baptisms.</i>	<i>Burials.</i>
Brought forward,	234	131
1788	22	11
1789	19	5
1790	20	22
1791	25	10
1792	23	17
1793	23	13
1794	22	13
1795	27	16
1796	16	12
1797	24	11
1798	20	15
1799	22	4
	<hr/> 497	<hr/> 280
	<hr/>	<hr/>

Twenty-two years before the Act, baptisms,	398
Burials,	265
	<hr/>
Increase,	133
	<hr/>

Twenty-two years since the Act, baptisms,	497
Burials,	280
	<hr/>
Increase,	217
	<hr/>

The circumstance in the regulation of this common which is most worthy of attention is, the effect of assistance given to the poor to stock land. Before I came to Naseing, telling Mr. JOHNSON, at Parndon, where I was going, his observation was, they were a sad, lawless set of people before Mr. PALMER took them in hand; but now there

there were not a better set in the country. And what were the means? Giving them property in live stock. Not through great expenses; but only advancing money, all repaid in two years! And it deserves notice, that this was done for a purpose by no means complete; leaving them, in one respect, in a situation against which so much has been urged, that the poor having a common for summer, is only a temptation for making them thieves in the winter. Nor is this assertion wholly without foundation; but in the case before us, attention, and humane superintendance, have obviated the evil. When an honest quiet conduct stands the best chance of future assistance, should it be wanted, can we suppose that the poor will not weigh the effect of their conduct on their own future welfare, having once so amply received the proof of a disposition to assist? However, the system here is by no means equal to every man having his own little farm; there is not equal employment for the children, nor are sheep so beneficial to a poor family as a cow. Poor-rates, also, though still moderate, have risen much. Severe winters must necessarily come, and, when hay is very dear, drive them to great difficulties. The evident and most useful conclusion to be drawn is, that money may be advanced to poor labourers, in order to enable them to stock land, safely, and without any expense. This is exceedingly material, and removing, perhaps, the greatest difficulty of all in the way of making them generally occupiers of it.

Great Parndon.—Enclosed 1795.

Quantity.—There are about 2000 acres in the parish, but the Act operated only on one hundred and fifty of common.

Rent.

Rent.—Valued, since the enclosure, at 20s. an acre.

Course.—They are bad arable farmers; an allotment to the Rectory has, in four years, produced three crops of oats, and one of wheat. Mr. JOHNSON lets it, and this is his tenant's management.

Corn.—Certainly increased in proportion to the breadth ploughed.

Cows.—The same as before.

Sheep.—Much fewer; it was an unlimited common, and the cottagers kept many.

Poor.—The common yielded no fuel of any kind, and therefore, no allotment was made for it. Small allotments were made to the poor people who kept geese, &c.; but they have been all bought, except a single one, by the land proprietors. Their cottages very bad, and ill repaired.

Expense.—460*l.*

Farms.—The following detail will shew, that there is not a large farm in the parish.

		£.
1	rated at	74
2	.....	92
3	.....	110
4	.....	77
5	.....	131
6	.....	35
7	.....	129
8	.....	30
9	.....	42
10	.....	15
		—
Carry forward,	.....	765

Brought

ENCLOSING.

175.

Brought forward,	765
11	48
12	34
13	23
14	23
15	36
16	19
17	44
18	40
19	28
	<hr/>
	1060
20	4
21	5
22	5
23	4
24	6
25	3
26	10
27	4
	<hr/>
	41
	<hr/>
	1101
Out-dwellers.	
28	39
29	5
30	38
31	15
32	14
33	17
34	3
35	24
36	4
37	13
	<hr/>
	1273

All

All rated one-fifth under the value. This schedule should be considered by those who attribute so many mischiefs to an evil which does not exist, that of engrossing farms. These men are too many of them in a low condition: their holdings too small for good farming; and accordingly the tillage is badly managed. The fences, also, of most of the new allotments, are shamefully let down; the quick destroyed, and gaps for scores of yards. Such little farms are much commended for producing plenty of pigs, poultry, and butter. I told Mrs. JOHNSON (in 1800), that she must find the benefit in her house-keeping of being surrounded by such a number of little farms. She replied, that it was the dearest place, she believed, in England: butter, 1*s.* 4*d.*, has been 1*s.* 6*d.*; turkies, 9*s.* to 12*s.*; geese, 8*s.*; chickens, 6*s.* a couple, and sometimes higher; pork, 10*d.* per lb.; and all meat round, 9*d.* on an average. If such facts were every where ascertained, the efficacy of little farms in producing plenty would be better understood.

Labour.—Two shillings a day the year round, on an average.

Population.—

	<i>Baptisms.</i>	<i>Burials.</i>
1780	13	11
1781	12	9
1782	19	8
1783	15	9
1784	13	12
1785	13	12
1786	17	9
1787	12	11
1788	14	10
1789	15	7
	143	98

1790	.....	12	.....	4
1791	.....	14	.....	6
1792	.....	14	.....	11
1793	.....	12	.....	7
1794	.....	12	.....	9
1795	.....	8	.....	9
1796	.....	19	.....	7
1797	.....	13	.....	8
1798	.....	11	.....	6
1799	.....	21	.....	8
		<u>136</u>		<u>75</u>
First period baptisms	.....			143
Burials	.....			<u>98</u>
Increase	.....			45
Second period baptisms	.....			136
Burials	.....			<u>75</u>
Increase	.....			<u>61</u>

For many reasons often remarked, the baptisms are probably the best criterion: these mark a depopulation, in spite of such a prevalence of little farms. Here is wanting the animation which a spirited cultivation ensures. Labour is not low, and these little farmers, themselves poor, employ no more than they cannot avoid.

Harlow.—

		<i>Baptisms.</i>		<i>Burials.</i>
1780	.....	32	.....	35
1781	.....	26	.....	23
1782	.....	34	.....	27
1783	.....	41	.....	23
1784	.....	27	.....	39
ESSEX.]		N		1785

ENCLOSING.

1785	.....	34	.....	24
1786	.....	32	.....	28
1787	.....	44	.....	25
1788	.....	45	.....	40
1789	.....	25	.....	23
		<hr/>		<hr/>
		310		287
		<hr/>		<hr/>
1790	.....	44	.....	20
1791	.....	37	.....	25
1792	.....	44	.....	30
1793	.....	45	.....	23
1794	.....	47	.....	24
1795	.....	39	.....	31
1796	.....	49	.....	23
1797	.....	36	.....	29
1798	.....	33	.....	19
1799	.....	42	.....	24
		<hr/>		<hr/>
		421		253
		<hr/>		<hr/>
First period baptisms	.....			310
Burials	.....			287
				<hr/>
Increase	.....			53
				<hr/>
Second period baptisms	.....			421
Burials	.....			253
				<hr/>
Increase	.....			168
				<hr/>

Value of soil.—The total rental is 5100*l.* a year; the parish containing nearly 1000 acres of land. Before the enclosure, the rates were about 3*l.* 6*s.* in the pound; but from Michaelmas 1788 to Michaelmas 1800 they were 11*l.* 6*s.* in the pound; that is, 8*l.* 0*s.* from Michaelmas to Easter and 6*l.* 0*s.* from Easter to Michaelmas.

All

As this parish, as well as all its vicinity, has been enclosed, and very well cultivated, time out of mind, and as the only material improvement, that of hollow-draining, has been practised far beyond this period, no rational account can be given for such an increase as appears on the register, but a generally more active employment, by a variety of small and unascertainable exertions, united with a greater probable degree of health and comfort among the poor.

Baptisms 1780 to 1789	329
Burials	323
	<hr/>
Increase	6
	<hr/>
Baptisms 1790 to 1799	439
Burials	316
	<hr/>
Increase	123
	<hr/>

In 1804, an act passed for the enclosure of Tiptree-heath, six or 700 hundred acres, in the parish of Great Totham. And this last sessions, another for 300 acres in Braxtead; of course nothing can yet be effected.

Mr. KETCHER, at Burnham, has squared and newly fenced so many of his ill-enclosed fields, that he has scarcely a short land in ploughing his farm: this is a most laudable attention, and is an improvement of the more merit, as it does not immediately *tell* like many others.

FENCES.

“ Our Essex fences generally consist of hedge-rows, of various kinds of wood—hazel, maple, ash, oak, elm, black thorn, white thorn, bramble-bushes, with timber and pollard trees interspersed and growing in them at

different distances. These hedges, especially in soils not perfectly dry, have commonly a ditch on one side, of from one foot and a half to three, and even four feet deep, according to the different quantities of water to be conveyed off from the land; and, if properly made, are at least one-third wider at the top than at the bottom.

“These hedges are usually cut down at the end of nine, ten, or twelve years, and the pollard trees lopt, both which together used fifty years ago to afford the farmer an ample supply of fuel: at least on soils at all favourable for the growth of wood; but, from various concurrent causes soon to be noticed, the case is now vastly different. As soon as the hedge is cut down, most of which within an inch or two of the old stabb, some few of the larger and stiffer stems being left eighteen inches high, to serve instead of a stake or support of a dead fence to be made, the ditch is new dug and scoured out, as it is called; one spit is usually thrown, and neatly fixed upon the bank, to nourish and promote the growth afresh of the pared off quick. The remainder, which is more or less in quantity, according to different situations and circumstances, is either by itself (if of a rich and meliorating quality) or mixed with dung, carried as manure on to the land.

“The new made fence has great variety, agreeably to the convenience, fancy, or judgment of the farmer. Sometimes not only, as I have just observed, here and there a stiffer and stronger stem is left as a kind of stake, but great numbers untouched, and at their full height, which are splashed, bent down, and entwined with one another, as well as with the loose wood and bushes entirely cut down, and in due proportion, form a kind of hedge, part of which (the splashed) is continually growing and mixing with the young shoots of the parts cut off close to the
stabbs,

stabs, and is not so easily carried away by hedge breakers and stealers of wood.

“When the hedge is cut entirely down, and no stems, short or at full length, left behind, the new fence is still susceptible of different constructions. Of these the old fashioned one, in my apprehension, is by much the strongest, neatest, and best. When a spit of earth from the ditch has been nicely and properly laid upon the bank, as already described, the workman selects a sufficient number of stakes from the wood of the hedge cut down, and lops off the pollards, provided they can be furnished from thence; if not, he procures them from some other quarter. These, having prepared and sharpened (which I should have observed, are from three-fourths of an inch to more than an inch in diameter), he, with his hedging beetle, drives down upon the top or highest part of the bank, deep enough to make them stand firm and steady, and at the distance of from twelve to eighteen inches from each other. He then takes repeated handfuls of the longer of his bushes, runs the sharp ground points a little way into the ridge of the bank, then inclining them in an angle of about fifteen degrees from the line of the earth, intervenes, or *raddles* them, as it is here called, between and on both sides the stakes, as far as their length will admit, taking care always to let the top, or brush end, come out on the ditch side. At the same time, he contrives dextrously to work in a considerable quantity of the shortest bushes among the longer, and so as to hang a little down the bank on the ditch side; and if any of them are thought too loose and straggling, he pins them firmly down with a crotched peg, which he cuts and shapes for the purpose. This operation he continues, either the whole length of his hedge, or as far as he chooses to complete it at a time. Then takes his *eathers*, as they are here styled (for I be-

There is a special provincial term, signifying the longer twigs to be cut down head, or obtained elsewhere, as in that respect, in size about as large as a man's finger); the widgeon, I say, takes his eathers, four or five in number, say to the right or left off, and goes the contrary way across as usual when laying the foundation with his bill, — one pair of two or three of his eathers on one side of the stake, and one or three on the other; then he presses the eathers close together with his hands till they are as close as he can get, to encompass which, he again takes his eathers as before, and so on till he has laid out the whole of them, always taking care, as he approaches the ends of the materials in his hands, to lay the eathers close ones into them, so as to form a wall of eathers, without a crevice or cleft from one end to the other, and which is made as straight and uniform as possible. He then, with his bill, brushes off the loose eathers, and he takes care to lay down the bank on the side of the eathers, till they are perfectly snug, neat, and smooth. Next then, he places his hedging beetle, or hedge-bill, on the left hand, on one side of every stake in succession, and with his bill in his right, he cuts off the top of the eathers, in a single stroke, about two or three inches above the level of the eathers, and every cut being equally straight and square, and all arranged to the level of the ground, the appearance of the fence, when beheld at a distance, is that of a straight white line, which, from the general colour of the eathers, is extremely well seen. The work is now complete, and the fence is a firm, compact, and close, wall, which no wind can penetrate through it. It is, indeed, a most beautiful and elegant piece of workmanship, and is much admired by the country gentlemen. Often, with innumerable eathers, I have seen fences immediately after the fall

full completion of a fence of this kind, eyeing it askance, with manifest emotions of joy, and heartfelt self-complacency, at the wonderful dexterity, the matchless skill and ingenuity they had therein displayed!

“A hedge of this sort, thus completely finished, used to remain very little impaired three or four years, and till the fresh shoots from the old stock had risen high and thick enough to cover and conceal it. But now the case is totally altered. Should a farmer venture to be at the expense of a hedge of this construction in the spring of the year, it may possibly continue unhurt through the following summer, as very little firing is then wanting; yet in the subsequent winter, if at all severe, it is sure to be torn up, destroyed, and burnt, stake, eathers, bushes and all, by the destitute poor, who, from deficiency of wages, are utterly unable to purchase fuel, and compelled to steal it, or perish with cold.

“This being very generally the case, in this part of the county at least, few farmers, comparatively, will be at the cost of this expensive kind of hedge, but content themselves, when they have cut down the old one, with making the bank something higher, scattering a few loose bushes upon the side of it, and sticking a few stragglers upon the topmost ridge. Even this ridiculous mockery of a hedge may continue through the summer, and in the ensuing winter, it only shares the common fate of those which are infinitely better.

“Nor is this the only evil. I have observed, that in this new-adopted mode, more earth is thrown upon the bank, and the ridge raised higher. By this means, the fresh shoots, which should spring from the old stumps, are choaked and smothered, and sometimes I have seen a hedge, extremely good, thus at once entirely destroyed.

Another cause which has greatly impaired our farmers'

hedges, is this : eager to raise manure to improve their corn land, when they dig up their greens, they pare down the hedge-row banks so exceedingly close, that they cut through many of the roots of the quick, which soon dwindles, and finally dies.

“The depredations of the indigent poor are not confined to the ruin of our hedges ; they extend to the premature and almost universal loppings of our pollard trees, which heretofore used to furnish no inconsiderable proportion for the complete renewal of the field fences, as well as abundance of fuel to the farmer’s fire. I have observed upon farms, containing each not more than 150 acres, upwards of 100 pollard trees lopt, or rather the best part of their boughs mangled off, in the course of a single winter, as well as large branches of fine thrifty flourishing timber trees.

“From these various concurrent causes have our field fences been very much injured in general ; in many instances, absolutely destroyed ; and few cases occur in which they are to be compared to what they were forty or fifty years ago.

“Still, however, upon stubbing up old hedge-rows, for the purpose of enlarging and making new divisions of fields, their boundaries are generally planted with quick, which is commonly white thorn of one or two years’ growth, from the nursery gardens. From some of the causes already noticed, the successful rearing of them is not always a very easy matter. It is sometimes, nevertheless, tolerably well accomplished, especially if at a remote distance from the more indigent cottagers. But this county can very seldom boast the vigour and excellence of its quickset hedges ; it can by no means vie with Kent, and some other counties, in this respect ; it not frequently having the requisite depth and richness of soil,

nor

nor yet the same skill and careful attention bestowed upon it.

“These observations, however, are perhaps chiefly applicable to the north, and north-eastern parts of the county; the south, and south-eastern, and south-western quarters are better. They have certainly more considerable advantages, both from the general greater depth and richness of soil, and for a proportionably less numerous, less burdensome, less pilfering, and less predatory poor. Yet, with all these favourable circumstances, I have seldom found that their hedges possess any very distinguished excellence*.

“Mr. VANCOUVER tells us, p. 13, of his General View, &c. that in the parish of Birdbrook in the north-eastern part of the county, “some excellent hawthorn hedges have been lately raised, by planting one row only at six inches asunder, rather than two rows nine inches or a foot apart. These hedges have not been cut down, nor do they require it, to thicken their bottoms, as they are, at this time, a complete protection against hogs, and, in other respects, form a beautiful and effectual fence. Nothing can be more evident, than that a row of plants set thus, six inches distant from each other, must form a more complete and effectual fence at the bottom, than an equal number planted thus, at a double distance, and occupying the same length, but a greater depth of ground upon the hedge-row.” This reasoning, for aught I certainly know, may be conclusive, but it strikes me, I confess, in a different light. It is

* The great objection to the fences in most parts of this county is, that the hedges are too high and too thick, so as to exclude the sun and the air, and the ditches not deep enough to drain the wet from the land enclosed.—*J. C.*

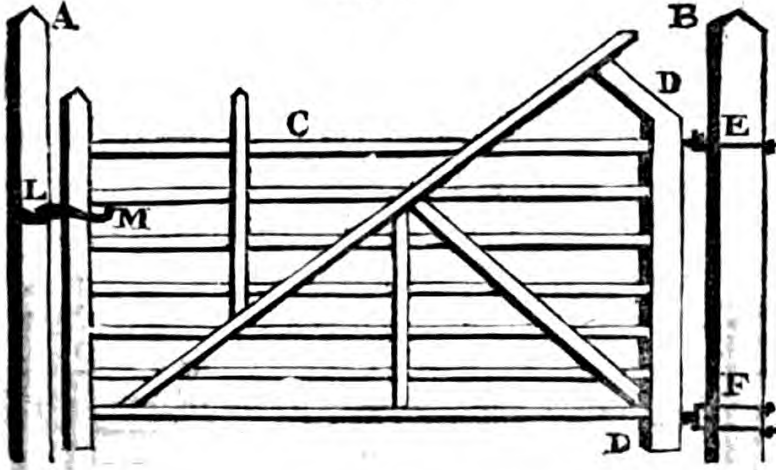
true, that the plants in each row are, in the latter mode, at double the distance from each other that they are in the former; but it is to be observed, that in the double row, the plants are *diagonally* as near each other as in the single row, and consequently, there is the same vacant space for any animal to pass through in the single row as in the double; and what must be a great advantage to the latter, the plants will shoot out their branches laterally on the *outsides* at least, just as far as those in the single row, and twice as far lengthwise, meeting with no obstruction in their progress. Of course, one would naturally conclude, that the double-rowed plantation must form a fence, if not altogether twice as strong and secure, yet vastly stronger and securer than the single one. But I presume not to set speculation against fact; and Mr. VANCOUVER has seen the above hedge, I have not. I have myself, however, planted one in a single row, as above described and recommended; the plants have grown well; the hedge is a good one, but would, I think, have been still better, if there had been two rows instead of one, as are some others that I have of that description*.”



GATES.

“Under this head, I presume, are not comprehended all the varieties of garden gates, of gates at the entrance of vistas and avenues, and other different approaches to gentlemen’s seats. These are infinitely diversified, according to the taste, genius, or fancy of the proprietor, or his agent. A very common one of this latter kind is nearly represented in the following figure.

* Howlett.

Fig. 1.



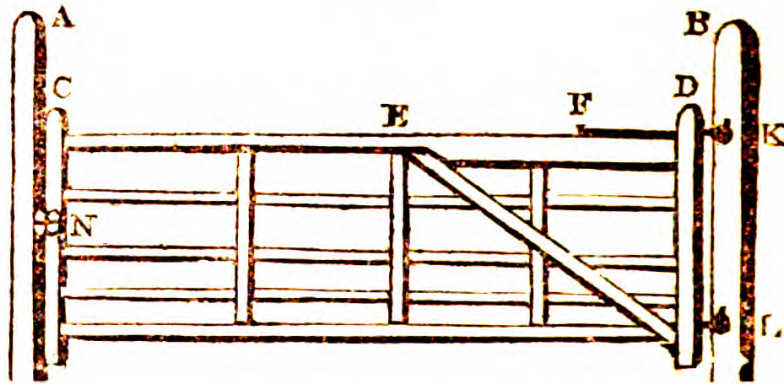
“In this figure, *A* is the post to which the gate shuts, *B* the post upon which it hangs and swings both ways upon its hinges near *E* and *F*, of which the upper one at *E* is of the common simple kind; the hinge is driven and fastened through the post *B*, a little below *E*; and the eye, or ring, which moves upon it, goes through or clasps the upright bar, or rather hind post, of the gate *DD*. The lower hinge is just beneath *F*, where are two irons somewhat of this form,  which are driven into, and sometimes quite through, and fastened on the opposite side of the post. Upon these two irons the gate swings, by means of what our carpenters call a double thimble, formed thus,  clasping the post of the gate *DD*. The gate is opened by means of an iron latch pressed down upon the back part, or point *M*. The back of the gate, *C*, is a round iron bar, about an inch in diameter, and five or six feet from the ground. The other materials of gates of this construction, as well of the farmers' gates, are oaken, as being most durable. This gate has seven bars, including the iron back; and the remaining six are wooden, of a flat hexagonal form;



“Our

“Our farmers’ gates are also of various formations; the principal and most common ones are nearly exhibited in the two following figures.


FARMERS’ GATES.

Fig. 1.



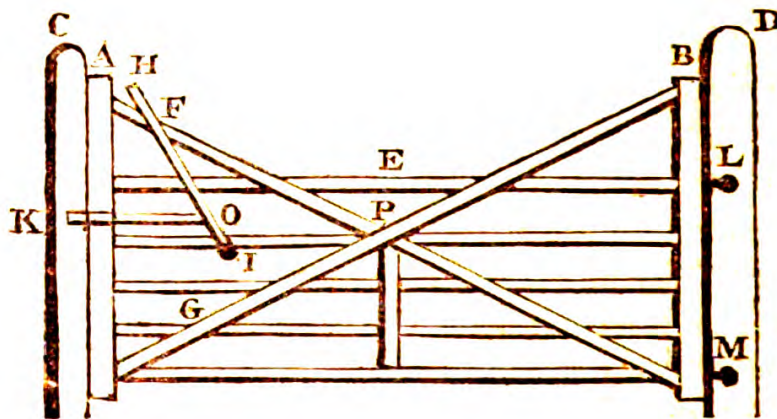
“This figure nearly represents our farmers’ common five-barred gate. *A* is the fore post to which the gate shuts, and *B* is the hinder post, considerably larger than the fore one; the former being about only six or seven inches square, the latter frequently a foot. The back, or upper bar of the gate, *E*, is nearly three inches thick, and about three inches and an half deep between *C* and *E*; but the greater part from *E* to *D*, it is almost or quite five inches deep; from *F* to *D* runs an iron, well fastened down with nails upon the back, and passes through the post *D*, and there is formed into an eye, or ring, which goes over the hook, or hinge, opposite *K*: the lower hooker and eye are opposite to *L*. Sometimes, in order to prevent the gate from being thrown off the hinges, the hooks are placed contrary ways, one thus,  generally the upper of the two; the other thus,  To render this gate still stronger, and less liable to be broken

broken by uncommon pressure against by horses, cows, &c. an iron bar, or rod, about one-third of an inch thick, runs along the whole length of the back from *C* to *D*, firmly nailed, and passing through the head and hind post *C D*. The outer gates of a farm should all be done; it would be not only the most secure, but in the end, the cheapest also. I know a gate of this kind, which has now lasted upwards of 70 years; the wood work is indeed much decayed, and nearly worn out, and must soon be renewed; but the iron back is as good as ever. Three or four merely wooden gates would scarcely have lasted so long. The four under bars of this gate are little more than half an inch thick, and about three inches deep. The entire height of the gate is something more than four feet; but if there be no iron back-bone, as I may call it, it would be better to have six bars, and be upwards of five feet high; as against such a one, neither cows nor horses can make any very powerful pressure, or so forcible as to endanger their breaking.

“This gate shuts and fastens in several different ways. Sometimes a staple of iron, nearly of this form,  receives the head *A* upon an iron pin passing through the head, in the hole or perforation at *N*. At the extremity of the staple *R*, between *R* and *P*, there is a hole, or passage, through which, on the lower part of the staple, a padlock may be hung. If the gate is to be opened, it must be lifted up, and forced over the shoulder and notch *R*. This kind of opening and fastening principally takes place in the interior parts of a farm, and through which, waggons, carts, and carriages have not very frequent occasion to pass. In the extreme quarters, where the passage is almost incessant, various modes are adopted to facilitate the expeditious opening and shutting, which I need not here stay to describe.

“Another

“Another farmers’ gate (or rather the huntsman’s and traveller’s gate, as it may not improperly be styled, on account of the expeditious facility with which it may be opened by a person on horseback), has lately been introduced into this neighbourhood by Lord MAYNARD, as I am told, from Leicestershire; its construction is as under :



“This gate is almost entirely constructed of wood, the hinges alone at *L* and *M* excepted. *A* and *B* are the fore and hind parts of the gate; the head and hind posts are marked by *C* and *D*. There are five slight bars, even the upper one, *E*, being, I think, scarcely more than two inches thick, and the four nether about half an inch. The length of the gate, from *A* to *B*, ten feet, as, indeed, is that of the other gates before described. There are also two diagonal bars, *F* and *G*, crossing each other at *P*, continuing to the two extremities of the gate at top and bottom, and terminating at the two uppermost extremities, about a foot above the back, or highest bar of the gate. A slip of wood, about one-third of an inch thick, and an inch and an half broad, extends obliquely from *H* to *I*, where it is fixed by a pin, upon which it is moveable; to this is joined a similar slip at *O*, extending from

from thence, horizontally, to the fore post at *K*, where it enters, and easily slides into a kind of mortice prepared for its reception. The top of the slip at *H* is, in height, nearly level with the hand of the horseman, who, laying hold of it, draws it horizontally, in the line of direction from *A* towards *B*; the horse pushes forward, and the gate instantly flies open. All this is accomplished, if the rider is nimble and dexterous, while the horse is moving even on a trot or gallop. I cannot but admire the construction of this gate, with respect to the purpose for which it seems to have been intended, that is, for the huntsman, and hasty expeditious traveller; but for the permanent utility of the farmer, I confess I see not in it any very powerful recommendation. The common gate before described, with an iron back to it, would outlast twenty of them.

“All the gates hitherto represented, are of sufficient extent to admit the passage of coaches, waggons, carts, and carriages of every description, but we have also gates of much more contracted dimensions, which are at most of five or six feet from post to post, and which are often called bridle or spur-way gates, because I suppose they are chiefly for the passage and use of persons on horseback. These are susceptible of all the varieties of form and construction with those already described, and are actually so made, according to the taste and fancy of the persons under whose direction they happen to be.

“Our stiles, made merely for the convenience and passage of foot travellers, have as great diversity of form as our gates; but presuming it of little importance to describe them, I pass on*.”

Mr. RUGGLES has applied the sweet briar as a fence,

* Howlett.

with much success; the growth is rapid, and scarcely any failures.

I never saw the elm applied as a hedge plant, till I came to Layer de la Haye; there and all the way to and in Mersea Island, I found them common; it forms a very thick, but I should suppose a very insecure, fence.

One remark of Mr. RUGGLES deserves noting; he found a tenant digging away the back of the bank on which an old hedge was planted, which he thought a mischievous practice, as it would deprive the roots of the quick of the nourishment they had been accustomed to. The bank was dug away to the thickness of two feet at top, and about four feet thickness at the base, and earth piled on to it at all low places. Objecting to the practice, the tenant assured him that the hedge would be improved by it, as it not only made a much greater difficulty in passing the hedge, but also preserved it greatly from cattle. Mr. RUGGLES dropped his objection, and trusted to observation on the effect: this he has regularly made, and has been convinced, that the practice is good, as the hedges thus managed are now amongst the best on the estate. When effectually executed, the hedge is defended by a wall on one side, and by a ditch on the other. I saw several of them, and found the hedges good, and well preserved. Objections to the practice are not uncommon, but they arise from cutting too near the hedge, as observed by Mr. HOWLETT.

CHAP. VII.

ARABLE LAND.

ESSEX possesses rich marshes, extending an hundred miles in length; but the capital feature of the county is her arable land, which is cultivated, though not in perfection, yet, nearer to it than are nine in ten of the other counties. The fertility of the soil, and the good husbandry practised on it, will always render this county a very interesting object in British agriculture.

SECT. I.—TILLAGE.

THIRTY years ago, the principal inquiry in tillage was that of ploughing with two or with more horses; but modern improvements have very much extended the means of cultivating the soil, and multiplied the operations by which it is managed.

Ploughing.—The ploughs of Essex (see Chap. V.) are swing and wheeled; the latter generally on dry land and the former on wet, but in some districts swing ploughs are used on all soils.

The general plough-team is two horses, driven by the ploughman by means of a cord; and a common addition is a perpendicular iron fastened to the beam, with two holes

to keep the cord from entangling with the plough or whippletrees. But upon strong land, three horses abreast are not uncommon when the work is hard, but still without a driver.

The usual day's work is an acre; at busy seasons, and for good managers, five roods are sometimes done.

Scarcely any common farmers use oxen; there are such cases, but they are very few: some gentlemen have them.

Ploughing is in general extremely well performed in Essex, which abounds with skilful and accurate ploughmen. I have walked over forty acres of wheat fresh put in, eyeing the land carefully, and not discovering a single false furrow; no variations in breadth of stitch or of furrow; no depressions, nor any variation in the curvature of the stitch. They do not plough so deep as in Kent, nor so flat as in Norfolk, nor is it their wish so to do.

Number of Ploughings.—Through all the western side of the county, they plough their fallows four or five times on the general system; but in all the eastern or maritime district, in Tendring, Dengey, and Rochford hundreds, they plough their strong lands generally eight times for barley or oats; and in many cases even more than eight. The best and most successful farmers are the most careful in this repetition of tillage, to which they attribute great effects. For the destruction of black grass (their great torment) it is necessary to have their fallows as fine as a garden before autumn, and then left awhile for the grass to grow, that it may be turned down by one earth given very late in autumn, and when the land is in a moister state than they would wish, were it not for this object.

The bastard fallow of a clover-lay, or tare, pea, or bean stubble for wheat, which in Norfolk is called *tempering*, here they term *casing*. In the districts where the wire-

worm

worm is a great depredator, the farmers did not seem to consider the effect of this practice as it applies to that enemy with sufficient precision; nor to combine it with various of their own observations.

The attention, with which they fallow at Snorum and Latchingdon, would be reckoned extraordinary any where but in Essex: Mr. DINES ploughs his oat fallows ten or twelve times, and he assured me that even this immense tillage was not very uncommon: eight or nine times the general practice of all good farmers. After such tillage they do not venture in the seed on the autumnal furrow, but give a spring ploughing. He told me it had been tried to sow on the stale furrow, and had failed. Mr. RUSH ploughs from eight to ten times.

At Bradwell, they plough their fallows eight times: and three horses to a plough will sometimes do not more than half an acre in a bad summer. Messrs. SPURGEON and AMBROSE would be glad to give 10*s.* 6*d.* for each ploughing round. The common estimate is 3*l.* an acre for making a fallow, harrowing and rolling included; but it is, they think, too little, and would be glad to have it done at a higher price. They begin as soon as wheat-sowing is over.

Mr. POLLEY, the experienced bailiff of Mr. FENN, at Middleton-hall, remarked, that nothing was worse management than to make fallows for barley, the common Essex practice, and not to plough them sufficiently: they cannot be too much stirred in summer for that crop; they ought never to have fewer than seven or eight ploughings, though the expense be 6*s.* 6*d.* or 7*s.* an acre, for each clean earth. The land is hilly, and three horses used in each plough, unless quite in tilth.

“ The fallowing system continues here, I think undiminished; and I believe essentially necessary on this soil. To make a good fallow, we give the first ploughing in No-

vember, February, or quite to the end of March, after barley sowing; if in November, the stitches are laid a little round, to be water-shot, and afterwards well water-furrowed. The land is generally ploughed first into stitches of eight or twelve nine-inch furrows; then crossed and ploughed in different ways very often during summer, turning up every time a different surface to the sun and air: before harvest it is got up on four-furrow ridges; after harvest, it is immediately ploughed again, and if the weather admits, twice, leaving it upon the ridge for the winter; the later the last ploughing the better, to prevent black grass getting up, after which it is well water-furrowed; by these means we get upon it much earlier in the spring, than we could otherwise do, and when we plough for barley, these stiff tenacious lands break down into the finest tilth it is possible to conceive.

“ The whole is done with two stout horses, well fed, or three abreast; in either case the ploughman has his reins, and no driver. Upon the whole, we give not less than six, seven, or eight ploughings. In ploughing stitches for wheat, or any thing else, much attention is paid to turn the furrows well, draw them straight, size them alike, and lap them with such regularity on to each other, that the harrows cannot fail to lay hold of them all; the shutting up furrow in particular, is drawn straight, handsomely turned, clean swept out, and at the same time the space between stitch and stitch not left too wide*.”

Depth of Ploughing.—This is a point which has been a subject of agricultural controversy for more than forty years; and as the application of deep or shallow tillage to various soils respectively, has not yet been ascertained,

* Mr. Western.

It is material to multiply cases as much as possible, as the only means whereby some precise rules may at last be laid down on a sufficient foundation of facts.

Mr. RUGGLES tried an experiment of trench-ploughing by two ploughs, on a field of dry, deep, sound, sandy loam, mixed with small stones or gravel, and took pease and oats for the first crop, in 1805. The success answered his expectation.

Mr. ROGERS, at Ardleigh, has made the same experiment on a large scale, eleven to twelve inches deep; the soil, what he calls a woodcock moist loam on gravel. The appearance in summer is that of a light sandy loam upon a permeable bottom. In one field he did part of it before the frosts came, and the rest after they were passed, except a corner, which was ploughed only to the common depth, for a proof-piece. That part ploughed before the frost, was of a colour two or three shades darker than the other; when that also was done, harrowed and drilled oats at nine inches. Those upon the common ploughing were the best, till the oats swelled for the haw; but then the double furrowed got the better, and kept the superiority, producing more than double in bulk of straw.

He trench-ploughed another field in the same manner, and drilled it with Swedish turnips; drew half the stitches alternately for his horses, &c. fed off the rest with sheep. This year I viewed the barley after them, and it is a great crop; it was drilled so late as the 17th May.

In a third field he double-furrowed a ray-grass layer for turnips, which were seeded; he then ploughed twice before winter; and in the spring, scuffled and drilled barley, which is now a very fine crop: the head-lands were not trenched, and the barley, by inferiority shews it.

In Foulness Island, they break up for fallows six to seven inches deep, but some farmers shallower.

Mr. VASSAL, of Eastwood, in Rochford hundred, ploughs eight or nine inches deep; and Mr. WOOD, who managed Rochford-hall after the death of the late Mr. WRIGHT, trench-ploughed several fields, which were the worse for it, relative to the wire worm. The present Mr. WRIGHT ploughs his fallows only a fair depth, and is convinced that it is better; as he has had much better crops from shallow tillage. A neighbour of his, after ten years of deep ploughing, got at first nothing from it but weeds and wire-worm. Wild oats abounded much. He left off the practice, and then got much better crops.

Dr. ASPLIN, at Little Wakering, and many others, ploughs the first earth of a fallow very shallow, and gets deeper every time; other earths not in fallowing shallow.

As to the depth of ploughing for fallows, it must depend upon the soil; but the best farmers like to go deep enough to chip up the dead soil now and then, and shew it a little upon the surface after all is finished.

Feather-edged Furrows.—Mr. ROGERS' Norfolk ploughs lay their furrows quite flat; but the Essex ones feather-edged, which, by the farmers who trust to harrowing only for covering seed, is reckoned a perfection. Mr. ROGERS greatly prefers the flat work, which shews much truer ploughing: by drilling and even by various other methods, moulds in plenty are at command, without the assistance of bad ploughing. At Burnham I found the same opinion in favour of feather-edged, and it is general in the country. From Mr. WAKEFIELD I learned, that covering the seed by harrowing taking effect, was the only motive. In this country the wire-worm is a perfect nuisance, and their prevention, most heavy rolling, and feeding crops on the grounds for trampling: they do not seem to recollect, that if the furrow is feather-edged at top it is so also at bottom,
and

and that the hollowness thus caused, must be pernicious on their own principles. Their crops should be drilled, and the seed made to fall into channels formed by wrests, as in some of the Kentish drills, three or four feet long, for a sliding pressure on the bottom of the drills.

Mr. KETCHER, of Burnham, does not approve of feather-edged ploughing; and he thinks flat furrows best on wet land as well as on dry.

Mr. TABRUM, at Margaretting, not only approves feather-edged work, but thinks it essential for giving moulds to cover the seed.

Relative to the merit of the ploughing, it became a question whether the Essex system of laying the furrows feather-edged, affording channels into which the seed would fall, and be more completely buried by harrowing, or the flat work of the Norfolk plough, which left the surface without any such channels, and from a broken surface seemed almost to the eye to have harrowed as well as ploughed the ground—whether the one or the other was the better work; and opinions varying, the decision of a bett was referred to the Duke of BEDFORD and Mr. JOHN ELLMAN, to be declared at the Woburn sheep-shearing.

Ridges and Stitches.—The variation of these is not great in Essex: in most of the western part of the county, wet land is laid on the two-bout ridge, or four-furrow work; a scattering of these is to be seen every where; but on the strong land in the maritime district, *eights*, as they call them, stitches of eight furrows, are general. To the south, ten-furrow work is common. These are the main variations in this object.

It was with much pleasure that I viewed many fields of wheat put in upon the farm of Mr. BRIDGE, at Buttsbury,

which were ploughed, and the stitches laid in a most masterly manner: I did not see one false furrow, or any tendency to a *big trough* upon his whole farm; the form of the lands perfectly correct, and so gently rounded, and with such regularity, that not a drop of water could any where lodge. I have rarely seen a farm so thoroughly well ploughed on so stiff a soil. All ten-furrow lands, and harrows, &c. made for the breadth.

Expense of Ploughing.—In all the strong rich clays at Bradfield, and around by the coast to Clackton, 8*s.* an acre.

On the wet loams at Dunmow, three horses, a man and boy for the first and second earths of a fallow, and per acre 7*s.*

At Snorum, 8*s.* to 9*s.* each ploughing; the soil very stiff. Mr. RUSH at Latchingdon, 9*s.*

At Rochford, 10*s.* 6*d.*

At Raleigh, was 5*s.*; now 8*s.*

At Thornlon, 10*s.*

At Mararotting, the common hiring price 10*s.* 6*d.*

At Toppefield, Mr. ELY reckons it worth 8*s.* with three horses; 6*s.* 6*d.* with two. Plough barley fallows five or six times.

Contract Work.—Dr. ASPLIN, at Little Wakering, used to contract with one labourer for all the tillage of his farm, at 2*s.* an acre for ploughing, 6*d.* for harrowing, and 2*d.* for rolling. More work was done, always five roods ploughed; but he left it off on account of shallowness and wide furrows.

Scuffling.—Working the surface of the soil more and ploughing less, is a modern and very capital improvement
in

in tillage, which has been more generally practised in Suffolk than I believe in any other county. It is not well established in Essex, but spreading, and will gradually be applied to objects not at present in contemplation here.

Mr. AMBROSE finds that scuffling his fallows is a more effective and cheaper method of cleaning them than by trusting only to the plough: his scuffle has thirteen hoes, and does five acres a day.

Mr. CLAYDEN, a very spirited tenant of Lord BRAYBROOK, finds much use in scuffling on many occasions, in cleaning land for turnips; in working the ground when the fly eats a crop, for re-sowing, &c. &c.

SECT. II.—FALLOWING.

THIS subject will demand attention under various other heads, especially that of courses of crops; but I should in general observe, that on all but sound dry turnip soils, it is universal in Essex: in one large district, to the extreme of crop and fallow; half the arable being under a dead summer fallow. In others, a fourth, fifth, or sixth.

“As the observations in this section have been particularly applied to the crops produced from the husbandry of the heavy lands, it follows regularly in course, that something should now be noticed concerning those crops produced from the husbandry and management of the lands which are of a more gentle, light, and temperate nature.

“That the common husbandry of this description of land is greatly to be improved, is clearly manifested at Great Bardfield, Aveley, and Hornchurch, where the necessity of fallowing is in a great measure done away, by the land being continually occupied under a series of profitable crops.

crops. That nature is never at rest, is no where more clearly exemplified than in the case of a fallow field, which being no longer employed in the support of a crop that is valuable, is voluntarily putting forth weeds and rubbish, which it would surely have been wiser to have prevented from growing, by the umbrageous influence of a non-exhausting crop, than to have encouraged their growth for the sole purpose, as it should seem, of incurring a heavy expense in destroying them afterwards.

“The quantity of gas or vapour that is hourly exhaling from a fallow field after rain, or every fresh ploughing, is improvidently lost; and argues a want of economy that is truly reprehensible: indeed it has long been a matter of serious consideration, and doubt, whether in the process of fallowing (the temperate and light lands) that the succeeding crop may not be injured to a greater degree, by the frequent and long exposure of the energies of vegetation to the summer’s heats, than may be equal to all the benefit derived to the crops by the destruction of weeds; for which purpose, however, the leguminous crops, and the hoe, form an admirable substitute.

“That the hoe will answer an excellent purpose in cleansing and meliorating the surface soil, there can be no doubt; at the same time it is material to recollect, that as the fibrous roots of the corn approach so very near the surface, a due regard should be paid, both to the time and manner of conducting its operation; as the dis severing from the root, or bruising the smallest fibre, must be productive of proportionate detriment and injury to the crop.

“The weed hook in many cases will be found more effectual than the hoe, particularly in keeping down thistles, and those weeds which have a pipy stem; for it has frequently, and may always be observed, that thistles cut an inch above the ground, will not be so formidable at harvest,

vest,

west, as those cut at the same time with the hoe, and below the surface. In the former case, the remaining stub of the thistle gets filled with water, which resting upon the crown of the plant, injures it so far, as to occasion a few feeble shoots only to rise; whilst in the latter, strong and luxuriant shoots stool forth, that become extremely injurious to the crop, and inconvenient to the reapers.

“The weeds, which to guard against in this county, require the greatest care, and are attended with the heaviest expense in keeping under, are the black grass and crows garlick; these are found most generally to prevail upon the strong moist soils, and are only to be kept within moderate bounds, by making a thorough summer and winter fallow for spring corn, rather than for wheat; and as there is no condition or good heart in which the land may be, that will in any wise prevent these weeds from materially injuring the most promising crops, it has been found expedient to encourage their growth to a certain stage, that their destruction may be rendered more complete, by ploughing them under.

“Wild-gold, couch-grass, goose-grass, red-weed, are proportionately troublesome upon their various soils; the first may be eradicated by hoeing and weeding, though at much hazard to the crop, expense and labour: as to the latter, the means of subduing them are so well known and practised, as to require but little further to be said upon the subject.

“To complete however their destruction, and the necessary pulverization of the lighter land, it cannot be necessary to plough so frequently, though it is absolutely required to plough much deeper, than is the common practice at this time. Upon the light tender lands, one or two clean deep ploughings is all that can possibly be required for a single crop (and strange to say) one or both of these earths, under
certain

certain circumstances, had better be dispensed with; as the horse-hoe, roller, and harrow, will, in many cases, do all that is necessary.

“From too much solicitude (and there are but few that will not furnish examples of the truth) we often defeat the very purpose we wish to serve; and herein the care of the Essex farmer is often requited with loss and disappointment, instead of the benefit and reward he so justly merits by his diligence and labour. The pains so unremittingly bestowed in pulverizing the soil for turnips, is frequently the principal cause in the failure of that crop, it being no unusual appearance in a field sown with turnips, to find a regular healthy plant in the furrows, whilst along the tops of the stiches the failure of the crop is regular throughout the field; and this can only be accounted for from the moisture exhaled from the former furrows, and to which the top of the stich was not proportionably exposed: the drought here must have penetrated on each side, and in the bottom of the furrow, and finally have exhausted those parts of the field of that portion of moisture retained in the body of the stich; for although in the last ploughing, the top of the stich became the furrow, and consequently a greater surface was then exposed to exhalation, yet it still retained a sufficient quantity of moisture, not only to cause the seed to vegetate, but to push the infant plant into the rough leaf, and completely out of danger; hence arises a necessary caution in preparing for turnips, to guard against the dissipation of moisture, by restraining as much as possible, the too frequent ploughings, in summer fallowing of the field.

“A considerable part of the moist sand and gravelly loams, might be cultivated with turnips to advantage, were the Scotch two-furrow or ridge practice properly pursued, and the land left well water-furrowed. With the means of a low carriage upon a sled, the turnips might be got conveniently

niently from off the land, and in this, great care should always be taken to have the field cleared before Christmas, or at farthest before the spring or seed tops begin to shoot, otherwise a very material injury will accrue to the succeeding crop.

“The blights which immediately destroy, and those which often precede the insects that more or less prey upon the roots, leaves, blossoms, and tender kernels of plants, are, of all the evils attaching upon the rural life, the most calamitous to the farmer, falling as indiscriminately upon the industrious and skilful, as upon the slothful and undeserving*.”

“Fallowing is thought essential, especially for barley, and by lease is required after two crops of corn and one either of pulse or herbage, under a tenant of capital intelligence, industry, and integrity. The fallow, by the alternation of an hoeing pulse with a feeding vegetable, after a corn crop might with perfect justice to the soil, and security to the land, here be longer deferred. Having no navigable communication with any sea-port for chalk or lime, these come too dear for any material or general use, though necessary as a manure, which is almost entirely what is merely raised by the stock, kept chiefly in winter, mixed occasionally with earth on the sides of the field. This is a motive for fallowing, as remedying the want of manure, and correcting, what *hand-hoeing* will not do, the weeds raised by such manure†.”

SECT. III.—COURSE OF CROPS.

WHEREVER I have travelled, whether on the continent or in these islands, husbandry generally flourishes in proportion to the accuracy of the course of crops; nor is it any

* Vancouver.

† Annotator.

where

where easy to correct errors in this point by extraordinary exertions in any other.

The county of Essex, viewed with an eye only to this object, has considerable merit; and even her errors of an excess of fallowing in some instances, flow from correct ideas, though misapplied: she every where aims at keeping the soil clean, by the interposition of a fallow or a fallow crop between every two of white corn; this is universally the general principle. Cases to the contrary occur, but they are exceptions, and to be assigned to individual management, not a general rule.

DISTRICT, NO. I.

This district is distinguished on the map on account of its course, the singular one of crop and fallow, which on principle and in conversation, is pretty universal through the whole. The soil is a wet heavy strong loam on a whitish clay marl; without hollow-draining it would be a very poor territory, but being universally drained, and that probably for the third or fourth time, and being in other respects *carefully* managed, it bears a rent of 12*s.* to 16*s.* an acre, and the farms lately lett rising to 17*s.* 18*s.* and some to 20*s.* The standard course is every where crop and fallow, and every where you hear a condemnation of all *etc.*, or after crops, such as clover, pease, beans, tares, or oat; not that such are not found, for they are on every farm in a small proportion of the extent: they defend the practice on the plea of convenience, which is (on their own principles) fair as to clover and tares if mown for hay or soiling; but does not justify pease or beans, and least of all, oats.

At Felstead, on their cold strong loams on white clay, Mr. WATKINSON assured me that the prevalent course is,

- | | |
|------------|------------|
| 1. Fallow, | 3. Fallow, |
| 2. Wheat, | 4. Barley; |

and

and the breadth of fallows I saw did not contradict the assertion. This is the husbandry which I remember was many years ago prevalent in the Roodings. He thinks that full one-third of the whole parish, a large one, is under this course: they have changes by means of clover, beans and pease, and tares, but the standard course is that.

Mr. WATKINSON makes 70 acres of fallow on 210 acres of arable.

At Dunmow, Mr. FOWKE informed me, that this crop and fallow system, and the land that makes it necessary, extend in the several directions from Dunmow to Hock-crill, the Roodings, Waltham, Braintree, and Saffron Walden, not far short of those towns. Mr. SAVILLE, of Bocking, had prepared me for hearing of the *poor red land*, which is the misnomer it here commonly goes by: it is a weak, thin skinned poor wet loam, of loose texture; when dry of a light brown colour, upon a cold stiff whitish clay, as it is called, but really a clay marl, produces nothing without draining; and is a poor soil when improved.

Mr. SAVILLE, of Warners, in Great Waltham, on a field of poor loam on white clay,

1801, Fallow,

1802, Barley,

1803, Fallow, drained,

1804, Wheat,

1805, Tares, fed,

1806, will be clover, red and white, and trefoil a very fine plant sown with the tares.

Mr. POOL, of the same parish, who has much of the poor red land, has tried

1. Fallow,

3. Clover,

2. Wheat,

4. Wheat;

and till the land is sick of clover, the thought certainly
has

has merit: barley on these soils is a poor crop, and the worse, as they know nothing of putting it in without a spring ploughing, even on fallows: here is one half the expense of fallowing saved; and something gained instead of nothing.

Mr. PORTER, at Little Leighs:

1. Turnips, or fallow, according to soil, by far most of the latter;
2. Oats,
3. Clover,
4. Wheat; but with many variations; he has this year 15 acres of wheat on fallow; and has had 60. At Broomfield, where he farms his own land, and which is good and in good heart, he has had:

1. Fallow
2. Wheat,
3. Oats,
4. Trefoil, fed,
5. Wheat,
6. Oats,
7. Tares, fed,
8. Wheat 1805, and the best crop that ever the land produced: it cost 12s. an acre reaping. One can only observe on this, that there may be circumstances which will overbalance the evil of a bad rotation in certain years. Mr. PORTER considers white clover, trefoil, or tares fed, as good instead of red clover; but if mown for seed or hay, the wheat will not be so good by two sacks per acre. He sows very few turnips, though his soil admits them, as the difference between a fallow and turnips as preparations for barley, is very great. On an average, fallow gives two quarters an acre more; but the turnips are all carted off the land.

Between

Between Harlow and Shearing, I also entered the district of the Roodings. Mr. LORD informed me, that the standard management in all that country, is,

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|------------|------------|
| 1. Fallow, | 3. Fallow, |
| 2. Wheat, | 4. Barley; |

the bad farmers (as they are esteemed) adding sometimes, but not always;

5. Pease and oats, or clover, &c.

that the most profitable management is the regular system: next to it, he has found this the best:

- | | |
|------------|------------|
| 1. Fallow, | 6. Wheat, |
| 2. Wheat, | 7. Fallow, |
| 3. Fallow, | 8. Barley, |
| 4. Barley, | 9. Clover, |
| 5. Fallow, | 10. Wheat. |

This is admissible, and much better he says than *etch* cropping. The same soil and husbandry continues from Dunmow to within a mile of Walden. Mr. BRAND at Thaxstead has two courses on the poor wet loams:

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|------------|------------|
| 1. Fallow, | 3. Fallow, |
| 2. Wheat, | 4. Barley; |

and on the loams of a rather better quality,

- | | |
|------------|----------------------------|
| 1. Fallow, | 3. Clover, pease or beans, |
| 2. Barley, | 4. Wheat. |

In thirteen miles I saw three scraps of turnips, and three or four small fields of cole. Beans are always hoed twice, sometimes thrice.

Mr. HUBLAND, at Hallingbury, practises the general husbandry of that neighbourhood; where the soil is the wet strong loam of the Roodings:

1. Fallow, ploughed five times,
2. Wheat on two bout ridges,
3. Fallow, ploughed five or six times,
4. Barley.

The farmers sometimes sow *etch* crops, as pease or oats, or both mixed; and some clover, but in Mr. HUBLAND'S opinion from his own observation, as well as from the reputation of the men who do not give into that practice, the standard course is far preferable. The dung raised on the farm is laid on to the fallow for barley. Mr. VAICHELL, in the vicinity, has taken *etch* crops, but is clear that the less it is done the better. Mr. HUBLAND'S bailiff remarked, that pease and oats mixed were generally good, though an *etch* crop, as they never are sown by good farmers, except after the barley that has been manured; produce four quarters.

Mr. CHAMBERLAIN, of Rise, whose judgment is much esteemed in this vicinity, is decidedly of opinion that the course of crop and fallow on these heavy lands, is superior to all others; and he remarked that the richest men amongst the farmers, were known to be those who had practised it the most steadily. Some of these were perhaps able to buy the estates of those who had experimented on different rotations. The observation may have weight, but it must keep clear of two objections: the comparison with the management of others proves only that crop and fallow is better than *etching*, the other practice known here; and secondly, it must steer clear of the wealth which forty-two years of *saving*, with *compound interest*, will give, not by crop and fallow, but by sitting in the chimney-corner. In that period a capital doubles three times; but I have many times, and on many questions, known the wealth of a miser produced as a proof of profitable husbandry. Mr. CHAMBERLAIN ranks clover itself as an *etch* crop, further than ten acres or so in three or four hundred, for necessary convenience to the horses; and that it ought not to occur oftener than once in nine years.

General

General Observation.—The system of management which takes place in the Roodings is peculiar to that country; the soil is a dark coloured loam, on a whitish clay marl; all wet, and hollow-draining essentially necessary; it is much of it so porous and spongy on the surface, that marling from its own subsoil would be a very great improvement; but none done that I could hear of. The loam from ditches and borders is freely and amply carried, but this will not answer either the chemical or mechanical purposes of the marl: well executed, however, as they do it in general, it is a feature of good husbandry; improves the surface-drainage of the fields, and is neat to the eye. Their course is,

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|------------|------------|
| 1. Fallow, | 3. Fallow, |
| 2. Wheat, | 4. Barley; |

and they have very little grass land; live stock, therefore, consists of the teams, and a very few cows and sheep. ADAM SMITH would call the cattle, sheep, and pigs of all this country, mere *save-alls*. The dung arising is poor, (for the horses have little to do in winter), and small in quantity; and for this they have small regret, for fallowing is their grand dependence. Not relying minutely on information, I take the average produce of wheat to be three quarters, and of barley five: perhaps the barley rather more. Now if this system be calculated, their present rent of fifteen shillings, is as much as the land thus horribly applied, is worth; and a rise of rent without a change of system, can depend merely on *times*: a succession of high prices of wheat and barley would raise rents, but it would be hazardous to the farmers, for in England this is a bad dependence.

I can easily conceive that the cheapness (as it is erroneously considered) of the system, may recommend it, for the only expense incurred is hollow-draining. One man

and a pair of horses will fallow (as fallowing is done here) a great deal of land; and as to hoeing, we must be silent; indeed the system does not demand it. There is no object of expense in the whole round of management, to be named in the same century with those of other districts; and this, to farmers of the old school, is a capital recommendation.

A certain variety of objects and pursuits is necessary to awaken ideas: I found these people almost as torpid as their rotation. If they had more objects in their husbandry they would think more; but they are asleep, and awake only to silent contempt at any propositions of change. They are to a degree good farmers in their way; but I saw many wheat stubbles that did not present any panegyric on fallowing. The marl which is under the whole country, would work a capital improvement on the surface; but not with a fallow every second year; for with that, it would soon sink and be lost. More grass should on every account be attained; it is an object of some difficulty, but certainly attainable by proper seeds, and a better application of more and better dung. The men who have been content with twenty, thirty, and forty years round of fallowing, will listen to nothing: as they die off, the younger ones may do something.

But another circumstance occurs here, which demands attention: if the reader turns to the Chapter on Rent, and its rise, he will see that while the rest of the county has risen exceedingly, some doubling and trebling in 35 years, and others from 15*s.* and 16*s.* to 25*s.* this fallowing district has almost stood still, for so the rise from 14*s.* to 16*s.* may be called; and I beg to observe, that the rent paid is as much as the system will bear: landlords cannot raise their rents justly; and those that approve the system, have no right whatever to do it. While their neighbours
advance

advance in proportion to *times*, they have the credit that pertains to fallowing—they should certainly keep it. And if they examine the tables of the prices of wheat and barley (the only products of the district), they will find that those prices do not permit a rise: it is not very wise to adhere to products, the prices of which have nearly stood still for forty years (scarcities excluded), instead of introducing others, the prices of which have risen considerably. Compare for the last forty years the price of wheat and barley, with that of butter, cheese, mutton and wool; and then go to the fallows, and plough away merily—if you can.

I would not be too sanguine in recommendations, but were I to farm in that district, I would certainly try this course:

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|------------|-----------|
| 1. Fallow, | 5. Wheat, |
| 2. Barley, | 6. Tares, |
| 3. Clover, | 7. Wheat; |
| 4. Beans, | |

laying the dung for beans. The fallow for barley is their own system. The clover is near enough to receive what benefit it has to give. The clover and the manure would secure beans; and offer an ample season for mucking—no trifling point on such a soil. The wheat, prepared for by a double fallow (clover and beans), would be good: winter tares soiled, leave sufficient time for the most valuable fallow season, July, August and September; so that little reasonable doubt could be entertained of the seventh year.

WHEAT ON FALLOW.

	£.	s.	d.
Rent, tithe, and rates, 25s.	2	10	0
5 earths, at 6s.	1	10	0
Harrowing and rolling,	0	5	0
Seed,	0	15	0
Sowing,	0	0	6
Water-furrowing,	0	2	0
Weeding,	0	1	6
Harvest,	0	13	6
Thrashing 3 qrs.	0	9	0
Carrying out,	0	4	6
Interest of capital,	0	6	0
Fences,	0	1	0
Draining, one-twentieth,	0	3	0
	<u>7</u>	<u>1</u>	<u>0</u>
24 bush. at 7s. 6d.	9	0	0
	<u>7</u>	<u>1</u>	<u>0</u>
	1	19	0
3 qrs. at 50s.	7	10	0
	<u>7</u>	<u>1</u>	<u>0</u>
	0	9	0
	<u>0</u>	<u>9</u>	<u>0</u>

BARLEY.

Rent, tithe, and rates,	2	10	0
Ploughing, harrowing, and rolling,	1	15	0
Manuring,	1	0	0
Carry forward,	<u>£.5</u>	<u>5</u>	<u>0</u>
			Brought

COURSE OF CROPS.

215

Brought forward,	£.5	5	0
Seed, and sowing,	0	15	6
Water-furrowing,	0	2	0
Harvest,	0	15	0
Thrashing,	0	7	6
Carrying out,	0	6	0
Capital, fences, and draining,	0	10	0
		<hr/>	
		8	1 0
		<hr/>	
5qrs. at 30s.	7	10	0
5qrs. at 35s. (but barley does not average 35s.)	8	15	0
		<hr/>	
		8	1 0
		<hr/>	
Profit on barley,	0	14	0
Profit on wheat,	0	9	0
		<hr/>	
		4)1	3 0
		<hr/>	
Profit per acre, per ann.	0	5	3

The price of these two products every thing : a poor dependence !

DISTRICT, NO. II.

The extensive line of coast, with the corresponding margin of rich and fertile soil, which to various distances accompany the range of marshes that form part of it, is by far the most interesting district of this county, excellent as so many other features of it undoubtedly are. The quality of the soil, the general merit of the husbandry, and the magnificence of the crops, cannot fail to strike a spectator who understands in any degree what he views ; and one cannot but lament that the whole, or nearly the whole, is infested with those complaints in the human body, which have the same origin as the exuberance of the products.

On the singularly fine and impalpable loams and clays of Bradfield and Wicks, Mr. HARDY:

1. Fallow,
2. Barley,
3. Clover, red or white; generally the red;
4. Wheat,
5. Beans;

but if the clover miss plant, then beans instead of it. On the turnip loams of the same description, turnips substituted instead of fallow, except on about one-fifth, and this under pease; thus 100 acres will consist of 80 turnips, and 20 pease, as the fallow; 100 barley, 100 clover, 100 wheat. On such fine land I proposed a sixth year, wheat after the beans; but Mr. HARDY assured me that the black grass, or mouse tail, would in such case choak that wheat; some persons now and then did it, but always had reason to repent it.—*See Weeds.*

It is a universal rule through all this country, never to put in wheat on a fallow; always barley or oats. Wheat has been tried, but never answered. Mr. HARDY has sometimes tried beans on clover, and the wheat after the beans, but it does not well, merely on account of the black grass.

In 1802 Mr. HARDY, in a six aced field, had four acres of turnips mucked for and fed on the land; the two other acres fallowed, and had no muck. In 1803 the whole was sown with oats; and the two acres were the best crop. In 1804 all was beans, the four acres the better crop. In 1805 all was mucked for wheat; the whole a noble crop, but the four acres much the best.

This experiment is both in favour of and against turnips, in the point which has been mos. attended to: the barley best on fallow without manure, though the turnips mucked
and

and then fed off: thus a double dressing for barley did not equal fallowing. But the evil went no further; then the mischief of the turnips was at an end, and the scales turned.

At Ramsey, Mr. WOODROFFE, on land too heavy for turnips:

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|------------|--------------------|
| 1. Fallow, | |
| 2. Barley, | or, |
| 3. Clover, | 3. Beans or pease, |
| 4. Wheat, | 4. Wheat, |
| 5. Beans; | 5. Beans. |

These fifth crops only in case the land, from manuring, is in good heart. The beans being well hoed, and clean, they reckon it good husbandry to fallow after them, as it is a double cleaning to the land; and though good hoeing will do much, it will not quite destroy either thistles or black grass: but good hand-weeding extirpates the latter.

On the same fine loams at Little Oakley, the Rev. Mr. SCOTT:

- | | |
|------------|-----------------------------|
| 1. Fallow, | 4. Wheat, |
| 2. Barley, | 5. Some hoeing crop, beans, |
| 3. Clover, | &c. &c. |

If more crops, as a second of wheat, then the black grass thickens: more hoeing the consequence, and labour very high. Viewing an immense crop of wheat, and inquiring the rotation:

- | | |
|---------------------|----------------|
| 1. Fallow, | 4. Oats, |
| 2. Cole, seeded, | 5. Grey pease, |
| 3. Fallow, manured, | 6. Wheat 1805. |

If Mr. SCOTT perceives that his clover in the spring is doubtful, he ploughs it up, and dibbles in beans, as he gets much better wheat after good beans than after middling clover.

Mr. SALMON, in the fine farm of Beaumont-hall, belonging

longing to Guy's hospital, the soil of the same quality as that I have of late noted, and fully as good as most of it :

- | | |
|------------|-----------|
| 1. Fallow, | 4. Wheat, |
| 2. Barley, | 5. Beans. |
| 3. Clover, | |

If wheat be sown on a bean etch, he always drills, that the hoes may be the better admitted ; but on clover sows it always broad-cast.

Mr. DENNIS dibbles much in on clover.

At Kirby nearly the same loam, but not so good :

- | | |
|------------|-----------|
| 1. Fallow, | 4. Wheat, |
| 2. Barley, | 5. Beans. |
| 3. Clover, | |

Mr. BLYTHE varies it :

1. Fallow,
2. Barley,
3. Clover, white; and ray grass for two or three years,
4. Wheat,
5. Beans,
6. Wheat,
7. Beans,

8. Wheat : and this without black grass being any such enemy as I suggested the apprehension of from late information. One field he laid down for three or four years, and broke up for pease, and got four quarters and a half : then wheat four quarters and a half ; then tick beans seven quarters ; then wheat five quarters.

I had travelled so long accompanied by the old course of five shifts, with so many assurances that it was essentially necessary, that I was in no expectation of so soon meeting with so bold a variation.

Mr. BLYTHE remarks, that laying down for two or three years, or as long as suits the object of live stock, is such a check to black grass, that the success he has met with
may

may partly flow from it. There is another object also; he admits with the gentlemen I have lately conversed with, that the expenses of this country are high; and therefore he takes this course as a means of lowering them; for while the land is in grass he puts his hand in his pocket for rent and taxes only; and that the land receives improvement by laying down, his crops are a proof. Mr. BLYTHE stated products to me much higher than I have received the accounts from others, whose soils were apparently better. He drills all.

Mr. COTES, at Great Holland :

1. Fallow,
2. Barley,
3. Clover,

4. Wheat: and on this strong land the soil is not tired of clover, and Mr. COTES thinks that it is not likely that it should be so. I proposed beans on the clover, and then the wheat, but he thought it bad, because they are so liable to be plagued with *water-grass*. Here is a new motive for a fallow every fourth year: hitherto it has been black grass, but Mr. COTES does not think much of that.

At Walton, the adjoining parish, I was assured more than once on this journey, that beans and wheat were continued in succession for 36 years, and the husbandry being changed for some years, the farmer complained that he had not been paid by it so well as his father was by that incessant cropping. Had black grass and *water-grass* no existence in those days? I had more than once mentioned, that in a soil agreeing so well with beans, and where any quantity of London dung was to be had, this course was perfectly feasible; but I met no one of the opinion. Yet several mentioned the fact, that 23 coombs per acre of beans have been known. At Great Clackton, Mr. RYLAND and others:

1. Turnips,

- | | |
|--------------------------|---------------|
| 1. Turnips, | 4. Wheat, |
| 2. Barley, | and some add, |
| 3. Clover, red or white; | 5. Oats. |

Some, but it is not common, put in pease on the clover, and then take wheat. If ray-grass be sown with the clover on strong land, beans follow; but not much strong enough for this crop at Great Clackton; much more at Little Clackton.

At St. Osyth:

- | | |
|-------------|------------|
| 1. Turnips, | 3. Clover, |
| 2. Barley, | 4. Wheat; |

and some add another crop; but Mr. BAWTREE very rarely. If clover be found to fail, they substitute white clover, tares or pease.

Mr. BENNET HAWES, and others in the Island of Mersea:

1. Fallow,
2. Barley; a few oats.
3. Clover,
4. Wheat,
5. Beans,

6. Wheat. This is the general course, and the old farmers will not depart from it.

Upon the best land, a mixed soil, but very excellent, across the centre of the Island from east to west, Mr. BENNET, and others:

- | | |
|------------|------------|
| 1. Fallow, | 6. Fallow, |
| 2. Barley, | 7. Wheat, |
| 3. Clover, | 8. Clover, |
| 4. Wheat, | 9. Wheat, |
| 5. Tares, | |

I was shewed a field by Mr. BENNET HAWES, in the midland part of the Isle, and the soil uncommonly fine, which was broken up from old grass twenty-nine years ago, and

and yielded eleven crops before it had a fallow, most of them were beans and wheat alternately, and the crops very great. This field in 1801 was under barley; in 1802 clover; in 1803 wheat, and yielded six quarters an acre; in 1804 tares; in 1805 wheat, above four quarters. It has been fallowed but thrice in twenty-nine years; half of it was chalked nine years ago, and this is all the manure it has received since it was broken up. The crops have all been great; scarcely a slight one has occurred. The soil for six or seven inches deep a very dark coloured friable loamy mould, and under it the same for as much more, but of a paler colour, tending to a shade of yellow. Mr. HAWES has found it very advantageous on his heavier land to manure his clover lays, and dibble beans on them, and then take wheat; and this crop has been better than on clover, but it is not much practised.

Another Mersea course on turnip land:

- | | |
|--------------------|---------------|
| 1. Turnips, | 5. Beans, |
| 2. Barley or oats, | and some add, |
| 3. Clover, | 6. Wheat; |
| 4. Wheat, | |

and on strong land the same, except fallow instead of turnips: in some cases the *soil* rejects the last wheat, and in others, the *management*.

The new leases given by the Earl of WINCHILSEA to his tenants in Foulness Island, permit the following course, proposed by Mr. WOOD:

- | | |
|---------------------------------------|---------------------------|
| 1. Fallow, | 4. Wheat, |
| 2. Oats, barley, or white
mustard, | 5. Beans, or pease, hoed, |
| 3. Clover, | 6. Wheat. |

Should the clover fail, beans in lieu of it. Mr. WOOD, of Maldon, his Lordship's agent, gave me this course as that prescribed: when I came on to the Island, I found
from

whence it appears that very little change has taken place in twenty-one years.

Mr. KETCHER at Burnham :

- | | |
|---------------------|-----------------------------|
| 1. Turnips, | 4. Wheat, |
| 2. Barley, | 5. Pease, beans, or tares ; |
| 3. Clover,
also, | |
| 1. Fallow, | 4. Wheat, |
| 2. Oats, | 5. Pease, beans, or tares. |
| 3. Clover, | |

He has also a system of sowing beans on a fallow ; then wheat, and gets very strong crops. If clover fails he sows tares. Another variation is, to lay down with red and white clover and ray grass for three or four years, and break up for pease : he finds ray very good on hot lands. One field in which the clover was gone, and only ray remained, was thus farmed :

- | | |
|------------|-------------|
| 1. Fallow, | 5. Pease, |
| 2. Oats, | 6. Wheat, |
| 3. Clover, | 7. Grasses. |
| 4. Wheat, | |

This was not correct.

Mr. BAWTREE of Southminster :

- | | |
|----------------------------|---------------------|
| 1. Fallow, | 4. Wheat, on marsh, |
| 2. Oats (but some barley), | 5. Beans, |
| 3. Clover, | 6. Wheat added. |

For two and thirty years clover was certain with him ; but is not so now ; when it fails he sows tares. Mr. BAWTREE thinks it better not to take beans after the wheat on the uplands, but he does sometimes.

Mr. SPURGEON at Bradwell :

- | | |
|----------------------------|------------|
| 1. Fallow, | 4. Wheat, |
| 2. Oats (barley very bad), | 5. Beans, |
| 3. Clover, | 6. Wheat ; |

but

but the last wheat not always added: beans sometimes on the fallow instead of oats. Very few turnips; Mr. ANDREWS on a lighter soil than common here, has only twenty acres in three hundred. Forty or fifty years ago it was the practice to summer-fallow for wheat, and three or four ploughings reckoned a good fallow. Mr. LOSSELL was the last who was in this system: now they give eight earths for oats.

On one field of good land, Mr. SPURGEON has had:

1. Fallow: soon after seventy loads an acre of chalk and earth compost,
2. Oats,
3. Clover manured, and none after,
4. Wheat,
5. Mazagan beans, the stubble well *cased* for;
6. Wheat,
7. Pease; the stubble well *cased* for;
8. Wheat,
9. Tares, well *cased* for;
10. Wheat: the stubble of which I viewed, and found quite clean.

This course should seem to remove some steps the necessity of repeated fallows.

Near Rochford, on the land that will do for turnips, Mr. BARRINGTON:

1. Turnips,
2. Oats, very little barley,
3. Clover; tares, pease or beans if a failure,
4. Wheat,
5. Oats;
- but if the land is good,
5. Beans,
- and if very good,
6. Wheat.

Wheat on clover which was sown with barley, never so good as that which follows oats.

Mr. WRIGHT, at Rochford-hall, on good land :

- | | |
|------------|-----------------------|
| 1. Fallow, | 4. Wheat, |
| 2. Oats | 5. Beans; some pease, |
| 3. Clover, | 7. Wheat. |

But upon ordinary land, the two last crops are in this district omitted.

Should the clover fail, which it is not apt to do, he puts in spring tares.

Mr. PRENTICE, at Prittlewell, on the fine land of Rochford district:

1. Turnips, or cole for mowing; some fallow;
2. Oats, some barley;
3. Clover, fed once and mown once;
4. Wheat, and often adds, but not always,
5. Beans,
6. Wheat,

Mr. PARSONS, at North Shoebury, begins with a fallow, and then goes on as above for six years. The wheat as good after the beans as after the clover, the latter being more subject to the worm. The beans hoed two or three times, at 12s. to 20s. expense.

Mr. JOHN KNAPPING, at Shoebury :

1. Fallow,
2. Oats; a very little brown mustard;
3. Clover; some mown, some fed; feeding gives the best wheat:
4. Wheat,
5. Beans,
6. Wheat,

Dr. ASHON, at Little Wakering:

1. Fallow, and if manured, sown with cole or turnips;
2. Oats; barley runs so coarse that it does not answer.
3. Clover,

3. Clover,
4. Wheat,
5. Beans ; always hoed twice, generally thrice, at the expense of 16s. to 18s.
6. Wheat,

Mr. HICKS, on the stiff clay at Hockley :

1. Fallow,
2. Oats, or barley,
3. Clover,
4. Wheat ; and can go no further. Cole will not do as he cannot feed any thing on the land in winter.

Mr. VASSAL, at Eastwood :

1. Fallow, for cole or turnips,
2. Oats, or barley,
3. Clover,
4. Wheat,
5. Oats, or barley,
6. Clover,
7. Wheat ; and this wheat as good as that of the fourth year. Eastwood rises on to the clay hills, but Mr. VASSAL's farm is on the level and rich vale, and joins the lands of Rochford-hall, with the addition of the tithe being gathered on a large part of that famous farm, and the rest of Eastwood, and brought on to this farm of Mr. VASSAL's. I objected to the course, and conceived that the last wheat would be a bed of weeds : he referred me to a stubble by the road side, which Mr. WRIGHT (who was with me) and myself examined. It was certainly much cleaner than there was any reason to expect ; the crop had been very large, was *laid*, and seemed to have smothered most of the weeds.

The courses mentioned by Mr. VANCOUVER in this district, which more particularly merit attention, are,

The Rev. H. B. DUDLEY, then resident in Bradwell,

well, says, in his letter to Mr. VANCOUVER, "All kinds of corn are abundantly grown here; but less of barley than any other, it being found to run so much to straw, as to produce the corn of a lean and coarse quality. Rape-seed, coriander, mustards, white and brown, and carraway, are likewise grown occasionally to a considerable amount. The best course of husbandry is as follows:

1. Fallow,
2. Oats (if tender land, with turnips),
3. Clover,
4. Wheat,
5. Beans or pease;

and if the land is in good heart, and has been clean hoed, another crop of wheat is sometimes taken before the next fallow. This system is not much departed from, except towards the end of a lease. Where the soil appears tired with the repetition of clovers, which, in that case, die off in the spring, tares are frequently substituted in their room, and the change is found advantageous beyond the succeeding crop of wheat*."

"Upon the temperate lands in Rochford hundred, &c. first, through summer and winter, fallow for oats or barley, with which sow sixteen pounds of red clover, or, in lieu thereof, six pounds of white Dutch clover, and ten pounds of trefoil per acre. Clover-lay sown with wheat, the etches of which are dunged, and sown with beans, that are kept well hoed through the summer, and again sown with wheat; after which, a crop of oats or barley is sometimes taken, but most generally the wheat stubbles are haulmed, and sown with winter tares for spring food, then dunged and prepared for cole-seed, fed with hogs, left for a crop, and succeeded with wheat; the stubbles

* Vancouver.

of which are dunged, sown with beans, which are kept well hoed, and fallowed by a second crop of wheat; then fallow in course for oats or barley. In this routine of crops, a thorough summer and winter fallow, and a short preparation for cole-seed, only occurs once in twelve years. The whole is esteemed clean good farming, and when the bean land is not too loose and mellow, it is always sure to produce excellent wheat.

- | | |
|-----------------------|---------------|
| 1. Summer-fallow, | 8. Coleseed, |
| 2. Barley or oats, | 9. Wheat, |
| 3. Clover or trefoil, | 10. Beans, |
| 4. Wheat, | 11. Wheat, |
| 5. Beans, | 12. Beans, |
| 6. Wheat, | 13. Wheat *." |
| 7. Winter tares, | |

Things are changed, therefore; for I found more fallowing.

DISTRICT, NO III.

There is not any circumstance in the soil, or management, peculiar to this district, that makes it remarkably interesting; such parts as are of a heavy wet soil, comprising much the greater portion of it, are under an improved system of crops, far removed from that of crop and fallow, or the more ancient husbandry of two crops and a fallow; the parts that admit turnips are cultivated accordingly.

On strong stiff land at Hempstead, some,

- | | |
|------------|------------|
| 1. Fallow, | 3. Fallow, |
| 2. Wheat, | 4. Barley; |

a course that proves it to be in the near vicinity to the Rooding district; but more generally,

- | | |
|------------|----------|
| 1. Fallow, | 2. Cole, |
|------------|----------|

* Vancouver.

3. Wheat; but little, and only once in nine or ten years.

Much the greater part of Yeldham is too heavy a soil for turnips; the course,

- | | |
|------------|------------|
| 1. Fallow, | 3. Clover, |
| 2. Barley, | 4. Wheat; |

and if the clover land was mucked for wheat, they add, sometimes,

5. Oats.

Clover, however, is apt to fail, if sown once in four or five years; variations are therefore formed by pease, beans, or tares; and clover does well once in eight years. On the drier land, turnips instead of fallow.

At Toppesfield:

- | | |
|---------------|------------|
| 1. Fallow, | 3. Clover, |
| 2. Barley, | 4. Wheat; |
| and some add, | |
| 5. Beans, | 6. Wheat; |

and a few, in certain fields, barley or oats, after the wheat of the fourth year. But variations occur to throw out the clover for seven years, or it dies in the winter.

Mr. BURREL, at Birdbrook, on his turnip land:

- | | |
|-------------|-----------------------------|
| 1. Turnips, | 4. Wheat, |
| 2. Barley, | 5. Some crop which the land |
| 3. Clover, | may be in order for. |

Mr. RUGGLES, at Spaines-hall, on strong loam:

- | | |
|-----------------|-------------------|
| 1. Fallow, | |
| 2. Barley, | |
| 3. Clover-seed, | <i>Variation.</i> |
| 4. Beans, | 4. Wheat, |
| 5. Wheat, | 5. Beans, |
| 6. Fallow, | 6. Oats, |
| 7. Barley, | |

8. Beans,

- 8. Beans,
- 9. Wheat.
- 10. Oats.

The rotations at Spaines-hall, as every where else, vary with circumstances; those most predominant some years ago, were,

- 1. Fallow,
- 2. Cole-seed,
- 3. Wheat.

Some very successful experiments that have occurred in this neighbourhood, particularly a produce of 15 $\frac{1}{2}$ an acre over a twenty-acred field in the hands of one of Mr. RUGGLES' tenants, have made this course more common, perhaps, than it ought to be. The very best wheat in the neighbourhood is thus gained, and I viewed several crops that were highly promising. This circumstance is singular: cabbages are said by many to exhaust land considerably; cole is a cabbage, and has the further circumstance of perfecting its seed: those plants, the seeds of which yield oil, are further said to exhaust in an extraordinary degree; yet cole-seed in many other districts, as well as in this, is esteemed a capital preparation for wheat. This is a point not well ascertained in its comparative and collateral inquiries; nor will be, until various preparations are accurately compared; an experiment not difficult, but to make satisfactorily would be very expensive. We are to note, that the cole-seed occupies the land two entire years, and that the fields, which I see now preparing, are either folding, or mucking richly for it; we are further to take into the account, the manure of the farm being applied to a crop which does not feed cattle or sheep; when laid on for turnip, cabbage, potatoe, clover, grass, &c. a great future increase of dung is the consequence, and, of course, the farm ameliorates; but when given to such as do not feed cattle, this impor-

tant benefit is lost; and it is lost to a singular degree in this case; for by wheat following the cole, and a fallow succeeding the wheat, it seems confessed that all benefit of the manure is lost in those two crops, without remainder to support any other that would tend to increase the dunghill: that gradation of improvement, therefore, which cattle and sheep only can ensure, is lost; a reason sufficient for a landlord prohibiting such a course of crops as this of, 1. fallow, and dung for cole; 2. wheat; 3. fallow. Consistently with this, I was assured by another farmer, that cole draws the land greatly, and was tried by him until he found he was losing money by it, and gave up the practice.—*Note some years ago.*

Helion Bumpstead, and to Haverill, &c.—“Two crops and a fallow, is the generally prevailing system of husbandry; though the most intelligent farmer will sometimes vary this mode, by sowing clover with the barley, which stands as an etch crop in the place of oats; this is either fed with sheep, or mown for hay; it lies for sheep food during the next fallow season, is broken up in the spring following, and planted with pease or beans; kept well hoed during the summer, and succeeded by wheat in the etch, or second crop field; it is then fallowed for barley. This practice is found to answer extremely well, though in the open common fields, it must ever be confined to the flock-masters, otherwise their sheep would feed upon the green wheat until Lady-day, and spoil the crop.

“This is,

- | | |
|------------|----------------------|
| 1. Fallow, | 4. Clover, |
| 2. Barley, | ~ 5. Beans or pease, |
| 3. Clover, | 6. Wheat*.” |

* Vancouver.

DISTRICT, NO. IV.

The observation I just made on the third district, is partly applicable to this; but the vicinity of it to the fertile soils of Tendring hundred, has introduced the great improvement of making beans a preparation for wheat, which would be more general, if leases, as I suspect, do not prevent it. A fallow course, in which beans are followed by wheat, certainly has merit.

On the heavy lands of Langenhoe, Mr. COOPER :

1. Fallow ;
2. Barley or oats ; chiefly barley ;
3. Clover ;
4. Wheat ;
5. Beans ;
6. Wheat : this, if the land be clean, and in heart ; if not, the last wheat omitted, and fallow after the beans. Clover, in either course, stands well ; if a plant be got, it does not die. He sometimes takes two crops of beans in succession, hoeing both thoroughly, and then wheat ; and Mr. PERTUIS has done this, last year, and also the present.

Various soils, both strong and dry, at Layer de la Haye ; on turnip land :

- | | |
|--------------------|-------------------|
| 1. Turnips, | 4. Wheat, |
| 2. Barley or oats, | 5. Pease or oats. |
| 3. Clover, | |

Mr. BUXTON omits this fifth crop ; on his strong land :

- | | |
|------------|------------|
| 1. Fallow, | 4. Wheat, |
| 2. Barley, | 5. Beans ; |
| 3. Clover, | |

and some add wheat after these beans : but this is reckoned bad

bad husbandry, on account of the black grass; and a singular circumstance occurs here, which is, that where this weed has abounded from injudicious cropping, there the clover of the next round is apt to fail. Here is a new circumstance attaching to black grass, which did not occur before, much as I have heard concerning it. To summer-fallow after beans, Mr. BUXTON holds to be excellent management on these strong soils; and observes, that upon the fallows that succeed beans, there is not the tenth part of the black grass which is found in those which follow wheat. If clover fails, Mr. BUXTON sows spring tares, which he feeds, and then gives a bastard fallow; and the wheat in this case is better than after clover. Sometimes, also, instead of beans after wheat, he sows winter tares, which he sheep-feeds, and then bastard fallows for wheat, which is good: beans after the wheat, and these are much better than such as follow clover-land wheat.

At Great Wigborough, on very strong land:

1. Fallow,
2. Oats; the soil too strong for barley;
3. Clover;
4. Wheat;
5. Beans; and if the land is in heart, and good order,
6. Wheat.

At Birch-holt, Mr. POWELL, &c. on strong loam upon a whitish clay bottom:

- | | |
|------------|--|
| 1. Fallow, | 5. Fallow, |
| 2. Barley, | 6. Barley, |
| 3. Clover, | 7. Beans or tares; the latter best for |
| 4. Wheat, | 8. Wheat. |

Formerly only four shifts; but changed to eight, as the land is sick of clover, if sown oftener. On drier soils,

1. Turnips,

1. Turnips,
2. Barley,
3. Clover,
4. Wheat ; and if manured every round, then add,
5. Oats.

DISTRICT, NO. V.

This district in management nearly resembles the preceding, and would have been thrown to it, had not a very different country intervened. Much of the soil is, however, superior to No. IV.

Mr. DINES, at Snorum-hall :

- | | |
|------------|---|
| 1. Fallow, | 4. Wheat, |
| 2. Oats, | 5. Beans; and some add, but
not often, |
| 3. Clover, | 6. Wheat, |

Another :

- | | |
|------------|------------|
| 1. Fallow, | 4. Clover, |
| 2. Beans, | 5. Wheat. |
| 3. Oats, | |

This is a remarkable course. Mr. DINES thinks their land is tired of beans ; and he is persuaded that beans *draw* the land : such an idea, it is to be hoped, will not become general.

Mr. RUSH, of Latchingdon :

1. Fallow,
2. Oats ; but some barley, not much ;
3. Clover : if it fails, beans or tares ; very few pease sown ;
4. Wheat,
5. Beans,
6. Fallow,
7. Wheat. Wheat, however, in general best after clover,

clover. This wheat is sown very late, in order to kill the black grass.

Mr. PARRISON, on the hills of St. Lawrence, a stiff tenacious soil on clay :

- | | |
|------------|-------------------------|
| 1. Fallow, | 5. Beans, hoed twice or |
| 2. Oats, | thrice, |
| 3. Clover, | 6. Wheat; |
| 4. Wheat, | |

but not universal; they often return sooner to the fallow, and sometimes sow beans on it; if they sow tares on the fallow, they do not think the fallow perfectly prepared, and therefore prefer beans.

At Assingdon, on very strong land on clay :

- | | |
|---------------------|--------------------------|
| 1. Fallow, | 5. Beans; |
| 2. Oats, | and if the land be good, |
| 3. Clover, manured, | 6. Wheat. |
| 4. Wheat, | |

It is sick of clover; and when it fails, beans, tares, or pease, are substituted. The beans hoed thrice, at the expense of 21s. per acre.

Mr. HARWICH, at Rayleigh, the old course of six crops: but in some cases,

- | | |
|------------|-----------|
| 1. Fallow, | 3. Beans, |
| 2. Wheat, | 4. Wheat; |
| and, | |

- | | |
|------------|------------|
| 1. Fallow, | 3. Clover, |
| 2. Wheat, | 4. Wheat. |

Very few turnips or cole, as the soil is too strong and heavy.

From Hadleigh to and at Thundersley, there is a great declension from the management of the rich part of Rochford hundred. The old course is found, but the bean stubbles

stubbles are this year dreadfully over-run with weeds; yet they say all have been hoed twice. Chalk or lime every where in heaps.

DISTRICT, NO. VI.

The Norfolk turnip system was the generally prevailing one of this district:

- | | |
|-------------|------------|
| 1. Turnips, | 3. Clover, |
| 2. Barley, | 4. Wheat; |

till the repetition of clover made it so uncertain a crop, that variations were necessarily introduced; and this circumstance has given what variety is here to be found in cropping; the substitutions instead of clover following the private opinion, or accidental information of the farmers. On the strong lands interspersed, the husbandry is that of fallow instead of turnips, and the following crops as in the other heavy soils of the county.

On the dry sound turnip soils of Beerchurch, the course pursued by Mr. ROBERT TABER of Colchester:

- | | |
|-------------|------------|
| 1. Turnips, | 3. Clover, |
| 2. Barley, | 4. Wheat; |

and though the clover will sometimes miss-plant, Mr. TABER does not conceive it to arise from the soil being what is called sick of the plant, but from other and more accidental causes: when it happened he sowed tares for feeding off with sheep, or for mowing. He often sowed rye, for sheep food on a part of the wheat stubbles where turnips were intended, but the barley which followed the turnips rather suffered by it, occasioned by keeping it too long in the spring (when most valuable) a temptation in a late spring difficult to escape.

About

About Copdock, &c. light loam on gravel :

1. Turnips,
 2. Barley,
 3. Clover, which does not fail so much as in some districts ;
 4. Wheat,
 5. Pease ;
- or, by others :

4. Pease,
5. Wheat.

On the stronger land :

- | | |
|------------|-------------------------------------|
| 1. Fallow, | 4. Wheat ; |
| 2. Barley, | and by some, |
| 3. Clover, | 5. Oats ; or beans ; if the latter, |
| | 6. Wheat. |

Mr. ROGERS, at Ardleigh, on his light loamy sand on a gravel bottom :

- | | |
|-------------|-------------|
| 1. Turnips, | 1. Turnips, |
| 2. Barley, | 2. Barley, |
| 3. Clover, | 3. Clover, |
| 4. Wheat, | 4. Pease, |
| 5. Pease. | 5. Wheat. |

The clover either red or white, for change : he never loses a crop of white clover from the land being tired of red.

Also,

1. Turnips ; on a part of the land, potatoes.
2. Barley,
3. Clover,
4. Pease ; on a small part potatoes.
5. Wheat ; and in some fields adds,
6. White clover,
7. Oats,

He

He has sometimes taken wheat after white clover, and gained as good crops as after red clover.

DISTRICT, NO. VII.

The most interesting feature in the cropping of these lands, is formed by sainfoin, which is here well introduced, and well managed, but has not the extent to which it ought to be carried.

On the loam upon gravel at Chesterford, while open field, the flock farms :

- | | |
|-------------|------------------------------|
| 1. Turnips, | 3. Pease, or oats; if pease, |
| 2. Barley, | 4. Wheat. |

Also others :

- | | |
|------------|------------|
| 1. Fallow, | 3. Barley, |
| 2. Wheat, | 4. Pease. |

Enclosed in 1803, and nearly the whole changed to,

- | | |
|-------------|------------|
| 1. Turnips, | 3. Clover, |
| 2. Barley, | 4. Wheat. |

The Rev. W. MACKLIN the same course, but adds,

5. Tares.

Lord BRAYBROOK, at Audley End, is in an uncommon course of crops, but well adapted to the soil, on which wheat is given to the mildew, and run out by former bad management :

- | | |
|-------------|------------------------|
| 1. Turnips, | 3. Clover and trefoil, |
| 2. Barley, | 4. Barley. |

This upon newly enclosed land, that had been long under the husbandry of two crops and a fallow :

1. Fallow,
2. Wheat, if the land would bear it; if not, barley; and,
3. Pease or oats; the old open field husbandry of

Littlebury

Littlebury field. But on the old enclosed lands in good heart :

1. Turnips,
2. Barley,
3. Clover,
4. Wheat, if the land is good enough ;
5. Pease, or beans, or oats; the former drilled and hoed.

About one-fourth of Walden is heavy strong land ; and the course,

- | | |
|------------------------------|------------|
| 1. Fallow, | 4. Fallow, |
| 2. Wheat, | 5. Barley. |
| 3. Beans, dibbled and hoed ; | |

And many are in,

- | | |
|------------|-------------|
| 1. Fallow; | 3. Fallow, |
| 2. Wheat, | 4. Barley ; |

a sure proof it touches on the Rooding district.

Mr. CLAYDEN, a very spirited tenant of Lord BRAYBROOK, practises a singular husbandry, which has merit. After harvest, he ploughs as for a fallow ; again early in the spring ; and in May, ploughs, and sows trefoil alone, half a bushel of seed per acre ; when it is well up, and gathered, he feeds it till November ; then manures it with coal-ashes, and takes a crop of seed the next year ; and ploughing it up in autumn, fallows for barley ; the crop great : after that, a summer-fallow. He had 24 acres thus farmed last year, and got the great produce of four jags an acre of trefoil ; and a circumstance which marks the spirited management of this farmer is, that he hand-hoed the trefoil in the spring of the mowing year, cutting out all weeds, and knots of grass, &c.

Mr. NOCKOLD has been successful in the same management. The tillage for barley the same as in the case of clover.

DISTRICT,

DISTRICT, NO. VIII.

I was told by many persons, that the soils of the county of Essex were so intermixed, that no map could be given of them, and the titles annexed to Mr. VANCOUVER's districts were cited as a proof that he could scarcely avoid running together in every one of his divisions, soils directly the reverse of each other; but after viewing the county in its principal features, there appeared to be some clear discriminations: after these were made, however, there remained a large portion of the county, in which the mixture of soil and management were so nearly what the general opinion had represented the whole, that I was obliged to leave it in one mass of miscellaneous soils, in which they are all found, and under every kind of management.

Mr. COKER, at Borely:

Strong land.	Dry land.
1. Fallow,	1. Turnips,
2. Barley,	2. Barley,
3. Clover,	3. Clover,
4. Wheat,	4. Wheat,
5. Beans or pease,	5. Pease.
9. Tares,	
7. Oats.	

By changing red for white clover, or trefoil, one round, clover will then stand well.

Mr. FENN, at Middleton-hall:

1. Fallow,	1. Turnips,
2. Barley or oats,	2. Barley,
3. Clover,	3. Clover,
4. Wheat,	4. Wheat.
5. Tares, beans, or pease.	

When the land is sick of red clover, white clover in

ESSEX.]

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SOME

some cases, in others pease, are substituted; and if the land is clean, the following wheat is as good; the precaution, however, is used, to plough after the first growth of white clover, which is seeded, and a bastard fallow given of scarifying and scuffling, and no more ploughing.

In one or two fields:

- | | |
|-------------|------------|
| 1. Turnips, | 6. Wheat, |
| 2. Barley, | 7. Tares, |
| 3. Clover, | 8. Barley, |
| 4. Wheat, | 9. Pease, |
| 5. Beans, | 10. Wheat. |

Pease Mr. FENN reckons better than beans, because off the land so much sooner. Has taken turnips after pease the same year; but only in case the latter are very early.

ROBERT ANDREWS, Esq. gave a good specimen: his husbandry excellent; the course,

- | | |
|--|------------|
| 1. Fallow, | 5. Pease, |
| 2. Barley, which produces
from five to eight qrs. | 6. Barley, |
| 3. Clover, | 7. Clover, |
| 4. Wheat, produce 3 qr. | 8. Wheat. |

He has had so high as six quarters of wheat an acre. Pease generally from two and a half to five and a half, which are vast crops. In preparing the clover-lays for wheat, he generally goes over them after ploughing, with a spike roller, to prevent the seed coming up in seams.

At Belchamp Walter, Mr. LONG:

- | | |
|--|--------------------|
| 1. Turnips, manured with
yard-dung, and drawn
for bullocks, &c. some
fed off. | 3. Barley, |
| 2. Barley, | 4. Clover, |
| | 5. Wheat, |
| | 6. Pease or beans, |
| | 7. Wheat. |

Mr. DIGBY, a little tenant of the Rev. Mr. RAYMOND, at Belchamp Walter, on a small field:

1. Beans,

1. Beans, near ten quarters per acre,
2. Beans, ten quarters per acre,
3. Wheat, six quarters,
4. Beans, five quarters,
5. Wheat, five quarters.

Has had neither fallow nor dung in twenty years: the soil strong loam two feet deep on clay.

Mr. KEMP, of Hedingham, on strong land :

- | | |
|------------|-----------------|
| 1. Fallow, | 4. White pease, |
| 2. Barley, | 5. Wheat. |
| 3. Clover, | |

On lighter land :

- | | |
|-----------------|-----------------|
| 1. Turnips, | 5. Wheat, |
| 2. Barley, | 6. Turnips, |
| 3. Clover, | 7. White pease, |
| 4. White pease, | 8. Wheat, |

Never permits two white corn crops to succeed each other.

Also,

- | | |
|------------|-----------------|
| 1. Fallow, | 6. White pease, |
| 2. Barley, | 7. Barley, |
| 3. Beans, | 8. Clover, |
| 4. Wheat, | 9. Wheat. |
| 5. Tares, | |

In all his courses an attention that clover does not occur too often; the land being sick of it.

Mr. MAJENDIE, on strong land :

1. Fallow,
2. Barley always a seed earth in the spring; sometimes oats.
3. Clover, red or white; if the land sickens, tares.
4. Wheat.

On dry land :

- | | |
|--------------------|-----------------------|
| 1. Turnips, | 3. Clover, as before, |
| 2. Barley or oats, | 4. Wheat. |

Mr. VAIZEY, at Halstead, on land too wet for turnips :

- | | |
|------------|------------|
| 1. Fallow, | 3. Clover, |
| 2. Barley, | 4. Wheat ; |

with such variations as failing clover may occasion: one of which has been :

- | | |
|------------|-----------|
| 1. Fallow, | 3. Beans, |
| 2. Oats, | 4. Wheat, |

and other accidental variations. Turnips are sown on the land dry enough. A summer-fallow he considers as necessary on about half his farm once in four or five years : in some of his fields once in eight years. On a six aced piece the following has been his rotation :

1795. Summer-fallowed ; drained, ditched, and the ditch earth with twenty-five loads of dung per acre, spread.

1796. Barley,

1797. Clover,

1798. Wheat,

1799. Tares used in soiling,

1800. Wheat,

1801. Dun pease,

1802. Rye : sown with a view only to sheep feed, but proved good for a crop, and yielded greatly.

1803. Dunged twenty loads an acre for white mustard.

1804. Oats,

1805. Clover fed.

In another field :

- | | |
|--------------------|------------|
| 1. Fallow, | 4. Oats, |
| 2. Barley, | 5. Clover, |
| 3. Beans, manured, | 6. Wheat : |

a very

a very good course for throwing clover to the distance of six instead of four years.

Mr. SEWELL, of Maplestead, has given much attention to banishing fallows from strong land, as well as from light, and has with various courses succeeded well for a certain number of years. The following has been his rotation in one field:

- 1791. Turnips mucked for and drawn.
- 1792. One ploughing for carrots for seed ; crop $3\frac{1}{2}$ cwt. per acre, at 63s.
- 1793. One ploughing for wheat : eighteen bushels per acre.
- 1794. One ploughing for winter tares, mown green for soiling.
- 1795. Three ploughings for barley : six quarters and a half.
- 1796. Clover half fed, half mown ; then all seeded : four bushels per acre.
- 1797. Mucked for wheat, the fed and mown equal ; three quarters and a half.
- 1798. Windsor beans dibbled at eighteen inches ; three quarters.
- 1799. Wheat ; twenty bushels.
- 1800. Pease ; four quarters and a half.
- 1801. One ploughing for oats ; six quarters.
- 1802. Trefoil seeded ; badly got in : nine bushels at 20s.
- 1803. Wheat twenty-two bushels.
- 1804. So much trefoil came up, that he dunged and seeded it : failed : only four bushels per acre.
- 1805. Windsor beans, oats, and pease. I viewed this crop, and it is a fair one. Next year he will summer-fallow.

Also,

1. Turnips,

2. Barley,

R 3

3. Clover,

- | | |
|-------------|--------------------|
| 3. Clover, | 6. Barley, |
| 4. Wheat, | 7. Tares or pease, |
| 5. Turnips, | 8. Wheat. |

In this course, the tare or pea stubble not ploughed till wheat sowing.

Mr. SPERLING, at Maplestead :

1. Turnips, half drawn half fed, in alternate stitches on dry land fallow ;
2. Barley or oats, alternately ;
3. Clover ; red, white, or trefoil,
4. Wheat ;
and if the land is in good order, adds,
5. Beans,
9. Wheat.

About half his farm turnip land. He never on any account sows wheat on a fallow, which he thinks the worst of husbandry.

Mr. THURLOW, at Gosfield ;

- | | |
|-------------|--------------------------|
| 1. Turnips, | 3. Clover, white or red, |
| 2. Barley, | 4. Wheat. |

He does not find his land sick of clover ; attributing this partly to the treading the barley stubble with the flock ; the pressure of their feet advantageous : but sows seventeen pounds per acre : ten or twelve the common quantity.

Mr. SAVILLE, at Bocking :

1. Fallow, or turnips, according to the soil ;
2. Barley ;
3. Clover ; the dung on the barley-stubble ;
4. Wheat ;
5. Oats, added by some, but not allowed.

Tares, or pease, the variation, where clover fails. But he is in the beginning of a very interesting variation ; that of an alternate system of corn and grass. He has,

• for

for two or three years past, sown white clover and ray-grass, in one field each year, with cole-seed for feeding by sheep, having twelve acres this year, which I viewed with much pleasure: a good crop of cole, and a beautiful plant of those grasses amongst it, even where thickest and highest; this grass he means to feed or mow three, four, or five years, according to circumstances, and then breaking it up, expects to get good corn. He will not be disappointed; but the success with ray demands close feeding, and no mowing. This very sensible and intelligent cultivator has another idea, tending to lessen the expenses of fallows, which also promises to be, in certain cases, useful, and that is, to plough the intended fallows as early as possible, and to harrow in cole for spring food, for sheep.

Mr. HANBURY, at Coggeshall, his course of eight years, that clover may not fail:

- | | |
|------------|------------|
| 1. Fallow, | 5. Tares, |
| 2. Barley, | 6. Barley, |
| 3. Clover, | 7. Beans, |
| 4. Wheat, | 8. Wheat. |

If he expects clover not to fail, though often repeated, the course is the first four years of the preceding.

The farmers of the vicinity are gradually getting into this:

- | | |
|------------|------------|
| 1. Fallow, | 4. Wheat, |
| 2. Barley, | 5. Clover, |
| 3. Beans, | 6. Wheat; |

which is as bad a course as can well be arranged, without two crops of white corn in succession.

Mr. FISHER UNWIN, at Coggeshall, on very fine rich loam, worth 40s. an acre; I viewed a field of wheat so fine (but all laid), that I inquired the course:

- | | | |
|--------------|---------------------|-------|
| 1798. Wheat, | 1799. White clover, | |
| | R 4 | 1800. |

1800. Barley,	1803. Wheat,
1801. Beans,	1804. Tares,
1802. Wheat,	1805. Wheat.

Soil, not rotation, did the business here ; but he manures very amply. He has other fields of inferior land ; but has not fallowed for forty years ; nor does he sow turnips, giving his attention to more valuable products.

Mr. HONEYWOOD's course, and general on the very stiff lands around Marks-hall :

1. Fallow,	3. Clover or beans,
2. Barley,	4. Wheat.

Summer-fallow wheat very rarely succeeds about Marks-hall : all agree that it will not do ; yet the soil is a very strong, retentive, obstinate loam on a yellowish clay bottom.

On the strong loams on a clay bottom at Kelvedon, Rivenhall, &c. Mr. WESTERN thinks summer-fallow essentially necessary : if it occurs but seldom, it may be consistent with the best husbandry. He shewed me one of his fields, part of which was under cabbages, part turnips, both dunged for ; and part summer-fallow, ridged up for barley without dung ; and remarked, that the barley would be a quarter per acre better after the fallow than after the turnip or cabbage. This may be ; for a turnip should never be seen on such land. As to cabbages, he has, in an adjoining field, eight, probably nine, quarters an acre of potatoe oats after that crop, which rather tends to a refutation of his doctrine.

But has he tried,

1. Beans,	5. Clover,
2. Wheat,	6. Beans,
3. Tares,	7. Wheat ?
4. Barley,	

No. Tares for soiling occupy strong land when the ploughs

ploughs ought not to go on to it, and are off in all the burning weather, when summer-fallowing must take its effect, whatever that effect may be. In the above course, there are three crops of white corn in seven years, two of beans, one of tares, and only one of clover; so that the land cannot sicken of that crop; and seven crops productive of dung enable you to manure both the bean crops. What dung does a summer-fallow give?

The common course is,

- | | |
|------------|------------|
| 1. Fallow, | 3. Clover, |
| 2. Barley, | 4. Wheat; |

and by such farmers as are not accurate in their management, on the land most able to bear it,

5. Oats.

In the second round, beans take the place of clover, and the wheat after them equal. Such fallows as are nearest the yards, have usually a part under winter tares, succeeded by a bastard fallow; and the barley is considered as the worst for the variation. Now and then, but not common, some cole for sheep feed, in which case, oats succeed instead of barley.

The principal variation made by Mr. WESTERN on this system, is that of cultivating a certain breadth of Swedish turnip and Arabian kale, on ridges, in the Northumberland method: the more necessary to him who has a large space of grass-land in hand, and keeps a flock. Of the absolute necessity of fallows he is well convinced; and the variation just noted, with that of tares and cole for sheep feed after them, he considers as demanding a great strength of horses, as well as an unusual plenty of manure.

At Brackstead, in 1784:

- | | |
|------------|------------|
| 1. Fallow, | 3. Clover, |
| 2. Oats, | 4. Wheat. |

A small

A small quantity of turnips manured, but drawn: oats after them seldom so good as after fallow without dung.

On the red sands at Wethersfield:

- | | |
|-------------|-------------------------|
| 1. Turnips, | 3. Red or white clover, |
| 2. Barley, | 4. Wheat. |

The wheat about Witham was so fine in 1784, that I inquired the preparation, and was informed, that all the great crops succeeded clover, fed quite through the year; they find that fallow is a very bad preparation for wheat; the crops are weedy, and much more attacked by mildew: but beans and pease prepare very well.

Captain LUARD, at Bishop's Wickham:

1. Turnips,	90 acres.
2. Barley and oats,	90
3. Clover,	90
4. Wheat,	90
	—
	360
Also grass,	90
	—
	450

Mr. WRIGHT, &c. at Hatfield Peverel, on dry land:

- | | |
|---------------------|-----------|
| 1. Turnips, | 4. Wheat, |
| 2. Barley, or oats, | 5. Oats. |
| 3. Seeds one year, | |

On strong wet land:

- | | |
|------------|-----------|
| 1. Fallow, | 4. Wheat, |
| 2. Barley, | 5. Beans, |
| 3. Clover, | 6. Wheat. |

The last two crops added by some, but not general.

On his light land farm at Langford, near Maldon,

Mr. CHARLES WOOD:

1. Turnips, or cole; three-fourths of the former drawn for cattle or sheep;
2. Oats, the land not suiting barley so well;
3. Clover;

3. Clover ; both mown and fed ;
4. Wheat ; equally good, whether the clover mown or fed ;
and here stops ; but some add,
5. Pease or oats.

In the next round, a part under tares.

Mr. JOCELYN, at Pitsey, the old course ; but has some under,

- | | |
|-------------|---------------------------------|
| 1. Fallow ; | 3. Beans or pease, hoed twice ; |
| 2. Wheat ; | 4. Wheat. |

Drier and more stony soils occur at Vange, Fobbing, and Stanford le Hope, with rabbits : sand at Muckinge.

At Stanford, Mr. SCRATTON's course is,

- | | |
|-------------|---|
| 1. Turnips, | 4. Wheat, |
| 2. Barley, | 5. Barley, oats, or tares, or
turnips again. |
| 3. Clover, | |

At Bell-house, in Avely, Sir THOMAS LEONARD :

- | | |
|-------------|------------|
| 1. Turnips, | 3. Clover, |
| 2. Barley, | 4. Wheat. |

At Stifford, Mr. BUTTON has a farm called Clay-tye, on which he has neither manured nor fallowed for many years, yet the crops have been very great.

Mr. NEWMAN, at Hornchurch :

- | | |
|-------------|------------|
| 1. Turnips, | 3. Clover, |
| 2. Barley, | 4. Wheat. |

Clover does not fail ; he has, besides, substituted white Dutch in several fields ; means to keep such down to grass as prove productive.

A common course with Mr. T. PITTMAN, at Barking :

- | | |
|---------------|----------------------------|
| 1. Potatoes ; | 3. Clover, sown in April ; |
| 2. Wheat ; | 4. Wheat ; |

and then potatoes again, but with variation, such as putting

ting in the potatoes on the clover, which yields better crops than corn stubbles.

Mr. HATCH, at Claybury-hall :

- | | |
|--------------|--------------|
| 1. Potatoes, | 4. Potatoes, |
| 2. Wheat, | 5. Wheat ; |
| 3. Clover, | |

but with variations.

Mr. WALTERS, at Aldborough Hatch :

- | | |
|-------------|------------|
| 1. Turnips, | 3. Clover, |
| 2. Oats, | 4. Wheat ; |

and rye on the stubbles fed off in time for potatoes or turnips. No fallows in this vicinity; all potatoes or turnips.

Sir RICHARD NEAVE, at Dagnam-park, has a system of his own, which, according to the bailiff's explanation, consists in making three or four crops of turnips, potatoes, and cabbages, in succession, the means of completely cleaning the land; and when clean, and in great heart, going on with a more common succession, including wheat, oats, tares, and clover; and which system, moving from field to field, keeps the whole farm in heart and clean. The tares are mown for soiling, and the land ploughed immediately for wheat, and clover sown on the wheats in the spring.

At Romford, which is an extensive parish :

- | | |
|-------------|----------------------------------|
| 1. Turnips; | 3. Clover ; if it fails, beans ; |
| 2. Barley; | 4. Wheat ; |

but with many variations.

The account given me by the Earl of St. VINCENT, of his course of crops, had strong sense in it. *I cultivate wheat, barley, oats, beans, tares for soiling, cole for feeding, clover, potatoes, turnips, and Swedish turnips ; and I intend cabbages next spring : and my rule of arrangement is so to dispose*

dispose the succession, that no two crops of white corn come together; for the rest, the crops are put in as the season, and other circumstances, demand.

Around Ingatestone :

1. Turnips;
2. Barley or oats;
3. Clover : Lord PETRE's leases forbid mowing twice;
4. Wheat.

If the clover fails, beans or pease may be substituted, if hoed twice.

Ongar has much gravelly loam, and the same course prevails : on heavy land, fallow for barley or for wheat ; but Mr. DYER mentioned here and there an instance of oats after barley, if the clover fails; and even wheat : Mr. DYER himself makes it a rule never to sow wheat on a fallow.

Mr. WILLIAMS, of Ongar, the same course; and if clover fails, which it is very apt to do, then pease, or beans, or tares, feeding the last.

On the clays of Warley, Childerditch, East and West Horndon, Bulvan, and the two Ockendons, and their vicinities :

- | | |
|------------|------------|
| 1. Fallow, | 1. Fallow, |
| 2. Wheat, | 2. Oats, |
| 3. Clover, | 3. Clover, |
| 4. Beans, | 4. Wheat; |
| 5. Wheat; | |

and in both, beans follow the last wheat, in some cases, and then fallow again.

Lord PETRE, at Thorndon, is in the first of these two courses.

A course that has been practised by Mr. FREEMAN, at Heron-gate :

1. Fallow;
2. Wheat;
3. Clover

- | | |
|----------------------------------|--|
| 3. Clover and ray-grass,
fed; | 4. Clover continued ;
5. Oats or beans. |
|----------------------------------|--|

Some farmers at Dunton, Mr. HAND informed me, have used this course :

- | | |
|------------|------------|
| 1. Fallow, | 3. Clover, |
| 2. Wheat, | 4. Wheat; |

and if the clover-lays, from mixture with other seeds, remain more than one year, then beans after the wheat, or on the lay, and fallow after the beans. If beans follow the wheat in any case, the land is foul, and demands a fallow, though 18s. an acre in hoeing. The Rev. THOMAS NEWMAN, at Ingrave, fallowed, land-ditched, and limed a field for wheat, sowed clover on it, and wheat on that, which, in 1804, yielded 130% from ten acres.

Mr. BRIDGE, at Buttsbury :

- | | |
|------------|-----------|
| 1. Fallow, | 4. Beans, |
| 2. Wheat, | 5. Wheat. |
| 3. Clover, | |

Also,

- | | |
|------------|------------|
| 1. Fallow, | 3. Clover, |
| 2. Oats, | 4. Wheat ; |

but here the succeeding fallow has some tares or rye sown on it for spring food. The former is an excellent course.

Mr. TABRUM, at Margaretting :

1. Fallow,
2. Barley,
3. Clover; and if it fails, tares ;
4. Wheat ; and if the land then is clean,
5. Pease ; sometimes beans. Very few turnips ; for though the soil is a sandy loam, yet it wants draining.

Mr. BRAMSTONE, at Skreens ; clay :

- | | |
|------------|----------------------------------|
| 1. Fallow, | 3. Clover, once in eight years ; |
| 2. Barley, | 4. Wheat. |

No beans or pease. In the following round, the red clo-

ver is changed for white clover and trefoil, or else tares ; but in the management of the farmers, the vicinity of the Roodings is marked by the uncommon course of that district:

- | | |
|------------|-------------|
| 1. Fallow, | 3. Fallow, |
| 2. Wheat, | 4. Barley ; |

and there is much under the same course at Shelley, Fifield, and the Willingalls.

On strong loam on clay, Mr. MANSFIELD, at Ongar-park, near Epping, when land is foul with couch, &c. :

- | | |
|------------|-------------------------|
| 1. Fallow, | 3. Fallow, |
| 2. Wheat, | 4. Oats, for one round. |

In some cases, and several of his fields at present :

- | | |
|------------|------------|
| 1. Fallow, | 4. Clover, |
| 2. Wheat. | 5. Wheat ; |
| 3. Oats, | |

which, though his land be well ploughed, well laid, well drained, and well marled, I should not have expected to find. A more general course :

- | | |
|------------|------------|
| 1. Fallow, | 3. Clover, |
| 2. Oats, | 4. Wheat. |

Variations to make the clover occur only once in five or six years.

On the turnip loams about Terling :

1. Turnips, generally drawn ;
2. Oats ;
3. Clover ; if it fails, a bastard fallow ;
4. Wheat ;

but on the strong land :

- | | |
|------------|--------------------------------|
| 1. Fallow, | 3. Clover, or bastard fallow ; |
| 2. Barley, | 4. Wheat. |

Shalford and Great Bardfield.—“ The most approved husbandry in the lighter parts of the parish of Great Bardfield, is to sow the wheat stubbles immediately after
harvest

harvest with tares, or rye. These are mown, or fed off in the spring, and the land dunged and prepared for turnips. Twice hoed, fed off, and succeeded with spring corn with clover. The young clover dunged, mown or fed off as best suits, and sown the spring following with white pease, which are always off in very good time to admit of a proper preparation for wheat; the stubbles of which are haulmed, and sown with tares or rye in course. Upon the heavy lands the routine of crop and fallow is occasionally varied, with fallow, barley, clover, wheat; and dung if possible upon the young clovers*.”

This is,

- | | |
|-------------------------------|-----------------|
| 1. Tares or rye, and turnips; | 4. White pease, |
| 2. Barley or oats, | 5. Wheat. |
| 3. Clover, | |

“The following system is the practice of a very intelligent farmer in Avely, viz. wheat stubbles sown with tares or rye for spring food, then dressed with raw dung, ten loads to the acre, ploughed under upon four yard stitches, carrying the furrows or slices about ten inches wide. The ground is then planted with potatoes, dibbling the seed in upon every furrow, at the distance of ten inches apart, and about four inches deep; thus forming a square of about ten inches from plant to plant, and costing for cutting, dibbling, and dropping the sets about 8s. per acre. In the course of the summer, the plants are once hoed and moulded up, at 4s. 6d. per acre. The planting is generally finished by the first of June; and about the first of November the crop is ripe, and ready to be taken out of the ground, which operation is usually performed with a three pronged fork, and costs, gathering and housing included, about 40s. per acre. The average produce is

* Vancouver.

estimated

estimated at six tons, and reckoning 126lbs. to the cwt. will equal 15,120lbs. per acre. As soon as the potatoe land is cleared, and properly prepared, which will generally be accomplished by the middle of November, white hotspur pease are planted for podding, for the London market, and are usually sold in the field, at 5*l.* per acre, reserving the haulm or straw for hay, which in a favourable season, makes excellent food for horses or cattle. The pea land is then well cleaned with the horse hoe, and upon once ploughing, turnips are sown; and just before the young plants are observed to be cutting the ground, the field receives a light top-dressing of soot, ashes, or the most portable manure that can be conveniently obtained. This dressing, upon frequent trial, has been found to have had a very good effect in preserving the infant turnip plant from the depredations of the fly. The turnips are generally hoed at 5*s.* per acre, fed off with sheep, and succeeded with oats or barley; drilled nine inches apart, with Cook's machine, requiring for seed about four bushels of the former, and three bushels of the latter, and each yielding about forty bushels per acre. A second drilling takes place to put in the clover seed, which is generally deposited in the intervals between the rows of corn, ten pounds to the acre; is usually dunged when young, and is always observed to be a stronger, more uniform, and better plant, than where one-third more seed is sown broadcast to the acre. Each drilling operation for grain and seeds, every expense included, is allowed to cost 9*d.* per acre. The clover stands one summer, and is then ploughed under, and the land in like manner is drilled with wheat eight pecks, producing upon an average, twenty-four bushels per acre. The wheat stubbles are haulmed immediately after harvest, and then sown with rye or tares for spring food; the same course repeated.

" Dr.	£. s. d.	Cr.	£. s. d.
"First year, ploughing the wheat stubbles, sowing and harrowing in the tares or rye, -	0 6 0	First year, tares or rye for spring food, -	1 10 0
Cleaning and ploughing the tare or rye ground for potatoes, -	0 5 6	Ditto 15,120lbs. of potatoes, at a farthing a pound, -	15 15 0
Filling, carting, and spreading the dung, - - -	0 7 6	Second year, hotspur pease, - - -	5 0 0
Cutting, dibbing, and dropping the potatoe sets, - - -	0 8 0	Ditto, turnips, - - -	2 12 6
Hoeing and moulding up the plants, - - - -	0 4 6	Third year, barley 40 bushels, at 6s. per bushel, - - -	6 0 0
Digging, gathering, and housing the potatoes, - - -	2 0 0	Fourth year, clover, 1 13 0	1 13 0
Cleaning, ploughing, and sowing the potatoe land with hotspur pease, - - - -	0 6 0	Fifth year, wheat 24 bushels, at 5s. 6d. per bushel, - -	6 12 0
Cleaning, ploughing, horse-hoeing, and sowing the pea land with turnips, -	0 7 6	<u>£.39 2 6</u>	
First cost and expense of applying the top-dressing, - -	1 2 6		
Hoeing the turnips, - - -	0 5 0		
Ploughing and preparing for oats or barley, - - -	0 5 0		
Drilling ditto, - - - -	0 0 9		
Ditto the clover, - - - -	0 0 9		
Filling, carting, and spreading dung upon the young clover, -	0 7 6		
Weeding the oats or barley, -	0 1 0		
Harvesting ditto, - - -	0 5 6		
Ploughing the clover-lay for wheat, - - - -	0 5 0		
Drilling ditto, - - - -	0 0 9		
Hoeing and weeding ditto, -	0 1 6		
Harvesting ditto, - - -	0 5 6		
Hauling the stubble of ditto, -	0 2 0		
Thrashing 5 qrs. of barley, at 2s. per qr. - - - -	0 10 0		
Ditto of 3 qrs. of wheat, at 3s. 3d. per qr. - - - -	0 9 9		
Seed of wheat, 2 bushels, - -	0 11 0		
Ditto of barley, 3 ditto, - - -	0 9 0		
Ditto of turnips, - - - -	0 1 0		
Ditto of pease, 4 bushels, at 4s. per bushel, - - - -	0 16 0		
Ditto of tares or rye, 2½ bush. at 5s. -	0 12 6		
Ditto of clover, 10 lbs. at 4d. per lb. -	0 3 4		
Ditto of potatoes, 300 lbs. - -	0 6 0		
Five years' rent, at 12s. per acre, -	3 0 0		
Poors' and other parish rates, at 4s. in the pound, - - -	0 12 0		
Tithes, great and small, at 5s. in the pound, - - - -	0 15 0		
Total expenses, - - - -	<u>15 12 4</u>		
Profit in 7 years per acre, to cover the interest of the capital employed, - - - -	23 10 2		
	<u>£.39 2 6</u>		<u>£.39 2 6**</u>

The importance of the object must apologize for dwelling so long on courses of crops; and let me remark, that in a statistical view of the kingdom, if any one wishes to know the proportions of each crop that is sown, it can be ascertained by a knowledge of the courses, alone. An easy calculation gives by the population the acres of wheat, and knowing this, all others follow, if the courses are known.

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SECT. IV.—CROPS.

As there is no predominant course pervading the whole county, as the turnip course governs in Norfolk, there is no motive for considering these in any particular arrangement: it is as well to begin with the prince of all grain as with any other.

WHEAT.

It will be necessary to give the information received under the following heads:

- | | |
|-----------------|--------------------------|
| 1. Preparation, | 9. Water-furrowing, |
| Tillage, | 10. Hoeing, |
| Clover, | 11. Mildew, |
| Beans. | 12. Smut, |
| 2. Drilling, | 13. Purples, |
| 3. Dibbling, | 14. Reaping and harvest, |
| 4. Depth, | 15. Produce, |
| 5. Seed, | 16. Straw, |
| 6. Steeping, | 17. Stubbles, |
| 7. Sort, | 18. Grinding. |
| 8. Time, | |

Tillage.—On the poor loams on clay about Felstead,
s 2
they

they plough the fallows for wheat (by lease three clean earths and a rove) but give more. Mr. FOWKE, of Dunmow, informed me, that many farmers plough those lands six or seven times, even for wheat.

At Little Leighs, Mr. PORTER, I found, was a friend to fallowing after pease, or beans, as an excellent preparation for wheat, and answers well. His expression—*we are sure of wheat if we fallow after pease or beans, on heavy land.* He further observed, that pease were congenial to wheat, and, whatever owing to, fallow following, does not affect the peculiar cause. I report the opinion without comment. Ray-grass just the contrary—it *works* the land, and wheat very hazardous after it.

Mr. MILES, the very intelligent bailiff to Lord PETRE, in fallowing for wheat, ploughs up the stubble before Christmas, deep, for if done shallow on this strong soil, and a dry spring sets in, a proper depth cannot be got when he would wish it; in the spring, cross-ploughs clean twice; next lays up on to ten-furrowed stitches, which being split out again, are left flat. Then plough back again, and on that sow, and harrow in. Some years ago all the country was in the habit of putting in wheat on the four-furrowed ridge, and some still retain it, but in general the success is better with the ten-furrowed work.

Mr. KEMP, of Hedingham, has scarified pea and bean stubbles, and drilled wheat without any ploughing, and never had better crops.

Mr. MAJENDIE has found it generally beneficial in ploughing clover land for wheat, to sow and harrow up every day's work to the plough, as rain makes it, if left a hazardous business.

Mr. WAKFIELD, at Burnham, has this year a field of wheat which followed beans; a part of the stubble of which

which was not ploughed at all, and this the best crop he grew this year.

In Foulness they sometimes give the clover lays a bastard fallow for wheat after mowing one crop, and it often succeeds well. They sow and finish every day's ploughing; never venturing to wait for a stale furrow.

Mr. NEWMAN, of Hornchurch, last year put in wheat on a bean stubble without any ploughing, and the success was great; the crop far better than the land in common management was adapted to produce. He drills all his corn.

About Hallingbury, in the Rooding district (I cannot admit any adjoining parish to be out of it, where the course is crop and fallow), they formerly put in their wheat under furrow in reversing the ridge; there are many now who put it in as barley, sprain half, and broad-cast half to harrow in: this appears not to be a wise change on wet heavy land, on which the clearer and more defined the ridge, the drier will be the soil. Clover-lays they plough on the stitch, and harrow in the seed.

Mr. AMBROSE, of Copdock, drills most of his wheat at nine inches on clover: he ploughs from new Michaelmas to the middle of November, and rolls and harrows directly, and drills, then harrows, and leaves it rolled down, with a belly roller which covers two half stitches, the horses in every operation walking only in the furrows.

Mr. HARDY, at Bradfield, has this year a very fine field of wheat, which underwent two preparations. The whole was clover; part of it was what is called *cased*, in June, that is, made a bastard fallow; *tempered*, as they call it in Norfolk; and the operations of this casing were, first to clean plough it shallow; then it was roved across; then stitched up, and ploughed once more. The rest of the field was left untouched, and at seed time ploughed whole

furrow in the common way for the seed earth. Each method was on two soils: a turnip land loam, and a more firm soil, called here a *lash* soil, but not strong land. On the lighter land the best crop was on the whole furrow: on the other soil, the best was on the *cased*.

Mr. TWEED, at Sandon, is very attentive in putting in his drilled wheat on clover-lays. He ploughs them, as soon after harvest as possible, with a skim coulter, and rolls down with his jointed roller; then leaves it some time: goes over once or twice with his extirpator; drills, and covers with light harrows. A stale furrow good for wheat.

Mr. WESTERN, on strong land and a bean *etch*, sowed and ploughed in without harrowing one part of the field; and ploughed, sowed, and harrowed in the rest of it. I viewed the crop; but could see no difference.

Mr. COVERDALE, at Ingatestone, and his neighbours, plough in the wheat on their fallows in ten-furrowed stiches, and neither harrow nor roll.

A very excellent practice of Mr. HARDY's, at Bradfield, well deserves noting: in sowing clover lands broad-cast, the outside furrows of the stich are apt to lose much of their seed; he therefore dibbles a row on each of the finishing furrows.

Mr. POLLEY, the very experienced bailiff to THOMAS FENN, Esq. of Ballingdon, in putting in wheat on a bastard fallow after the first growth of white clover seeded, is fond of a method with which he has had good success: with a very small double breast plough, he strikes the land into channels, and sows a cast of the seed; he then splits the little ridges so formed, and sows another cast, after which he harrows down: it costs more than drilling by 4s. or 5s. an acre, but he thinks produces better crops. I found him preparing for this operation, by working a white clover stubble

stubble once ploughed clean, and ribbled across, with a scuffler of seven shares, which made good work, and left the weeds exposed to die in the sun : three horses did four acres a day.

In the parish of Wimbish, between Thaxtead and Walden, I observed the clover-land wheat putting in, in a way quite new to me: the clover had been sown with barley on four-furrowed ridges, harrowed down; and they were now ploughing these old ridges again on to the ridge by reversing them, the seedsman spraining the seed before the plough on the clover to be buried under furrow, and the ploughs going four inches deep. A roller follows, to flatten down the crowns of the ridges: ten or twelve inches of unploughed land remained under the centre of each ridge. This is a common method in this parish, on wet heavy land: two bushels and a half of seed per acre.

“ An experiment has lately been made by a very intelligent and liberal gentleman at Radwinter, in sowing his clover lays with wheat, in the following manner :

“ Through the greater part of this district the land is usually ploughed into four-furrow ridges, as well for oats or barley, as for winter corn. The furrows between the ridges are left strongly marked upon the clover lay, and in the present instance, are sown or springed with wheat : two furrows are then nicely ploughed, covering the wheat, and thus forming the top of a new four-furrow ridge. The open or last made furrows are then sown, and two furrows or slices are added to each ridge, leaving a small comb or balk, which is also sown and split down with a double breasted plough, casting an equal quantity of mould to the right and left, thus finishing the ploughing operation and shutting the ridges completely up. The field is then closely rolled down with a roller, which is swelled out in the middle, and properly constructed to

operate equally upon the higher and lower parts of the four-furrow ridges.

“ From this management the wheat is supposed to derive an immediate advantage from the manure which laid upon the surface of the clover lay; and although the crops have been very luxuriant, and that the soil is of a loose and hollow nature, the wheat has hitherto been exempt from the blight, nor is it but in a very slight degree liable to lodge or subject to be root-fallen. It may be proper further to observe, that the ploughing should be performed in the most masterly manner, of a uniform depth, and as fleet as possible, so as to plough the land perfectly clean*.”

Clover.—In Section XII. of this Chapter, the question of mowing or feeding being better as a preparation for wheat, is particularly considered: and there it appears that throughout the county there is a general prejudice against mowing: more general I believe than in any other part of the kingdom, and this with scarcely any distinction of soil.

Beans.—Mr. SAVILLE, of Bocking, is of opinion that wheat after beans is, on the whole, not quite so good as after clover.

Mr. DINES, of Snorum, *cases* his bean stubbles for wheat as often as the season will permit, and conceives this tillage necessary on account of the white slug, which is apt to be mischievous to the wheat on these stubbles, if not thoroughly disturbed.

Mr. MILES, the very intelligent bailiff of Lord PETRE, is convinced that there is no better husbandry than to manure for beans, and then take wheat.

Mr. COOPER, of Langenhoe, always *cases* his bean land,

* Vancouver.

that is, stirring it well, for wheat, and gets good crops, especially when he takes two crops of beans in succession, and hoeing both well. He has several times tried to get wheat on fallows; but though the land is strong and heavy, he never succeeded well, and therefore gave up the practice; the crop never was answerable to its appearance.

The best wheats at Bradwell, in Mr. SPURGEON'S opinion, are those which follow beans that were fallowed for; next, those on clover lays; and lastly, on the beans that succeeded wheat.

Mr. PRENTICE, at Prittlewell, in Rochford hundred, finds the wheat after clover better than after beans.

Mr. KNAPPING, at Shoebury, finds the bean wheat as good as that after clover; and that after tares also; and if these are fed and the land *cased*, they are sure of wheat.

Dr. ASPLIN, at Little Wakering, finds the wheat after beans to the full as good as after clover; but generally in the country he does not think it is so.

Mr. VASSAL, of Eastwood, in a course of seven years admits no beans, and the reason he assigns, is the mildew attacking late sown crops of wheat.

Mr. BRIDGE, of Buttsbury, approves much of beans as a preparation for wheat; he has had his best wheats after beans; but note—he is a clean and excellent farmer, and I saw a bean stubble there in October, so clean as to do him credit.

Mr. TABRUM, of Margareting, gets as good wheat after tares as after clover.

Mr. STRUTT, at Terling, gets good wheat after tares; but perhaps not quite so much as after clover.

Mr. BENNET HAWES, in Mersea Island, has manured his clover lays for beans, and then taken wheat, and succeeded better than with wheat on clover; but it is not much practised.

Mr SPERLING, of Maplestead, finds that beans being a
good

good or indifferent preparation for wheat, depends not only on the crop being kept perfectly clean, but also on the stubble being well worked to make seed weeds vegetate; he goes over them cross and cross, with the nidget, often enough to work it fine, and harrowing in every direction; then he leaves it long enough for all seeds to grow which are turned in by the seed earth, and a furrow, whole at bottom, brought up for dibbling, or otherwise putting in the wheat seed. But the clover-lay wheat is better than that after beans, which is liable to the slug; and for this reason he is careful to preserve his rooks.

At Toppesfield, the best wheat is after clover, and yet Mr. ELY has occasionally hoed his beans four, and even five times; but the wheat after beans in this, as in so many other cases, comes at the end of the course, in which the dung goes on at the beginning for barley. Wheat after beans, however, is not general: it is only on their best lands; the poor wet hills will not do for this husbandry.

The culture of beans about Kelvedon, is carried on, in some respects, to great perfection. They plough the wheat stubbles intended for this crop before Christmas, laying up the land in two-bout ridges, and after the frosts, dibble in the beans at once without further tillage: they have three rows on a ridge, and dibble seven inches from hole to hole, putting two or three beans in a hole; two bushels of seed per acre; planting, 5s. They hand-hoe well, and also the bean stubble, if at all foul: three quarters and an half to five a general crop, three and an half more common without manure, which is not given so often as it ought to be.

About Kelvedon, they plough once for wheat, throwing three ridges together: first they strike off a bout from the centre ridge, and then gather the three together.

Mr.

Mr. POOLEY assured me that they get better wheat after beans than after a fallow, or even than after clover.

Several years past I found Mr. TAYLOR, of Wimbish, making a very considerable improvement; he had for some years thought, that the spirit of fallowing was not in this country attended by effects adequate to the exertions made, which induced him to try beans, with particular attention to mark the result; his experiments were so satisfactory, that he every year increased the quantity; from four acres to twelve, to twenty-five, to forty, to sixty acres, as he became gradually convinced that he not only gained a produce of itself very valuable, but at the same time prepared for wheat with a success perfectly to his satisfaction. His crops of beans this year are very good; and I thought his wheat, which succeeded the last year's crop, equal to the best on a fallow preparation. He is of opinion, that the horse-bean much exceeds all other sorts, because, growing vastly higher (even to eight feet), it covers the land more.

Having applied to Mr. TAYLOR for his further remarks, I had the following note of his present opinion:

“ I do still continue the cultivation of beans to a certain degree, but not on so large a scale as formerly; the greater part of my arable lands have been planted with them once, and some parts twice and thrice: the result is, that they do not produce so well the second and third time (even although the same care and expense is incurred), as on the first time of planting them upon the same land; therefore, I conclude my soil is not altogether adapted to a regular rotation of bean crops, as a substitute for fallow, but will do occasionally very well; and what confirms me in that belief is, the land is left much more foul after the second and third trial on the same land, than it was on the first.

“ My

“ My present practice is on eight or twelve furrow land, to sow three and an half or four bushels of beans under furrow, with a view to get a thick plant to cover the ground as much as possible. The tenacity of my soil not admitting, in wet seasons, the use of the hoe in so complete a manner as drier soil will, nor always sufficiently to keep the land free from weeds, I therefore use it very little. I turn in sheep ; not hungry folding sheep, they will eat and destroy the plant ; but fattening sheep, when the land is dry enough to bear them in the day time, and take them off at evening : they eat out the weeds, and do not injure the plant ; and I find at harvest, the land as clean from weeds as if it had been hoed, in the imperfect manner my land admits of. I have a substitute for fallow, which I better approve of than growing beans, and is attended with less expense ; I mean tares sown on land previously dunged, at equal distances of time during the spring and summer, by which mode tares may be had to succeed winter tares sown in the autumn, till Michaelmas. Early in the spring, I commence that operation with winter tares, and continue it at intervals till April, but after that period, spring tares till Midsummer. Part of the tares are cut and carted to the farm-yard, part are hurdled off and sheep put on them, giving a small piece every day, allowing the sheep to fall back on the cleared land, as is the usual mode of eating off turnips ; little of the tares are left, and the whole of the land folded. Sheep will, I find, fatten faster in this manner than on either grass or clover ; the land is left without a weed on it, and may be sown either with wheat in one ploughing, or barley in the spring, winter fallowed or not as thought best. I do not know if this system is new on light land, but I think it so on heavy land, which I believe is equally advantageous.

“ I am

"I am not in the Roodings, consequently am not able to give a satisfactory opinion on the subject of your question; but if I may be allowed to give a speculative one, I would say,

- | | |
|------------|----------------------|
| 1. Fallow, | 5. Wheat, |
| 2. Barley, | 6. Tares, |
| 3. Clover, | 7. Barley or wheat ; |
| 4. Beans, | |

is prolonging the course further than I think the land will bear, so as to give advantage to the farmer. I admit, was it not so, beans occurring once in six years only, might do, at least on one or two such courses, but I entertain a doubt if it would beyond it. This my opinion is founded on experience on my own lands, which are said to be somewhat similar to, but I believe not so strong a soil as, the Rooding lands; therefore I should stop after No. 5. Wheat, and begin, and vary the next course to,

- | | |
|------------|------------|
| 1. Fallow, | 3. Tares, |
| 2. Barley, | 4. Wheat ; |

and then again for the third course :

1. Fallow,
2. Wheat,
3. Clover,

4. Black oats, harrowed in on one ploughing. I think either of the latter courses to be a better mode of culture, on heavy, strong, clay lands, than the former. I know you will say, oats exhaust; but they will precede a fallow, and are a certain crop so planted.

"On wet heavy clay and strong lands, such as we are speaking of, I should prefer the sowing clover on wheat rather than on barley: the former it never injures, the latter often: it succeeds equally well, and sometimes better; and by leaving the stubble on the land till the spring, and till you are secure of frost, and then take it off,

off, it gives feed at least a fortnight sooner than on barley lands, which advantage need only to be mentioned to be understood by every practical farmer.

“The manure in either course to be laid on for the beans, tares, and clover.”

In Foulness, the best wheat after beans.

DRILLING.

Mr. ROGERS, of Ardleigh, who has been many years a driller, first at nine inches, and then at twelve, has for three years past made some experiments at eighteen with the wheat called Egyptian; and he has in these three years had greater crops from eighteen than from nine or twelve. I viewed a field of his of ten acres of this wheat, which was very clean, and carried an appearance of being very productive: he guesses the crop at five or six quarters per acre.

I viewed also on his farm a very noble crop of common wheat at twelve inches, which, though strong in the straw, was down, but not flat to the ground as thicker crops would have been.

Mr. COKER, at Borely, drills all his wheat at nine inches, two bushels per acre; hoes it with a shim, drawn by an ass.

Mr. BAWTREE, at St. Osyth, has drilled as far as 66 acres in a year, putting in nine rows on eight furrows; crops about equal to broad-cast.

Mr. SPURGEON, of Bradwell, who has lately ordered a drill machine, the same as Mr. KETCHER's, from a Suffolk one, had wheat broad-cast this year, on clover fed with hogs, and his neighbour's, drilled on a pea etch *cased*, was a better crop.

Mr. NEWMAN, at Hornchurch, drills all his wheat at
nine

nine and twelve inches, but prefers the latter, because easier cleaned; and if there are any impediments of clods, &c. it is easier drilled. He uses a horse-hoe of his own, and this operation can hardly be done too soon: he cuts only the surface, as he does not approve of loosening the bottom of the furrow.

DIBBLING.

The practice is not uncommon at the Belchamps. I saw some very fine crops of Mr. LONG's, one row on a flag, and so clean as to do him credit.

Mr. FISHER UNWIN, at Coggeshall, has an high opinion of it from long practice: the treading the land gets in the operation gives a firm growth, it stands stiff.

Mr. R. TABER, at Beerchurch, in the Colchester district, dibbled much wheat, and generally succeeded with it better than with broad-cast crops, finding it less subject to be *root-fallen*.

At Layer de la Haye they have an high opinion of the practice; but have found the dropping done so badly, as to lessen the quantity which would otherwise be thus put in.

Mr. SAVILLE, at Bocking, introduced this husbandry; he had some weavers instructed in it, who learning it readily, and earning good wages, his farm labourers applied for the same employment, which was readily complied with. The poverty occasioned by the decline of the manufacture, was his inducement; and the same motive has kept him in the practice, notwithstanding the evil of careless droppers. He has thus put in as far as 130 acres in one year: indeed he dibbles his whole crop; last year above 80 acres; and pays 10s. an acre for it. The practice has spread much.

Mr. WRIGHT, of Rochford-hall, has dibbled wheat,
and

and rather holds it to be a good practice, except for the expense, which was a guinea per acre: some Suffolk men did it at 12s.; but their earnings were insufficient. On clover the crop was good, but not equally so on a bean *etcb.*

Dibbling practised by Mr. HAWES and others in Mersea Island.

“Relative to the mischief of dibbling wheat in wet lands, I am quite confirmed in; and from experience, to my cost. I am of opinion it will never answer in wet tenacious soils; the dibble forms such a pan for the water, that the seed perishes, and it is almost impossible to fill these holes in such soils, though harrowed ever so often; these objections however, by no means apply to light loose soils, where it may answer extremely well, and is certainly carried to great perfection in some parts of Suffolk*.”

Mr. WAKEFIELD, of Burnham, has dibbled 340 acres in one year.

Mr. KETCHER, at Burnham, is a warm advocate for dibbling wheat: this he conceives to be the best of all modes of putting this crop in on a clover-lay. He has always found it to beat *sprunged* wheat; that which is sown by hand in the furrow, and covered by the plough: in one year six bushels an acre by measure. It was with much pleasure I walked over several of his dibbled stubbles, which were of a cleanness that did his husbandry credit.

“Dibbling has very lately been introduced amongst us from Norfolk. We had last year no less than six or seven examples of it in this neighbourhood. The first I shall mention was in the parish of Toppesfield, about fourteen miles from this place.

“A clover-lay, which in the summer and autumn of

* MR. WESTERN TO SIR J. SINCLAIR, Bart.

shabby appearance, and was a subject of no little pleasantry and merriment to the neighbouring farmers. This discouraging contrast continued till March; during that month, and part of April, it was hoed twice over at 4s. an acre each time. It now soon got the start of its broad-cast neighbour, and kept it ever after. Its blade was scarcely like the common blade of wheat, but broad and vigorous, resembling the flags in a river. When it shot into the ear the superiority, both in the rivets and the small, was striking. Each ear on an average contained a fourth part greater number of grains than the undibbled, and was also much more uniform, with scarcely any under ears at all. The small wheat, both dibbled and broad-cast, was kindly, and free from any kind of disorder; the rivets were somewhat injured by the red gum, as our farmers call it, and still more by mildew; the dibbled the most so, as being greener and more vigorous.

“When thrashed, the dibbled small wheat produced exactly five quarters the acre, each bushel weighing 61 lbs. the eight gallons Winchester measure; the broad-cast as precisely four quarters, weighing only 60 lbs. the bushel. The dibbled rivets yielded four quarters seven bushels; the broad-cast only four quarters; but neither of them were weighed; though I am inclined to think the broad-cast was the heavier, as having been the least damaged by the red gum and mildew. Thus stand their comparative quantities and qualities.

“The expenses and profits of the dibbled and broad-cast small wheat may be stated each respectively as follows:

BROADCAST.		£.	s.	d.	£.	s.	d.
Expense.	Seed, 2½ bushels at } 12s. per bushel, }	1	10	0	1	11	0
	Sowing,	0	1	0			
Produce.	4 qrs. at 2l. 16s. a qr.						
				Balance	£.9	13	0

DIBBLED.		£.	s.	d.	£.	s.	d.
Expense.	Seed, 2 pecks, } Dibbling, } Twice hoeing, }	0	6	0	1	4	0
	5 qrs.	14	0	0			
Produce.	1 lb. a bus. over weight 0 4 6 }						
				Balance	£.13	0	6

“ From this deduct the former balance, and there remains in favour of the dibbled wheat 3l. 7s. 6d.

“ The difference with respect to the rivets was certainly not so great; the excess of the dibbled over the broadcast was not equal, and the quality likewise somewhat inferior; but the precise balance I leave to be struck by the reader, should he chuse to make the requisite calculations. I cannot, however, omit to observe, that had the rivets been as sound and free from disease as the small, the difference would most probably have been great, for this obvious reason, that the number of stems or plants in the latter was not so full and complete as in the former.

“ I am not perfectly sure that the season was not peculiarly favourable with respect to the dibbled small wheat; the presumption however in behalf of the practice appeared so fair, that I have this year persuaded the same persons to adopt the mode to a larger extent, and instead of only two acres, they have planted twenty in this way; ten a clover-lay, and ten after barley.

“ But the whole of the affair appeared so simple and easy, that it was not thought worth the while to send for men from Norfolk, but women and children, girls and boys indifferently, and of all ages from seven to twenty, were employed; nor was it deemed necessary to be at the expense of having well-turned iron-dibbles, like those of the Norfolk dibbler, but mere sharpened sticks of scarcely an inch in diameter were used, shaped as the fancy or skill of each individual directed. They were all at first extremely awkward, both in making the holes and in dropping in the grains. The holes were punched irregularly, in depth as well as in lineal direction; some were scarce an inch deep, some four or five; sometimes only one grain, or perhaps none was cast into a hole; sometimes eight or ten; and not unfrequently many were scattered where there was no hole at all. By repeatedly directing and shewing them, however, they soon acquired no inconsiderable dexterity; they were paid at the rate of 9s. an acre, and those who at first could hardly earn 3d. a-day, at length easily earned 10d. None of them used two dibbles, like the Norfolk man, but only one, sometimes the same person both making the holes and dropping in the grain. These were the most dexterous, and their earnings were of course the largest. Others made the holes, and a little girl or boy followed putting in the seed. The previous rolling and the subsequent harrowing, the same as described in the instance of last year.

“ About three pecks and a half was judged the properest quantity of seed per acre, and it has now, the 15th of December, been come up extremely well this fortnight, more regularly and in fuller plant than that of last year. I am afraid to indulge too sanguine expectations, but all hitherto promises well.—October, 1797. Some of the clover-land dibbled wheat has been thrashed, and there
already

already appears satisfactory evidence that the produce will be at least five quarters an acre*.”

“ A gentleman in the parish of Wethersfield has made experiments of the same kind, of which he gives me the following information : ‘ I dibbled in upon three acres of fed clover-lay seven pecks of wheat, which produced sixteen quarters three bushels, each bushel weighing sixty-four pounds. It was twice hoed, at 4s. per acre each time. The straw was the stoutest I ever saw. I am not able to inform you whether the produce be more or less than that sown in the common way, not having attended to that particular. The land is about half sandy and half clay soil; I have carried clay upon the sandy soil, and frequently carry sand upon the clay soil.

“ ‘ I have this year dibbled in five acres. Last year I planted but one row upon a flag; this year two rows. I had a Norfolk man to do it, for which I allowed him 14s. an acre, he paying the women that dropt it in. I thought the last year’s plant was too thin, and have therefore this year sown a bushel an acre.’

“ The same person has also obliged me with the following account : ‘ A friend at London was so kind as to send me two quarts of Syrian wheat; which I have dibbled in, on one side of a field with only one grain in a hole; and have sown some of my own stock in the same field, to see

* Howlett.

The average produce upon this land was not even four quarters an acre, and that after the barley, was scarcely two and a half per acre. Two or three subsequent experiments have however since been made, which have not turned out much in favour of dibbling: The practice is this year, November 1801, very much extended; but the quantity of seed dibbled is increased very generally to six pecks an acre. March 1802, it promises extremely well.

which will be most productive.' N. B. The whole of this has proved a deception—the crop was good; but the wheat, instead of Syrian, was merely a mixture of several kinds of English wheat.

“ In the same parish three quarts of wheat, of the same sort as that used by the above gentleman last year, were dibbled upon a piece of rich garden ground, containing one rood and seven poles, that is, in the proportion of not quite one peck and a half an acre. The produce was twelve bushels, or at the rate of nearly six quarters an acre, each bushel weighing fifty-nine pounds; whereas that in the other instance the weight was sixty-four pounds the bushel. I know not to what this difference was to be imputed, unless it was, that that in the garden being stronger and thinner upon the ground, the grain was consequently coarser, as generally happens from that circumstance. It was small wheat of a very singular kind, the name of which I never heard. It is distinguished by the uncommon length of the ear, being at least two inches longer than that of the American red; but its number of grains notwithstanding are not greater, and its excess of length is entirely owing to the clefts, or ranks being more remote from each other. The chaff is white and smooth, but the sample by no means particularly fine and bright; considerably I think, in this respect, inferior to that of the Taunton Dean.

“ I have above remarked that dibbling of wheat is but very recently introduced into this county, but I have since found that in the south-eastern part of it the practice has been pretty general for ten or twelve years, to a very considerable extent, and to high satisfaction. The substance of the following account I received a few weeks ago from a Mr. T. TAYLOR, miller, of Dover-court, near Harwich.

“ 1. The practice of setting wheat, as it is here termed,
has


has been introduced about ten years, and is now very general.

“ 2. It is practised upon all sorts of land, whether lay or tilt.

“ 3. All land must be rolled before the setters begin their work, whether on lay or tilt, and upon tilt and on light lands a heavy roll is required.

“ 4. About seven pecks of seed are used per acre upon lands in good condition; if not in good condition, more is necessary, particularly upon heavy wet soils.

“ 5. They always hoe once, and sometimes twice, if the land be very foul; but they seldom put out wheat to hoe by the acre, because they employ women and boys, with a man or two that can be depended upon, to see after and direct them. The men have the usual day wages; the women and boys 8*d.* each.

“ 6. The dibbling is performed by two dibles, somewhat resembling the following  with which the man, with one in each hand, walks backwards, making two holes at once, one on each flag, and four children dropping in the grains after him.

“ 7. Five or six grains are usually put into each hole *;
more

* Five or six grains to a hole, seems a strange waste of seed, provided it be tolerably good, and none other should certainly be used. In the instances coming under my own immediate observation, two or three have always been amply sufficient. Nay, I have already mentioned an instance, of only one grain having been put in; but the account I have above given was merely the fact of such a proportionable quantity dibbled, without knowing what was or would be the result. It is now the 12th of June 1797, and I have seen the growing crop, thus dibbled in last autumn, three times in the course of the two months immediately past; it has looked well and flourishing each time, and at present, if

more is too many. Great care and attention is necessary, that the children may not put more in some, and none in others; for much depends on the regular dropping.

“ 8. The holes are made in the middle of the flag or furrow, for the firmer and better substance of earth; where the land is in a good state, the distance of a small flag is near enough, and the distance in the row at the rate of three to every ten inches; but if the land is in a poor state, two rows on a very large flag, and the distance in the line four or five inches, are preferable. The last improved plan is to set two rows upon the edge of each side the stitch; otherwise there is too much waste or vacant space.

“ 9. The dibbler has 6s. 6d. an acre, he always paying the children.

“ 10. The produce is reckoned about three bushels on an average, more than of the broad-cast sowing; when however the latter stands up, there is not much difference. But the dibbled is much the least liable to fall, and to be lodged or laid.

“ 11. The dibbled wheat does not root-fall, like that which is sown; the straw is a great deal stiffer and stronger; and the grain is heavier and a better sample.

“ N. B. The seed wheat should be well dried, after it has been wetted and mixed with lime, that it may drop into the holes more easily and regularly. The children have small measures, and a tub stands in the field containing the seed, which they run to when they want to recruit. They are apt to scatter too much when they take from a sack.

possible, more so than ever; there is no deficiency in the number of stems, except only where the frost destroyed the young and tender plants, as it did also in innumerable instances in which the broad-cast mode had been adopted. Should the remainder of the season prove favourable, there can be no doubt of a full and abundant produce.

“ Dibbling

“ Dribbling answers very well upon heavy lands, and particularly upon lays where you have little or no mould, or are obliged to sow very late; and will preserve from the injury of a drought.

“ *Transplanting.*—I remember to have read some years ago in one of Mr. MARSHALL's Agricultural Publications, an account of transplanting of wheat early in the spring, either from fields where it happened to be too thick, or from gardens, or nurseries where it had been more easily secured from the winter's sharp winds and severe frosts, which gave me a very advantageous conception of the practice. I have never seen it adopted in this county, except only in the narrow confined compass of a garden. But this year an instance occurs upon somewhat of a larger scale. A gentleman in the parish of Bocking had sown a field with wheat last autumn, containing about five acres, in the common mode of sowing. It appeared extremely healthy and vigorous through the greater part of the winter: but, early in the spring, either from the long continuance of the frost, or from worms and insects, the plant, in a very large proportion of the field, was so destroyed, that for roods together there was not a single spile. The general opinion of the neighbouring farmers was, that it ought to be ploughed up. The proprietor, however, as the soil was extremely rich and good, and in some places the plant was not only sufficient, but even by much too thick, determined to try what transplanting would do, without having either read the account and strong recommendation of Mr. MARSHALL, above alluded to, or known that the practice had ever been previously tried; accordingly, in the former part of the month of May, I think between the 5th and 12th day (which by the way was a month later than the time most proper for the purpose) persons were employed in taking
up

to be sown in those parts of the field where they were too thick, or where they were wanted where the greatest failure took place. The farmers made use of the gardener's method of making the holes requisite for the reception of the plants, which were put into them in the same manner as those of cabbages, savoys, &c. The plants were sown in a trench apart, but nine would have been sown in preference, had it not been apprehended that the number of plants likely to be collected would be insufficient. Carriers with plants in baskets went before the farmers, depositing from place to place such a number as they thought would be wanted.

The first sowing was the 17th day of June, 1797, and last March, 1798. I myself saw the transplantation, which was done very little, if at all too thin; and it was extremely healthy and vigorous, presenting a fair prospect of a most abundant crop.

I treated myself on this subject without observing, that both sowing and transplanting might be generally improved, and to the public's advantage; and that it was an easy and succedaneum, or supplement to the former, and applicable to every possible mode of sowing, though the latter sometimes inevitably fail.

It is to be desired that a liberal quantity of wheat grown, and sown in the same manner, of the one or the other method, should be made a further recommendation, that there would be a vast increase of employment for the poor, and of the poor, who have always been by the bye the best breed of men in the cultivation of our fields, though a species of occupation the most healthy of all others. It is also more so than carding and spinning of wool, and would not improbably become likewise more profitable, and the present moment, methinks, *peculiarly* calls the attention of our farmers to this subject. Our
woollen

woollen manufacture is greatly upon the decline; the employment of our poor has in consequence been greatly diminished, their hardships much increased, and our rates the more rapidly advanced. Were the plan adopted which I have now suggested, all these deficiencies might, to a very considerable degree, be supplied. Four or five months in the year during the autumn, spring, and summer, our women and children might be fully engaged in dibbling, transplanting and hoeing our corn; then would follow hay-making and harvest, and little more interval would remain than three or four of the dead and dreary months of winter, when they might take shelter in their cottages from the wet, cold, inclement season, and the carding stock and spinning wheel might be advantageously applied to, and the produce of these few months labour in this way might, perhaps, be nearly adequate to the feeble remaining calls of our woollen manufactures.

“ Another inducement to the farmers (especially of the north and north-eastern parts of the county) to the practice of dibbling and transplanting, is the following:—The growth of turnips on our heavy lands has been very much increased in the course of the last thirty years. To feed them off, from the trampling and poaching of either sheep or bullocks, is generally fatal to the ensuing crops; and, if conveyed away in carts or waggons, is, for the most part, highly injurious to it, even to the amount of a diminution of 12 bushels, or two quarters an acre. This, in my conception, is not to be ascribed, as is generally done, to the land being too much exhausted by the turnips, but to the stiff, compressed, unmanageable condition in which they have left it. A pretty strong presumptive proof hereof I have myself seen this very spring. A field of heavy land was last summer sown with turnips, and they were drawn and carted off
by

by the latter end of March. The long continuance of frost, for the most part so moderate as not much to damage the turnips, and at the same time sufficient to prevent injury from not too much compression and poaching of the soil in carrying them off; but was in a tolerably dry and highly pulverized state. In a word, it was in a condition completely proper for barley, with which it was accordingly sown, and now promises a better crop than the very best of the summer tilt land*. This, as I have just observed, is a strong presumptive evidence that the general failure of the produce after turnips, upon stiff heavy land, is not owing to the exhaustion of the soil, but to the compressed, unmanageable condition to which it has been reduced, defying the utmost efforts of ploughs, harrows, and rolls, to bring it to a state sufficiently mouldy for the advantageous reception of the seed. What seems, in my apprehension, to confirm this idea is, that I have almost always found, that when the summer tilt land, from an uncommonly wet and backward spring, has been rendered as close, and compressed, stiff, and unpulverized, as that after turnips, the crop has been equally deficient. Now as heavy soils are in the compact adhesive condition, after turnips, we have now described, at least nineteen times out of twenty, does not this suggest the propriety of introducing the dibble, either for the purpose of dibbling in the barley, or, more advantageously still, for transplanting wheat? The land could hardly ever be so wet, stiff, or adhesive, as not to admit the dibble, for the former purpose, and the seed, safely deposited in the holes, without much difficulty might be sufficiently covered. For the latter, the transplantation of wheat, few, if any, moulds would be requisite, as

* This expectation was fully answered, the crop being six quarters an acre.

the plant would thrive and grow, however stiff the ground, and the early use of the hoe, and increasing shade of the flourishing and vigorous shoots of the wheat, might contribute much to prevent the cracking of the surface in case of drought*.”

Alternate Culture.—It may not be amiss here to state a singular experiment respecting wheat, recorded by Mr. VANCOUVER.

Experiment I.—“ Is in the parish of Wethersfield, stated by Mr. VANCOUVER, p. 24; but his statement, the author of it informs me, is not perfectly accurate, and desires I would correct it, which, under his direction, I do as follows:

“ A piece of wet heavy land was under-drained, and winter and summer fallowed in the year 1791, after the usual manner, and laid into four-furrow ridges. In the autumn it was sown with wheat, only two furrows upon every other ridge, and about one bushel of seed per acre. The crop was kept perfectly clean by the hoe, and weed-hook, at an expense of about six shillings an acre; and the produce, sixteen bushels, was reaped at harvest 1792. In the immediately subsequent autumn the fallow ridges were sown with wheat, and at harvest 1793, its produce was sixteen bushels an acre. In the autumn 1793, the whole of the land, that is, the ridges that had been cropt this year, and the alternate ridges which had been fallowed, were all sown with wheat broad-cast; it was hoed and kept clean at the usual expense; and the produce at harvest 1794 was forty bushels. In the autumn directly following the whole was again sown with wheat broad-cast,

* Howlett.

and the produce at harvest 1795, after having been all along treated as before, was thirty-two bushels. The wheat was from the stock of Taunton Dean, in Somersetshire.

“These are surely extraordinary facts, and seem to suggest conclusions directly opposite to our generally established agricultural ideas. It is reckoned injudicious and bad farming, to have any two white crops in succession, as wheat, barley, or oats, any one of which following the other; and still more so, that the same grain should be several years successively used. But here were four crops, not only of the same colour, but of the same grain, four years immediately following each other, and every time the crop abundant. For I make no doubt, that the sixteen bushel crops of 1792 and 1793, if the whole ground had been sown, and fully hoed and cleaned, would have been thirty-two bushels; for in the forty bushel produce of 1794, there is no shadow of evidence that the *fore-crop* ridges (or the spaces they occupied) were more productive than the *after-crop* ridges.

“Though therefore the agricultural rule above mentioned, of not letting one white crop succeed another, may in general be just, and the result of skilful observation, yet there may be striking exceptions to it, of which the above is one, and the successful experiments of the cottager, recited under the article of Cottager, is another*.”

Depth.—Mr. SPERLING, at Maplestead, has often found his wheats root-fallen, and attributes it to the seed being put in too shallow: he thinks it ought to be buried two inches at least, and barley the same depth.

* Howlett.

SEED.

Mr. HARDY, at Bradfield, sows two bushels. The Rev. Mr. SCOTT drills two bushels.

Mr. COTES, of Holland, drills seven or eight pecks. This year one of his crops had only five; and though the field looked very badly for a long time, the crop is now (August) very fine.

At Kirby, seven pecks drilled: broad-cast, eight to nine.

Mr. OSBORN, on the very strong clays of Great Wigborough, three bushels.

Mr. LEE, on the rich flat of Goldhanger, two bushels and an half.

Mr. WAKEFIELD, at Burnham, six pecks to two bushels, increasing as the season advances.

In Foulness, three bushels.

Mr. SPURGEON, of Bradwell, dibbles one bushel an acre, and finds it enough.

Mr. WRIGHT, at Rochford-hall, ten to eleven pecks.

Mr. PARSONS, at Shoebury, three bushels, on account of wire-worm.

At Chesterford, three bushels.

Mr. HUBLAND, at Hallingbury, two and a quarter to two and an half.

Mr. SPERLING, at Maplestead, three bushels.

Last year Mr. BLYTHE, of Kirby, sowed a field with a very miserable sample of mildewed wheat, so bad that he had some doubt of the success: it was scarcely half the price of common samples, but it planted and produced just as well as the best.

“Average quantity of seed required—ten pecks of wheat per acre.

“It must be observed that the average on wheat is struck

struck upon the small red and white wheat. Where rivet or bearded wheat is cultivated, an addition to the average may be made of five or six bushels per acre: at the same time it may be noticed, that the rivet wheat is in general six-pence per bushel less in value than the smaller or Kentish wheat*.”

SORT.

Mr. KEMP, of Hedingham, compared wheat from Italy from Scotland, and from Dantzic; the last by far the best, and next the Scotch: but the Italian was full of smut, in spite of every attention in brining and liming; and sowing it a second time with still more precaution, the result the same.

The sorts usually sown at Kelvedon, are the burrel, red chaff and red grain; Taunton Dean white chaff and white grain; American red; red chaff and red grain; white rough; white chaff and white grain; the chaff rough: this sort stands the weather well, and does not shell easily: but it is rather difficult to thrash.

Mr. COOPER, at Langenhoe, generally sows white wheat on his heavy land, rarely rivets; rough chaff; York white; also American red.

“ A few years ago, as a gentleman at Bardfield was walking through his wheat fields when the corn was in full blossom, he was struck with the variety of hues, or colours, which the blossoms assumed: at first he conceived it might be owing to the different stages of forwardness in the blossom; but on particular examination, and more mature reflection, concluded that they were certain signs of a specific difference in the quality of the wheat; impressed with this idea, he selected the ears of several different hues, and particularly marked eleven dis-

* Vancouver.

distinct numbers; noting very minutely, their characteristic qualities and appearances in the field; these he gathered and kept separate when ripe, and planted them apart from each other in his garden: the same characteristic difference was observed to continue upon the several numbers when growing in the garden, as was observed in the field the preceding summer, and are as follows:

“ First Year in the Garden.

NO.

1. A stiff straw, thick ear, the rows or chests in which, set closer than in any other.
2. Dark straw, full blade, and large open ear.
3. A large long ear, ripened late, and well set.
4. Full foliage, and a long open ear.
5. Straight handsome straw, large well set ears, flag or leaf small.
6. Red rusty leaf before spindling, red straw with little leaf at harvest, and smaller ears than any.
7. Very like No. 6, in straw, the ears small but well set.
8. Straw leafy at harvest, of a good colour, well eared, and handsome.
9. } Straw full of flag or leaf at harvest; ears set wide.
10. }
11. Very like No. 5.

“ Second Year in the Garden.

NO.

1. Short upright stiff straw, thick well set ear, and later by four or five days than any of the others.
2. Very dark straw, upon which there remained a full dark blade at harvest, long open ears.
3. Strong leafy straw, of a good colour, with a thick long ear, well set; rather later than Nos. 5, 8, 11.

ESSEX.]

U

4. Thick

4. Thick leafy brown straw with a small ear.
5. } Short handsome bright leafy straw, ears long, thick ;
 8. } and well set.
 11. }
6. Long straw with a good deal of flag, ear ill set, and open.
7. Straw handsome, but small ears, and subject to root-falling.
9. } Long weak straw, very leafy, and subject to root-
 10. } falling.

N. B. The lemon coloured blossom was observed to attend Nos. 5, 8, and 11; but the colour of Nos. 1, and 3, was not particularly remembered. These are the numbers which have been preserved, Nos. 5, 8, and 11, coming to the sickle about a week earlier than Nos. 1, and 3; the produce of which, when compared with the rejected numbers, is an excess of from six to eight bushels per acre, and weighing about three pounds more to the bushel*.”

Windsor.—Mr. WILLES, at Bradwell, had this year a crop of Windsor wheat, white grain, white straw, and

* The wheat was the Taunton Dean, which has generally been thought the most simple and unmixed of almost any we have; and yet we find it contained no less than eleven distinct species; and it is by no means improbable that, on further and closer examination, still more might have been discovered. The sample of this wheat is fine, white, and beautiful beyond comparison; and upon these light tender lands, is extremely productive; but upon wet, tough, heavy soils, it seldom succeeds. Upon such, from numerous and repeated observations, I have found its quantity less by four or six bushels per acre than the common red wheat, and its sample inferior in beauty to that growing upon lands better suited to its nature and quality. I could wish to see the same experiments tried upon all our other kinds of wheat. If they should be found to be equally compounded, as there can be little doubt, to select and sow only the best, might be of highly beneficial consequences to the farmer and the public.—*J. H.*

white

white chaff; it is one of the most beautiful samples I have seen. The strength of the straw is middling.

Of all the different sorts of wheat Mr. HARDY has tried on his farm, the best has been the white egg-shell; and this is the sort most cultivated in Foulness Island.

Spring.—Mr. WAKEFIELD, of Burnham, this year (1805) sowed part of a field with spring wheat in April. I saw the crop, and it was quite black with the mildew, and the only piece mildewed in the country: the grain not good enough for fowls.

Mr. WRIGHT, of Hatfield, has this year sown a bushel of spring wheat, which is for the soil a fair crop, apparently at the rate of two quarters and an half per acre: the ears good, and the grain plump; it is drilled, and rather too thin, or it would have been a full crop.

Mr. WESTERN sowed this year a small space, but it was too late, and the crop so thin, that the produce will be small: but a true spring corn; for common wheat sown at the same time by it, is not above nine or ten inches high in the grass, without any appearance of shooting the stalk.

Red American.—This sort yields remarkably well with Mr. WRIGHT, of Rochford-hall: it is much approved in Mersea Isle. Mr. BENNET HAWES has had the best success with it.

Mr. STRUTT, at Terling, sowed a barrel of remarkably beautiful wheat from New York, in part of a field, the rest of which was sown with English wheat; and the American was so blighted in the ear as to produce a poor and miserable grain both in quality and quantity. He sowed it again, and the result was the same; and repeated the experiment the third time; the result again the same,

though the adjoining English wheat in all three years produced a fair crop, free from all blight. The *habit* of this wheat, therefore, was not changed in three years' sowing.

Rough Chaff.—A white chaff and white grain with a velvet ear; Mr. WAKEFIELD, of Burnham, finds it excellent; for here they are subject to strong easterly winds, and it does not shell easily. Mr. SPURGEON, of Bradwell, does not like it on heavy land, as it has not straw enough. Mr. WRIGHT, of Rochford-hall, remarks, that it should stand till ripe, or it will not thrash well.

Rivets.—About Hallingbury Rise, and indeed through all the district of the Roodings, this wheat is very general, and is found to yield, on that heavy soil, much better crops than any common sort; but on lighter soils, the Kentish red.

Italian.—Mr. WAKEFIELD, of Burnham, has cultivated a sort of wheat from Italy, which he approves much; the straw is remarkably stout and stiff. He cultivates also a sort called the Sopsodite; red grain, red chaff, and purple straw; this is a very good sort. Taunton Dean is beautiful, but will not bear rough weather. For two years past the Hamburg white, white grain and white chaff, has been fashionable: the white American also.

Egyptian.—Mr. ROGERS, of Ardleigh, has for three years cultivated Egyptian wheat, increasing the quantity till he has now got ten acres, and which promises to be very productive. The reason why many persons have given up this article of culture, he conceives to arise from their taking it from the beards to be a sort of rivets, and therefore

fore to demand wet or strong land ; but on such a soil it is good for little : it likes a dry light land, and on such will be found very profitable. He made an experiment in a large field of barley, which I viewed, sowing at the same time with the barley four rows of this wheat. It is evident that it will ripen, though late.

STEERING.

“As to the mode of preparing the seed, *steeping* is sometimes, but not very frequently, practised ; though I am inclined to think it a good one, whether in a lixivium of wood ashes, salted water made sufficiently strong to swim an egg, or in lime-water. And even *swimming* the grain is a good deal left off, which used to be performed thus : a certain quantity of limed or salted water was poured into a tub which would contain twenty or thirty gallons ; into this water the wheat was put in, till the tub was full within three or four inches of the brim ; the whole was then well stirred together with a stout stick, or better still, with a shovel. The light and defective grains would naturally rise, and swim upon the surface of the water ; these were taken off with a skimmer till few or none remained. The whole of the residue of the wheat and water was then put together into a strainer basket, placed over another tub of similar size and capacity ; the water freely passed through into the tub beneath ; and the wheat being left behind in the basket, was emptied upon the floor of the building where the operation was performed, whether brick or clay as it might happen. When a sufficient quantity for the next day’s sowing was thus prepared, the heap was spread and levelled about three or four inches deep, more or less as might be thought most proper and convenient ; then well slacked

lime was sifted evenly over it ; after which, it was stirred over again and again, till the lime and wetted wheat were as uniformly mixed as possible, and the grain sufficiently dried to be sown the next morning.

“ But even this operation of swimming the wheat is now very much discontinued, and by much the most common method adopted in its stead is the following : a proper quantity of wheat, dry and clean from the barn, is thrown upon a floor of brick or clay indiscriminately ; lime or salt water is sprinkled over it till properly wetted, and then it is mixed with slacked sifted lime as before.

“ The end proposed by these several operations, of which the two former are probably the most efficacious, is to take out the light defective grains, as in the first mode, or to destroy, in the latter ones, their germinating powers, that only the good seed might grow, and be preserved from smut, or, as it is here not uncommonly called, *bladders*. And the farmers usually observe, as a proof that these beneficial effects are hereby really produced, that when, at any time, they happen not to have wetted and limed a sufficient quantity of seed, but have been obliged to sow the short ridges and the headlands with dry unprepared grain, that they had generally found, at the approach of the next harvest, that the wheat sown dry was plentifully mixed with black smutty ears, while that of the rest of the field was nearly, if not perfectly, sound.

“ This evidence is at least plausible ; but it has always struck me, that part of the above difference might possibly be owing to circumstances distinct from the preparation of the wheat. The short ridges on the sides of fields are usually, from the influence of the hedges, of a weaker and poorer soil than that of the main body of the land ; and the headlands are so stamped and pressed together by
the

the turning and trampling of the horses, as to render it less fit to promote vigorous vegetation of the grain, and finally render it more liable to the disease of smuttiness. To clear up my doubts and apprehensions on this head, I caused the following experiment to be made: of eight four-furrowed ridges lying together in the middle of the same field, four were sown, in October 1794, with dry clean wheat immediately from the barn; and the other four were sown with the same, wetted and limed merely in the third method above described. In the month of July 1795, when the grain had acquired its full size, I measured an exactly equal extent of the wet and dry sown wheat, that is, about ten square rods of each respectively, in the middle of the field, the ridges all of equal length, and lying side by side. I then counted most carefully the number of black or smutty ears on each of the equal spaces of ground thus, in all respects, under circumstances most perfectly alike: I found among the produce of the ten rods sown with the wetted and limed wheat, exactly eleven smutty ears; in that sown dry and unprepared as exactly, thirty-three. The natural inevitable conclusion seems to be, that the liming and wetting was beneficial in the proportion of three to one*.”

Note on the Smut, by ROBERT ANDREWS, Esq. of Awarberries.—“About the 26th of June, walking by the side of one of my fields of wheat, I observed a great number of ears of smut, or what we call burnt wheat, which very much surprised me, as I had never experienced the like before on my farm, having taken every precaution to

* Howlett.

prevent it. Upon a further examination in the same field, I found the burnt ears only on the last stich of the field, that is, a land about a rod wide; and that my other fields of wheat were entirely free from them. Suspecting, as this side of the field was the last of my sowing, my bailiff had sown it with seed unprepared, I asked him if he had observed the burnt ears on the side of such a field, and why they should be there and in no other part of my wheat, the same seed being used through the whole crop? He said he had observed it, and that side of this field was sown with the same seed, but not prepared; for not having a sufficient quantity to finish, he took about a peck from the barn, as it came from the mill, and sowed it on the spot I have described. I have mentioned this circumstance, only to shew how necessary it is to attend to the well preparing of seed wheat; and as I have, with success, used the following steep for some years, would recommend it in preference to any other.

“ Make about half a hogshead of strong lye, by running water through wood-ashes several times, and put it into a copper with half a pound of arsenic; let it boil about five minutes, which will so far take off the poisonous quality of the arsenic, as to prevent the destroying of fowls, or birds, that may pick up the uncovered seed. After the lye is boiled, put it into a deep tub (an old wine pipe, cut, will make two), and let it stand until it is cold; then get a strong close-made basket, that will hold about two bushels, and set in the lye, and put half a bushel of wheat into the basket at a time, stirring it well several times, and skimming off the light dross that will arise; then drain the lye from it, and lay it on a brick or clay floor, and sift as much lime upon it as will prepare it for sowing: about a quarter of a peck of lime will dry
four

four bushels of wheat sufficiently, if mixed the night before it is used. This quantity of lye will swim about 50 bushels of wheat."

I have found throughout the county such a variety of opinions relative to the efficacy of steeping, wetting, liming, &c. that to detail them would be only to prove how very insufficient common practice is to establish any one proceeding upon a scientific basis. If farmers, instead of pursuing common maxims and opinions upon questions directly of science, would make experiments, with the necessary attention to circumstances, they would find for themselves what has been again and again found for them, that the smut is an infectious disease, and that the infection lies in the black powder which adheres to the grain; that every sort of friction, washing in plain water, steeping, &c. are all beneficial; but that from twenty-four to thirty-six hours steeping in a lixivium of ashes, salt, arsenic, or lime (salt and arsenic the most effectual), are the only certain remedies. If, with this precaution, any ears of a crop be smutty, it must arise from a grain of the powder adhering, in spite of all efforts, to the seed. In contradiction to these assertions, the result of multiplied experiments, I have heard twenty cases produced; but all of them, in fact, prove nothing. Smut occurring in defiance of all precautions, may arise, as I just stated, from the imperfection of the execution, or from the powder carried into the fields in various possible ways, from sacks, seedlips, &c. Seed treated in a slight imperfect manner, producing clean crops, is nothing to the purpose; the seed might be quite free from infection without any dressing whatever. When common, practical, and successful farmers accidentally make an experiment, it is incredible how vague and imperfect they often are; they neither approve nor like the business; their minds are diffe-

differently occupied; they are sometimes laughed at for doubting the common opinions; and they seldom give that previous thought and attention, requisite for the arrangement of a trial which demands great accuracy.

TIME OF SOWING.

1784.—The finest wheat in the extensive parish of Burnham, sown in September; almost invariably, the earliest sown, the best.

This remark of twenty years ago, was repeated to me by Mr. LEE, of Maldon, in 1805, who assured me, that almost all the famous crops which have been talked of among farmers, were from early sowings. But on the farm of Mr. DINES, of Snorum-hall, the last sown wheat of the crop of 1804 was the best.

Mr. WAKEFIELD, of Burnham, finds that early sowing is much better on light land; but on heavy soils subject to black grass, it is much otherwise.

Mr. VASSAL, of Eastwood, has an high opinion of early sowing. I was there the first week of October, and he had half done sowing, which was before his neighbours had began. Late sown crops very subject to the mildew.

Mr. MILES, the able bailiff to Lord PETRE, at Thordon, prefers October to any other time; but if black grass is in the land, later.

Mr. MANSFIELD, near Epping, a very sensible and intelligent cultivator, begins a fortnight before Michaelmas, and the earliest sown has the best chance.

Mr. R. PARR, on the dry turnip soil of Beerchurch, found October the best season for wheat sowing. Quantity of seed two bushels and a half broad-cast; dibbled one bushel three pecks.

WATER-FURROWING.

Some pits that held water, having been drained by Mr. BRIDGE, at Buttsbury, by digging deep hollow-drains from them, I remarked an attention which should not be forgotten by others who do the same : if much water draw into such drained hollows, the drains may be apt to fill up ; to prevent it, he marked and dug semicircular water-furrows to catch all the water which, if suffered, would run into those hollows : the thought was a good one, and the effect, safety to the drains.

HOEING.

The wheat about Coggeshall universally hoed once, twice, or thrice ; a practice long established.

Throughout Tendring hundred, much of the wheat is hand-hoed, at the expense of 5*s.* or 5*s.* 6*d.* per acre. Mr. BAWTREE, at St. Osyth, does much ; but it is not general.

They hoe at Layer de la Haye, but not universal.

Mr. WESTERN never fails ; at 5*s.* per acre. It answers well ; but the earlier done the better.

This practice is common through all Dengey hundred. I found not one farmer who did not hoe : Mr. WAKEFIELD, and some others, twice, and even thrice, if necessary.

There is no branch of husbandry of which Mr. KETCHER, of Burnham, has a greater opinion, than that of hoeing, wheat particularly ; and he thinks it of essential importance, that it should be deep : and as it is very difficult to get it done by hand deep enough, he has procured a very excellent drill-machine for drilling wheat, in order to horse-hoe it.

Mr.

Mr. BAWTREE, of Southminster, hoes all his wheat once, and some twice: has done it at the expense of 1*l.* 11*s.* 6*d.* per acre, on account of black grass.

Mr. HUBLAND, at Hallingbury, always hand-hoes his wheat; the farmers, *if the crops want it.*

In all the district around Colchester, the practice is pretty general.

Hoeing wheat, Mr. R. TABER, at Beerchurch, found to be a practice on that dry loose sand and gravelly loam to be managed with discretion. If done too late, it let in the drought, and did evident mischief; but if executed early, and especially in a thin plant, it was extremely beneficial, thickening and improving the crop greatly.

Mr. SPERLING, at Maplestead, always hoes twice, and sometimes thrice.

1784.—Foulness, wheat always hoed and weeded with great attention, even to 3*l.* an acre; 20*s.* common.

MILDEW.

The mildew is supposed, by many persons in Essex, to have been more fatal of late years (for the last twenty or thirty for instance) than formerly; and to have affected the old chalked lands which heretofore were exempt from it. Fallow wheat more subject to it than that on a clover-lay; dunged land more than undunged, and of all preparations, cole-seed wheat the least liable to its attacks.

In 1783, one man at Rochford had only three bushels an acre, and not too good for fowls.

Mr. SEWELL, on purchasing a farm, and sowing wheat in one of the fields, found the crop mildewed in two directions; and asking a labourer if it was subject to that distemper—*Oh!* replied the man, *it is in such and such a line.*

Just

Just so. *You will find two barberry bushes, and they always milderw some of the wheat whenever it is sown.* Mr. SEWELL grubbed up the bushes from the hedge, and after that saw no more mildew.

In a very fine field of wheat of Mr. HONEYWOOD's, after tares, I remarked part pretty much mildewed to the line of a furrow, and adjoining it the straw bright: the latter was dibbled, the former broad-cast, and having been eaten by the worm, or died in the winter, was too thin a plant.

Half a field of wheat at Felix-hall was cole-seed eaten by sheep; the other half clover manured, and mown for seed. The straw of the crop was mildewed in the latter part, the other not at all.

Mr. SAVILLE, at Great Waltham, sowing half a field with red wheat and half with white, land the same; the latter was mildewed, the former escaped.

At Audley-end, and the vicinity, on the gravel and chalk bottoms, this distemper is so prevalent, and so mischievous, that they avoid sowing wheat, and winter-fallow clover-lays for barley, which answers better than wheat: on 400 acres of arable land, Lord BRAYBROOK has sometimes none.

Mr. HARDY, who has farmed forty years at Bradfield, is clear that the vicinity of the sea is a great, if not an entire preservative from the mildew. He scarcely knows such a distemper from any injury it does his crops, not even in 1804. To the same cause may be attributed the certainty of the turnip crop.

On the very strong tenacious brown clays of Great Wigborough, they are very little subject to the mildew, except in accidentally thin crops.

The Rev. Mr. RAYMOND, at Belchamp-hall, has two fields so subject to the mildew, that wheat has not been
sown

sown in them for many years: it is strong land, but sound; he has had turnips in them.

Mr. WRIGHT has found, that if wheat be sown late at Rochford-hall, it is very subject to mildew, whatever the year may be generally as to that distemper.

SMUT.

Last year Mr. POLLET, of Bardfield-lodge, sowed old wheat as a guard against the smut, without brining, &c. but it did not answer, for there were many *bladders* in the crop.

Mr. KITCHNER has tried every way of dressing wheat seed, and has steeped it twenty-four hours in sea-water; yet some bladders would be found in his crops.

Mr. SANXTER, of Bradwell, sowed smutty wheat; he was advised by Mr. WILLES, if he would do it, to steep in sea-water twenty-four hours; he sowed eight acres thus, and the crop was clean: some he sowed with only wetting, which was very smutty: the rest he sowed dry, and it was nothing else but bladders. Mr. ANDREWS in general steeps twelve hours, and his crops clean.

PURPLES.

At Mr. AMBROSE's, at Copdock, I became acquainted with a distemper in wheat which I had never before heard of; and which I afterwards inquired concerning, even in the neighbourhood, but found it unknown. The ears affected are perceived at once by their colour, a dirty brown mixed with green, as if part was ripe, with some chests quite green: they feel nearly, but not quite, like blighted or abortive ears, which are brown, while the ears in general of the crop are of a bright red or white: when
rubbed

rubbed in the hand, as if to get the grain, no wheat is found, but apparently the small grains of a flattened indented globular form, and of a darkish purple, greenish, or dark hue. It has not the smallest resemblance, in appearance or scent, to smutty-grains or bladders, and is certainly a distinct distemper. In many of these purpled ears are found some grains of good wheat. In order to discover if all the ears from the same root were affected, which Mr. AMBROSE had not before examined, we made the experiment in many instances, and found all similar from every root. It appears to me very singular that no account (to my recollection) should have been given of such a strange malady, and so distinct from all others. Smutty ears were found in the same field, under all the common circumstances of that distemper*. In Kent this distemper is called *cockle-eared*.

REAPING.

Mr. SPURGEON, of Bradwell, does not like to cut wheat green, except it be the American white, which is brittle, and must be cut early, to prevent a loss of ears. It rarely lays.

In Rochford hundred Mr. VASSAL and Mr. PRENTICE do not cut till the wheat is ripe; but Mr. SCRATTON, and this year Mr. BARRINGTON, reaped while it was yet green. Mr. WRIGHT, of Rochford-hall, makes the same remark on American white as Mr. SPURGEON, and observed that most rough chaff wheats, if they do not stand till fully ripe, will not thrash.

“ Harvest generally begins between the 20th of July and the 20th of August: but it is commonly earlier in the eastern, southern, western, and midland parts of the

For wire-worm, see *Vermin*, &c.

country than in the northern, by ten days or a fortnight; partly from the soil of the former being hotter and forwarder than the latter, and partly from the convenience of more easily procuring harvest-men, who always go in great numbers from the north to the southern district, to assist the one or two first weeks in harvest, and some till the work is finished; for the population of the latter is greatly inferior to the former, and by no means adequate to the purpose of getting in their corn. They are therefore obliged to give higher wages, and such as will amply pay the labourers for their journey; though, every circumstance considered, it is not unfrequently most prudent to remain at home, and they are seldom the best and most industrious who make these annual exertions.

The wheat is generally reaped or cut with the sickle; though in the neighbourhood of London it is not uncommonly mown with the scythe, as close to the ground as barley or oats, for the purpose of increasing the quantity of the straw, which is there a very valuable article, selling for twice or three times as much as it will fetch in the more distant parts of the county. It is thrown, in this case, with admirable skill and dexterity, into swaths. If it be completely and perfectly ripe, it is soon bound up into sheaves of six or eight inches diameter, with bands made of the straw of the wheat; sometimes in single lengths, and sometimes in two, twisting the two lengths together at the ear ends of the straw. If not entirely ripe nor thoroughly dry, it is suffered to remain in the swaths two or three days, as occasion may require: but in more than three quarters of the county it is cut with the sickle, and indeed in almost all places, if beat down by the wind and rain. In this case, it is sometimes at the commencement of harvest laid and left in small parcels unbound, here called *gavels*, upon the top of the stubble cut eight or
ten

en inches from the ground, to dry and wither the straw, and further ripen the grain; but it is very soon tied up into sheaves with the straw bands as before. It is then *traved*, as it is usually here styled, that is, fourteen sheaves are placed slanting head to head across a furrow, and pressed together as close as may be; and a single sheaf is set in the furrow at each end of the trave. Thus the *traves* are made firm and compact, and may defy no inconsiderable force and violence of the wind. Sometimes, instead of placing the two sheaves at the ends, they are laid along the top or ridge of the trave; which certainly at once better preserves the trave from the rain, and gives a freer passage to the air between the sheaves, and sooner dries them, in case of their having been thoroughly soaked with rain; but then they are not nearly so strong to withstand powerful storms and blasts of wind as in the other construction. The farmers wish it may receive gentle showers or softening dews, to swell and plump the grain before it is lodged in the barn, or laid upon the stack. In the latter case, a bottom or foundation is previously made of common wood-faggots or bushes, well covered with straw; or else, which is vastly better, stone or wooden pillars are placed at proper distances from each other, and to whatever requisite number and extent; upon these is laid a strong substantial timber frame, well compacted of joists, beams, &c. as may be found necessary or expedient. If the supporting pillars are of stone, they are usually of a conical form, with stone caps fixed upon their tops; if of wood, they are cased with tin for ten or twelve inches near their upper end; in the former case the stone caps, and in the latter the tin coverings, effectually prevent the rats and mice from climbing up into the stack.

“ Upon this frame, thus raised and prepared, the stack of wheat, or any other grain, is erected; and

when the whole is completed, in a form the best calculated to secure it from the weather, it is then covered with a slight thatch, from about four to six inches thick, and at an expense of 1*s.* or 1*s.* 2*d.* the square, or 100 square feet. The pillars and frame, together with the care and time employed in raising them, and in thatching, must obviously be attended with considerable charge beyond what would have been necessary for the mere laying up the corn in barn; and after all, it must again be taken down and removed before it can be thrashed. It is impossible to estimate the expense of the whole in a manner at all satisfactory, it varying with the size of the stack, and the distance of its removal when taken down; but whatever it may be, it is amply compensated for by the perfect safety it gives to the grain. The height from the ground secures it from the vermin, the thatch preserves it from the weather, and the exposure of its ends and sides to the air, which are merely the butt ends of the sheaves, keeps it entirely sweet and pure, far beyond the best barn or granary in the world; and, indeed, the farmers' ricks and barns are the only kind of granaries which a wise government in this kingdom will ever encourage: their contents will generally be brought forth at the properest time, not stinking, and spoiled by conveyance in ships from abroad, or by laying and rotting in merchants' warehouses, but pure, sound, and good as when carted from the field.

“ A very considerable improvement in the above-described erection for corn-ricks has been recently introduced, and is, I believe, becoming every year more and more common. Upon the timber platform, the skeleton of a perfect barn is erected, ends, sides, and roof. Upon the roof, a complete and substantial coat of thatch is put, which, being exposed to no injuries from mice and rats,

nor

nor any thing else, excepting fire and the inclemency of the weather, will last upwards of thirty years.

“The superior advantages of this over the common barn, and the common rick, are great and numerous. The annual expense of thatching is entirely spared, and you avoid also the double hazard of injuring your corn by the precarious contingencies of bad weather. If you place it upon the common rick, you must either leave a large quantity abroad after it is fit to cart, that you may raise your stack as expeditiously as possible, in which case, it is in imminent danger of being damaged by rain and wet in the field; if you lay it upon your heap in smaller quantities, as it successively becomes fit for that purpose, the risk of hurting or spoiling it is very little diminished. But if deposited in your skeleton barn, you may place there as small quantities at a time as you please, or may be most convenient, and all is perfectly safe; it may likewise be finally filled up to the top, or not, as occasion may require, your grain being at all events equally secure.

“A very few days ago, I saw one of those useful buildings, which contained, I think, not less than thirty loads of fine wheat. At a proper distance from it stood a large thatch barn, and I could not avoid reflecting on the very different condition of the corn deposited in each. The thatch of the barn, though originally extremely good, and had been laid on scarcely a twelvemonth, was perforated in large holes by rats, in, I believe, thirty or forty places. Should the wheat, or other grain, now contained in it remain there for only a few months, it is not improbable that a fifth part of it would be destroyed by these vermin; whereas, that in the skeleton frame would continue perfectly safe, not only for months, but even years, if necessary, and be a saving to the farmer,

by the heat of the season and change of food, they get a surfeit, and many of them are laid up for the first week or ten days with inflammatory fevers. From a gallon and an half to two gallons of strong harvest beer, is their usual allowance, with as much refreshing small beer as they chuse to drink; this, together with a profusion of animal and vegetable food, constitutes their daily fare*.

“ In this manner the men are fed and supported for a month or six week; but in the interim what becomes of their wives and children? Depending upon the harvest wages to pay rent, and provide a little winter fuel, they are compelled to subsist upon a few loose ears gleaned in the fields, instead of participating with the men in their labour and subsistence, similar to that noticed in the journal at Sturmer †.

“ By

* “ This extravagant allowance of strong beer is far beyond anything I have ever known. The common allowance does not exceed five pints (except upon extraordinary occasions, and when particular exertions are required, with as much small-beer as the men chuse to drink; but this small-beer is for the most part small indeed!—*J. H.*”

† “ These few loose ears in the field are of more value, I believe, than is generally imagined. In the harvest of 1791, the gleanings of wheat alone of a single family in this parish of Dunmow, consisting of a woman and three daughters, the eldest of whom was only sixteen years of age, was worth nearly 5*l.*, and at the price wheat is now at (June 1795), would have been worth more than 7*l.* This is by no means a trifling consideration, and perhaps fully compensates for what may be lost by not participating with the men in their labour and subsistence. Few such instances as that now stated could indeed be found; but on the most fair and moderate computation, the aggregate of the gleanings of this whole parish, containing about two hundred gleaning families, that year amounted to nearly 400*l.*; this, however, was vastly above the average, that year being in all respects, as far as the subject now before us is concerned, a most extraordinary one. The wheat was uncommonly root-fallen, and the high winds and violent rains in the beginning and middle

“ By such management the necessities of a poor family in that plentiful season are much relieved. The husband sharing and dividing with his wife and children, the labour and comforts of the season, becomes exempt from indisposition, and the whole family are thereby invigorated to make the best possible use of that precious season*.

“ To

middle of July, had so beat it down, thrown it about and entangled it, that the reapers unavoidably left behind them an uncommon number of ears, and every ear was unusually full of the best grains; the weather during the harvest, too, proved exceedingly fine, and the entire business was dispatched in a very short time. The crop of wheat has been this year, 1801, nearly as good, and in this neighbourhood almost three times as much as in the year 1800; but not so advantageous for the gleaner as that in 1791.—*J. H.*”

* “ The mode of letting and inning the harvest here referred to, as taking place in the parish of *Sturmer*, near *Haverill*, has long been the practice in many parts of this county, and continues to be so to this day. Nor do I know a parish in this neighbourhood for fifteen or twenty miles around, in which individuals have not occasionally introduced it; many of them, however, after two or three years trial, have discontinued it; though upon the whole it is gaining ground very considerably. But this is principally the case among the larger and more opulent of our farmers, whose wives and families do not chuse the trouble and fatigue of boarding the men in the house. The same mode also becomes in a manner necessary when a person holds several farms lying at a considerable distance from each other.

“ The preference of this mode to the more usual and ancient one, cannot be decidedly and judiciously given without due attention to variety of circumstances. In particular situations they have each their recommendations. Where the farmer has a dairy and a flock of sheep which are continued from year to year, the boarding his harvest-men gives him an opportunity of killing off his old worn out cows, and crone sheep, better than he could otherwise do. It is also to be observed, that when the men board themselves they commonly live better than they do the rest of the year, and as their families partake with them in their improved living, they have frequently at the end of harvest not so much nett money coming to them as if they had boarded with their master.

“To diffuse these comforts as generally as possible, and, by a new arrangement in the management of the poor, to restore

Many of our farmers very judiciously blend the two modes together. To the older and more infirm of their labourers they let their work by the piece, with the allowance of a certain quantity of beer per acre, and their wives and children, if any remain to them, are permitted to work with them; while those men who are in the prime and vigour of life are taken into the house, either for the month or harvest, during which they are fully and plentifully maintained; but yet not in one instance out of twenty, to that extravagant degree of luxury described by Mr. VANCOUVER; though still it must be acknowledged, too nearly approaching it, and so as sometimes to occasion the evils he mentions. The general plea for this high luxurious living is, that it enables the men to exert themselves more vigorously than they could otherwise do. This, if I am not greatly mistaken, is a delusive imagination. I recollect an instance of a man living throughout the harvest, not only much lower than this, but even lower than those who take their harvest and provide for themselves. This man, in partnership with three others, had undertaken to complete the harvesting of a certain number of acres precisely on the terms, and in the manner stated and recommended by Mr. VANCOUVER. A few months before the time of entering upon the performance of their engagement, he fell ill of an inflammatory fever, from which however he recovered, but was merely in a convalescent state at the commencement of harvest. The apothecary told him he believed he might very safely venture to join his fellow labourers in their undertaking, provided he ate very little meat, refrained entirely from strong beer, and refreshed himself every night at his return from work with about a pint of new milk. He was extremely fond of strong liquor; his temptation to it however, upon this occasion, was in a great measure removed, by the beer he had brewed for his harvest proving good for nothing (which, by the way, is one objection to this mode of taking a harvest, as this accident not unfrequently happens). He strictly followed his apothecary's directions; drank only small beer to his meals in the day time, ate little but bread and cheese, and enjoyed extremely his delicious beverage of milk at night; and found himself incredibly refreshed and strengthened by it. In a word, he gradually grew stronger and stronger, went through the labours to the perfect satisfaction of his partners, and with more comfort and pleasure to himself than he ever experienced before or since.

restore that honest pride which was the boast of the English husbandman, viz. that he disdained to receive assistance from the parish, but under the most pressing circumstances of indigence and distress, cannot fail to prove a source of the very highest moral and political consequence. For in the very lowest walks of life, as well as in those of higher degree, there is a pride which displays the man, and adds worth and dignity to the human character; and through all the shades of society, which compose the inhabitants of this highly favoured island, there are none who, without the compunction of positive guilt, are so completely wretched as not to derive some increase of happiness from a strict adherence to virtuous emulation. To save from falling is better than to raise up, and to prevent an evil is better than to supply a remedy. Suffer a poor but sturdy ploughman, to receive the parish collection, and he feels himself degraded ever after; the pride which was once his boast becomes his torment, and the very act of peculation, which his honest heart scorned before his degradation, becomes familiar under cover of the night, and the hope of concealment and impunity * †."

since. This is surely a pretty strong presumptive confirmation, that the high luxurious mode of living, so frequently adopted for the more expeditious ending the Essex harvest, is by no means necessary.—*J. H.*"

* "Nothing can be more just than the above sentiments; but I fear the proposed method of getting in our harvests, will have very little influence towards preventing the sad degradation of our peasantry, of restoring the former independence of spirit. Nothing can accomplish either but a successive variation of the wages of labour, according to the successive variation in the price of the necessaries of life. But how this is to be effected is the grand *desideratum*.—*J. H.*"

† Vancouver.

PRODUCE.

At Hempstead, three quarters.

At Hedingham, two and a half to three quarters.

At Bishop's Wickham, two and a half to three quarters; probably three quarters.

At Hatfield Peverell, three quarters.

About Copdock, three quarters and a half.

Around Colchester, two and a half to three quarters; but on heavy land three to four.

At Bradfield, three quarters and a half.

At Ramsey, three to three and a half.

At Little Walden, three and a half to four quarters.

At Beaumont, two accounts; by one three to three quarters and a half; by another four and a half to five: and some in a good year to six, and even seven.

At Kirby, on clover land four quarters.

At Layer de la Haye, three quarters and a half.

In Mersea Island, three quarters and a half.

At Birch, two and a half to three quarters.

At Bocking, three quarters.

At Felstead (crop and fallow), 22 bushels.

At Dunmow (crop and fallow), 20 to 22 bushels.

At Little Leighs, three quarters.

At Great Waltham (crop and fallow on poor red land), 16 to 20 bushels; by another account 20.

At Langford, near Maldon, three to three quarters and a half.

At Maldon-wick, seven quarters two bushels per acre, through a field are said to have been grown, and that the thrashers confirmed it. Mr. LEE had at Fambridge-hall six quarters an acre, through a field of 20 acres.

At Snorum, three quarters and a half.

On

On the strong clays of Latchingdon, three quarters and a half. In the time of Mr. RUSH's father, three.

Mr. WAKEFIELD, at Burnham, three quarters and a half.

In Foulness Island, according to Mr. WOOD, 35 bushels. Mr. POTTON, five quarters a good crop; on an average of seven years, and the whole island four quarters.

Mr. KETCHER, at Burnham, three quarters and a half. At Bradwell, three quarters and a half.

Major CARR assured me, that let them do what they will on the strong clays in the vicinity of Assingdon church, they can get but three quarters of wheat per acre, or at most three and a half.

At Rochford, Mr. BARRINGTON three quarters.

Mr. WRIGHT, of Rochford-hall, on his good land, if the appearance is fair, and it escapes the wire-worm and mildew, thinks he has a right to expect five quarters; has had six; but the deduction to be made on those accounts is considerable.

At Prittlewell, Mr. PRENTICE thinks a fair average is four to five quarters.

Mr. PARSONS, at Shoebury, four quarters.

Mr. HICKS, on the strong clays at Hockley, has not yet in four years had four quarters an acre.

Mr. HARWICH, at Raleigh, on strong soils and wet, gets four quarters; but it should be noted, that his exertions in all the common means of improvement, are considerable; good fallows, ample manuring, deep ditches, and hollow-draining.

At Pitsey, four quarters a good crop.

At Romford, three and a half to four quarters.

At Thorndon, &c. three to three quarters and a half, rising from two to five.

At

At Danton, three to four quarters; and the trussed load of straw sold at 3*l.* 3*s.* at the barn-door; but this is temporary.

At Buttsbury, under three quarters.

Mr. BRAMSTONE's average in 1804, was 14 bushels instead of four quarters, his average, and has had five. In that year of miserable crops, 35 acres produced him 66 quarters, and six of them offal tail corn.

At Ongar, three to three quarters and a half.

At Shearing and Hatfield, in the Roodings, four quarters a good crop, average not more if so much as three.

At Chesterford, two quarters and a half.

Mr. VAICHELL, near Hallingbury, four quarters.

About Hallingbury, three quarters. Mr. HUBLAND three and a half; has had five. Mr. CHAMBERLAIN has had five; average generally three and a half.

Mr. STRUTT, at Terling, and his tenants, &c. three quarters to three and a half.

At Coggeshall, three and a quarter, on the heavy lands*.

Mr. SPERLING, at Maplestead, three quarters.

Mr. RAYMOND, at Belchamp, in 1805, above five quarters.

ROBERT ANDREWS, Esq. of Bulmer, found, by looking over his books, that the products have been per acre for some years as follow:

* In 1784, Brackstead, two quarters and an half to four and an half; average, three quarters.

WHEAT.

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In the Year	Wheat.		Barley.		Pease.	
	Coombs*.	Bush.	Coombs.	Bush.	Coombs.	Bush.
1773	6	1	8	2	0	0
1774	5	2	9	0	0	0
1775	8	0	7	0	0	0
1776	6	0	11	2	0	0
1777	7	1†	11	0	0	0
1778	6	0	8	3	0	0
1779	7	2	11	1	0	0
1780	10	3‡	11	2	8	0
1781	10	0§	10	2	5	0
1782	6	0	7	0	6	0
1783	7	0	11	0	8	0
1784	0	0||	9	1	4	1

The best *set* wheat I saw till I got to Marks-hall, was on the farm of Mr. HONEYWOOD, after tares on one ploughing: I found great numbers of ears *four set* in the chests, and several *five set* in the centres of the ears. The bailiff guessed the crop four quarters per acre. He found one ear from which he picked 105 kernels: three quarters or three and a half a fair average.

Mr. FISHER UNWIN, at Coggeshall, five quarters.

Mr. LEE, of Maldon, has this year (1805) seen many ears from many fields *five set*, and he has seen rivets seven and eight set.

Mr. WAKEFIELD, of Burnham, had many ears in every field this year *five set*.

About Spaines-hall, on an average of lands and seasons, three quarters; good farmers three and a half.

* A coomb is half a quarter. † Over 61 acres.

‡ Over 66 acres. § Over 61 acres.

|| Not thrashed.

General average of forty-eight minutes, twenty-six bushels and a half.

But from attending to the soil of these forty-eight minutes I am inclined to think it something beyond the average quality, and that the farmers noted are beyond the average of their brethren; and upon the whole, I should conceive twenty-five bushels about the mean produce of the county. That of district No. II. rises to four quarters, or thirty-two bushels.

“The average produce of the county per acre, given by Mr. VANCOUVER, is twenty-four bushels two pecks, which I believe to be very little over or under the real fact. For although this average is formed upon a medium of his fourteen districts, and from some of those are taken above fifty parishes, and from some not more than five or six; and although there are some parishes set too high, and others as much too low, according to the different degrees of knowledge, or the different views, tempers, and dispositions of the persons applied to for information; yet when thrown all together, the result will probably be near the truth. I am confirmed in this persuasion not only from my own observations, but from its near coincidence with the testimony of a person in this part of the county, who had been very extensively employed for upwards of fifty years in appraising farmers' crops. He constantly kept memorandums of his appraisements, and he assured me that the average of his estimates was twenty-two bushels an acre. It is here to be carefully observed, that these bushels were each eight gallons and a half, whereas Mr. VANCOUVER'S medium was probably founded on the Winchester eight gallons measure, which has now been some years used amongst us for all kinds of grain. Reducing the appraiser's measure to this standard, it will add eleven gallons to his average, and raise it to twenty-three bushels and

and three gallons; that is, nine gallons short of Mr. VANCOUVER's medium of twenty-four bushels and two pecks. But then it is to be remembered, that the appraiser's accounts were taken chiefly from the northern parts of the county, which are less productive than the southern, by at least a sack an acre. Lest this should suggest the idea that Mr. VANCOUVER is considerably below the fact, I would further remark, that in the northern part of the county I comprehend by much the larger division; and this will in some measure counterbalance the conclusion that would otherwise result. Upon the whole, I am strongly persuaded, as I observed at first, that Mr. VANCOUVER's medium is not very distant from the truth.

“It must not, however, be here forgotten, that both his estimate, and that of the appraiser above alluded to, were made prior to the crops of 1794 and 1795; which I believe were more deficient than any two in immediate succession since the commencement of the last century; I am persuaded, on the most satisfactory evidence, that the average did not exceed eighteen bushels an acre. A very skilful appraiser of farmers' crops in this neighbourhood, gave me his appraisements of the corn upon fourteen extensive farms, made prior to the harvest 1795, the medium of which was eighteen bushels; but they all, excepting only one, fell short of his estimates so considerably, as to reduce the medium to sixteen bushels. A clergyman who took the tithes of his parish in kind, favoured me with an accurate account of his tithe wheat, with the exact number of acres upon which it grew, which made the total average produce of the parish about sixteen bushels. This parish is justly deemed very productive in wheat, and which, in Mr. VANCOUVER's tables, is averaged at 26 bushels an acre. I may further add, that I myself noticed six or seven large farms within four or five miles of this place,
whose

whose joint medium could not exceed twelve bushels an acre. Laying all these circumstances fairly together, I think myself fully justified in the firm belief, that the medium produce of wheat per acre in this part of the county, in the year 1795, did not exceed sixteen bushels; and supposing the middle and southern districts to have amounted to twenty bushels, it will raise the whole aggregate average to only eighteen; that is, at least six short of the proper medium as given by Mr. VANCOUVER. Now supposing, what is nearly the fact, that the county contains twelve hundred thousand acres, and that only one-sixth of these, which I believe to be rather below the real proportion, are annually sown with wheat, here is a deficiency of 150,000 quarters in this small part of the kingdom alone, which is almost four times as much as the annual average excess of importations over exportations of wheat and flour, during the twenty years beginning with 1771, and ending with 1790, for the whole of Great Britain. Ye, who have made and propagated senseless and cruel clamours about monopolizing, forestalling, regrating, &c. hear this and blush!

“ The produce of this year (1796) has been considerably more abundant, though by no means equal to what was at first expected. Our great wheat, which is generally the most productive by four or six bushels an acre, is this year, partly from the red gum, and partly from mildew, the least so. The greater proportion of the small wheat, especially the American red, has been very kindly. Two or three pieces of ground, within four or five miles of this place, sown with it in the common broad-cast mode, I am assured have produced five or six quarters an acre; an abundance seldom, if ever before known in this quarter. But it must be remembered, that the land in both cases was extremely good, and their extent so inconsiderable as to have little influence on the general average; which,
upon

upon a fair and impartial view of every circumstance meriting consideration, I think I may very safely estimate at twenty-six bushels an acre, perhaps rather more, for the county at large, and will of course give as a superiority over that of the preceding year of more than 200,000 quarters. But this small degree of abundance is by no means, I conceive, an adequate compensation for two defective years in immediate succession; though it must not be forgotten, that the number of acres, as well as the quantity per acre, was considerably above the average; and I believe that that extent of ground sown with wheat is still further enlarged. The price is now reduced to about 50s. a quarter, on the medium of the different kinds, and I hope it will not sink much lower; for under twelve pounds a load, the farmer cannot afford to grow it*; which shews the injudiciousness of the measure of permitting importation whenever the price exceeds eleven pounds. Supposing the corn laws to have any material influence on its price, on which head I am, I confess, rather sceptical, it is, in my conception, extremely clear, that importation of wheat should never be allowed till the price exceeded 14*l.* a load. Should the produce of the year 1797 be as abundant as that of the present year 1796, I shall not be surprised if it sink below 9*l.*†”

* “Such has been the increase of taxes, poor’s-rates, and price of provisions of almost every kind, since writing the above, that if the farmer makes not, upon an average, 14*l.* or 15*l.* a load for his wheat, he cannot afford to grow it.—*J. H.*”

† Howlett.

“The crop of 1797 was not quite so abundant as that of 1796, and yet the price sunk to 10*l.* the load before the following Christmas; though it rose again to 14*l.* or 15*l.* before the subsequent harvest of 1798.—*J. H.*”

MR. VANCOUVER'S TABLE OF PRODUCE.

<i>Names of Parishes.</i>	<i>Annual Produce per Acre in Bushels of Wheat.</i>	<i>Names of Parishes.</i>	<i>Annual Produce per Acre in Bushels of Wheat.</i>
Helion Bumstead	22	Gosfield	22
Haverill	20	Halstead	20
Sturmer	22	Pebmarsh	18
Birdbrook	24	Colne Engain	22
Ridgwell	22	Wake's Colne	20
Tilbury	24	Wormingford	24
Ashen	22	Mount Bures	24
Ovington	24	Earl's Colne	24
Belchamp St. Paul's	22	Great Tay	22
Belchamp Oten	24	Aldham	22
Belchamp Walter	24	Coggeshall	24
Pentlow	24	Cressing	24
Foxearth	20	Kelvedon	22
Bulmer	24	Rayne	24
Middleton	24	Black Notley	22
Great Henney	20	White Notley	22
Alphanstone	22	Terling	26
Great Yeldham	26	Hatfield Peverill	26
Castle Hedingham	24	Great Waltham	24
Sible Hedingham	20	Great Leigh	22
Great Maplestead	18	Little Leigh	24
Little Maplestead	18	Felstead	22
Finchfield	20	Stebbing	25
Wethersfield	20	Lindsell	22
Great Bardfield	26	Thaxted	22
Panfield	24	Great Easton	22
Braintree	24	Little Dunmow	24
Bocking	24	Barnston	24

West

WHEAT.

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<i>Names of Parishes.</i>	<i>Annual Pro- duce per Acre in Bushels of Wheat.</i>	<i>Names of Parishes.</i>	<i>Annual Pro- duce per Acre in Bushels of Wheat.</i>
West Bergholt	22	Kirby	24
Little Horsley	24	Thorpe	28
Great Horsley	20	Beaumont	24
Boxted	20	Mersea Island, gene- } 28	
Langham	22	ral average	
Dedham	24	Aberton	24
Ardleigh	22	Peldon	24
Lawford	22	Little Wigborough ..	24
Mistley	24	Great Wigborough ..	24
Ramsey	24	Virley	24
Little Bromley	24	Layer Marney	26
Frating	20	Layer Breton	26
Allesford	22	Langenhoe	28
Wivenhoe	22	Feering	22
West Donyland	20	Inworth	22
East Donyland	20	Great Broxted	24
Fingeringhoe	22	Little Broxted	22
Coptford	20	Great Totham	24
Stanway	20	Goldhanger	26
Great Bromley	24	Tolesbury	24
Little Bentley	24	Maldon	28
Torrington	20	Woodham Walter ...	22
Britlingsea	24	Woodham Mortimer	24
St. Osyth	26	Sandon	24
Great Clackton	20	Great Baddow	24
Little Holland	22	Chelmsford	24
Little Clackton	24	Downham	22
Weeley	26	Stock	24
Great Holland	26	Buttsbury	24
Walton	24	Mountneysing	26

<i>Names of Parishes.</i>	<i>Annual Pro- duce per Acre in Bushels of Wheat.</i>	<i>Names of Parishes.</i>	<i>Annual Pro- duce per Acre in Bushels of Wheat.</i>
Great Burstead	20	Ramsden Bell-house	24
Little Burstead	20	South Benfleet	20
Purley	20	Thundersley	20
Munden	26	Langdon Hills	22
Latchingdon	26	Horndon on the Hill	24
St. Lawrence	24	West Tilbury	20
Tillingham	26	Little Thurrock	20
Southminster	26	Chelderton	24
Cricksea	24	Great Horndon	22
Althorne	20	Ingrave	24
North Fambridge ...	26	Great Worley	24
Woodham Ferrars ...	24	Cranham	22
Rettenden	24	Upminster	24
South Fambridge ...	24	North Okenden	22
Assingdon	24	South Okenden	22
Hawkswell	26	Aveley	24
Pakelsham	26	Stambourn	18
Great Stambridge ...	28	Hempstead	22
Sutton	28	Great Sampford	22
Shoeland	26	Radwinter	22
Little Wakering	28	Wimbish	20
Great Wakering	28	Broxted, or Chawreth	24
North Shoebury	28	Aythorp Roding	24
South Shoebury	28	White Roding	24
South Church	28	Abbot's Roding	24
The Marsh Islands, } general average ... }	30	Roding Beauchamp	24
Vange	24	Matching	26
Langdon Cray	24	High Laver	24
Ramsden Cray	24	North Weald	26
		Shelley	24

Willingale

<i>Names of Parishes.</i>	<i>Annual Produce per Acre in Busbels of Wheat.</i>	<i>Names of Parishes.</i>	<i>Annual Produce per Acre in Busbels of Wheat.</i>
Willingale Spain	22	Elmdon	18
Willingale Doe	22	Great Chishall	16
Berners Roding	24	Little Chishall	16
Good Easter	24	Langley	22
Margaret Roding	24	Rickling	24
Leaden Roding	24	Elsenham	26
High Easter	24	Berden	26
High Roding	24	Clavering	18
Pleshy	26	Harlow	28
Roxwell	24	Nettswell	26
Norton Mandeville	24	Waltham Abbey ...	30
Blackmoor	24	Chigwell	28
Little Chesterford	18		
Great Chesterford	18	Average	24½
Strethall	26		

STRAW.

In the barracks of Tendring hundred, 40*s.* to 60*s.* per load.
At Chesterford, in October 1805, a small load 30*s.*

STUBBLES.

Throughout the whole county these are universally haulmed and carried into the yards, or formed into walls for rendering such yards warm and comfortable to stock.

Mr. BARRINGTON, near Rochford, if he finds a wheat-stubble weedy, sets fire to and burns it, which is a great destruction to weeds.

GRINDING.

In the vicinity of Maldon are several considerable water-mills. Mr. STAMMER was so obliging as to shew me his mill, and a very fine one it is : has ten pair of stones ;

working six or four. One water-wheel twenty-two feet four inches diameter, and nine feet wide; fall of water ten feet and an half. The whole work so smooth, that the noise is little.

Mr. STAMMER has kept wheat a year five feet deep without stirring, yet sweet: but it must be well harvested, and laid up quite dry. He has a navigation, and wharf at the mill; coals, iron, &c. delivered.

Mr. DUNKIN, of the beautiful new-built mill at Bealy, had the goodness to go over it with me. The wheel is twenty-four feet diameter, and receives the water a little above the centre: all the barges come under the mill for loading and unloading, the sacks drawn up or let down with great expedition, and all the machinery, and contrivances for abridging labour, appear to be disposed to much perfection. The residence, cottages, &c. &c. and the environs, form a picturesque and very agreeable scenery.

FLAGGING.

This is an operation which I met with for the first time. When the wheat crops are very heavy with broad luxuriant leaves, men with sickles move regularly through it, strike off many of them, for lightening the top, as a preservative against being beaten down by rain. It should be done carefully, or damage may ensue.

SECT. V.—BARLEY.

THE great uniformity in the culture of this grain in Essex, will not afford much matter of explanation.

- | | |
|--------------------|--------------|
| 1. Preparation, | 6. Depth, |
| 2. Tillage, | 7. Drilling, |
| 3. Time of sowing. | 8. Produce, |
| 4. Manuring, | 9. Sample, |
| 5. Seed, | 10. Bread. |

PREPA-

PREPARATION.

Upon strong lands this is a fallow ; and upon dry land, turnips. This is the uniform management of the country. Beans, pease, and tares, are sometimes preparatory to it ; but no where the standard management. For one acre of wheat put in on a fallow, there are fifty of barley and oats ; and I must remark, that this is a very capital feature of merit. It was not thus formerly, for wheat on fallows was general ; but the enlightened cultivators of Essex have completely convinced themselves that wheat on fallows was *barbarous* management—their own expression in more instances than one. Put wheat in upon the fallow, and the rest of the course must be bungling work ; clover is essential, and barley a regular object. Beans but in secondary management, and therefore not the same reliance on them as in Kent. There can be no other profitable arrangement but the barley on the fallow, the clover on the barley, and then wheat and beans arranged according to circumstances. Considering the many thousand acres of fallow land wheat that are found in the kingdom, this change does great honour to Essex.

The preparation by turnips is more questionable : there is but little land in the county whereon the crop can be fed, where it grows to advantage, so dry, that treading is beneficial to it ; when this is not the case, if turnips be consumed in the common manner, as much is lost in barley as gained by that root. It is a case that demands much attention in removing, depositing, or storing the turnips while the land is absolutely dry ; methods have been discovered to effect this, but they are not practised in this county.

“ Barley is common after turnips, but the effect

of these are very different upon different soils. If the soil be light, dry, and tender, and admits the turnips being fed off by sheep, &c. it generally proves an ameliorating crop, and the subsequent produce of barley is rather increased than diminished. But if the soil be wet, tough and heavy, it is a very pernicious and exhausting one; and the following crop of barley is generally thereby lessened, from twelve bushels to two quarters an acre; which, at the price this grain has borne a few years past, the value of turnips will seldom compensate.— Whence this arises is perhaps not altogether certain; it is probably owing to the two following causes; first, it being for the most part impossible to feed them off with any kind of cattle upon the ground, there is no dung left upon it; and secondly, the soil is so cut and torn up by the waggon or cart, and trampled upon by the horses in carrying off the turnips, that it can seldom be properly prepared to receive the barley*.”

TILLAGE.

The tillage given to the fallows for barley in this country much exceeds that which is generally bestowed. The grand modern discovery of Suffolk, the banishment of spring-ploughing, is creeping into Essex, and will gradually extend itself.

Upon the fine sandy loams, or rather loamy sands of Belchamp Walter, Mr. LONG ploughs his turnip land two or three times for barley, and that stubble three times before winter, and once in the spring, for a second crop of barley. Nobody puts in barley without ploughing, except Mr. COKER of Borely.

Mr. PORTER, of Little Leighs, ploughs his fallows

* Howlett.

once in the spring for barley ; to give a second would be a great risk ; nobody in this vicinity know any thing of putting it in without any ploughing.

About Hallingbury and through the heavy districts of the Roodings, barley is put in upon a summer-fallow, and manured as far as the farm dung will go ; they sow it half under, and half on the surface, on two bout ridges, which are harrowed down.

Mr. SEWELL, on one of his strong land fields, once harrowed in the spring only, and sowed barley without any spring ploughing ; and the crop was as good as it would have been with the usual tillage.

Mr. KEMP, of Hedingham, when he sows barley on a fallow, leaves the land in October ploughed on to two bout ridges ; in the spring works it both with and across the ridges, by a scuffler of seven shares ; then harrows, if wanted, and drills the barley across the ridges. He justly considers spring tillage on all strong lands very mischievous.— He has mown winter tares for soiling, ploughed the land, manured it in autumn with marl and dung ; horse-hoed it, harrowed, and in the spring drilled barley without ploughing. Here I should have feared the dung would have wanted burying.

Mr. MAJENDIE thinks it bad to stir more than once in the spring for barley, as the earlier in March it is got in the better.

On the sound, dry, loose sands and gravelly loams of Beerchurch, Mr. R. TABER, in common with his neighbours, gave three spring earths to turnip land for barley.

Mr. AMBROSE, of Copdock, first ploughs his turnip land flat, then across, and afterwards stitches it up in nine feet lands for drilling barley at nine inches in April ; thinks that in general it is not advisable to sow that grain earlier ; knows not of any trials of putting in barley
without

without ploughing. In some cases, however, he ploughs but once, rolls, scuffles, drills and harrows, and rolls again, and harrows again if wanted. When the barley is three inches high, and begins to branch, sows clover broad-cast, harrows, and in ten days after rolls across.

Mr. ROGERS, of Ardleigh, is of opinion that the common spring tillage is unnecessary, and that in many cases it does mischief. For four years past he has not ploughed any turnip land for barley; he works the surface to a sufficient degree of fineness with scarifiers and tormentors, and drills in the seed on a tilth, that is more favourable than the plough would make, absolutely free from clods, and the manure not buried; and when he has put in wheat after forward turnips, he has pursued the same practice.

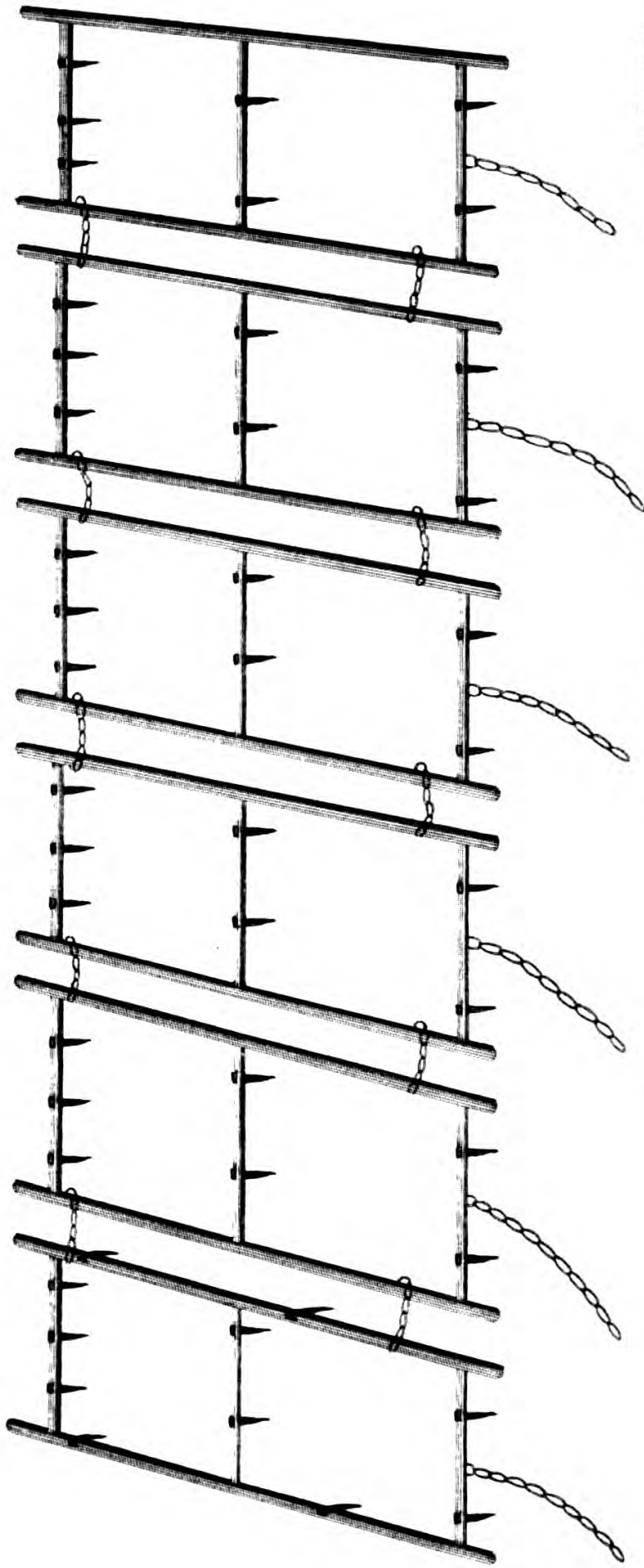
The mind of this able cultivator, unshackled by prejudice, adopts whatever practices promise success on his farm; and whatever he adopts he executes in a masterly manner.

He has carried the scarifying system in one experiment further than any person I have yet met with; for he tormented a five-year old layer in March, and planted it with potatoes in April, without any ploughing, and got a good crop.

He ploughed a wheat stubble and drilled rye, which he scarified two inches and a half deep; fed the rye early with sheep, then scarified again to a greater depth, mucked the land for turnips, and ploughed it in; then drilled barley without ploughing, and is now a fine layer.

He has trench-ploughed a layer, and drilled turnips for the first crop; now (1803) on the ground, they have suffered with all other crops from the drought, but they are sufficient to prove that the husbandry is feasible.

He sows clover when the drilled barley is high enough to roll: first he drill hoes it, and then sows the clover, covering



Made to order.

(Mr. Rogers's Light Harrow.)

covering with a very light harrow (*Plate XLIII.*) There is, however, some defect relative to clover on this admirably managed farm; for the white clover which I saw mowing, and the stubbles of other clover crops carried, were contrasts to the white corn, the turnips, &c.; so much grass was in them, that either the barley and oats were too thin to prevent it, or the seed clover was not laid in, in a manner to be securely covered. No one ever viewed the farm of the late Mr. DUCKETT, but something like the same remark was made; and I am inclined to think that much attention should be paid to putting in the clover on drilled crops, provided any hoeing be given which throws the seed time so late, that failures may be expected.

Mr. HARDY, of Bradfield, has tried putting in barley on a fallow without any spring ploughing, on his strong loams on clay, and it did very well indeed.

The Rev. Mr. SCOTT, at Little Oakley, before harvest threw a fallow on to the eight-furrow stitch: after harvest reversed them; and after wheat sowing ploughed again clean; and leaving it thus for winter, scarified it in the spring, and drilled in barley without any spring ploughing. It was a dry spring and answered well; but if wet, the black grass would not be sufficiently killed by the scarifying.

Mr. SALMON, of Beaumont-hall, ploughs the land for fallow in autumn; in the spring ploughs it back; next clean across on stitches of twenty yards; harrows and rolls till it is fine; then ploughs back; and afterwards gives it a half tith. At this time some lay on the muck, but others apply it to the young clovers. Next ploughs clean across; and then stitches up for winter; and in the spring ploughs once the seed earth; but if the land is in good temper, only scarifies, and sows or drills.

Mr.

Mr. BLYTHE's fallow for barley at Kirby is nearly the same as Mr. SALMON's: he mucks it twelve to fifteen loads an acre; each forty bushels: and also chalks some; but throws on to ten furrow stitches for the winter.

Mr. BUXTON, at Layer de la Haye, ploughs his fallows eight times, besides four, five, or six harrowings.

In putting barley in on fallows on his heavy land, Mr. FENN, of Middleton-hall, never ploughs in the spring: his bailiff Mr. POLLEY assured me, that this system met his entire approbation; and he remarked, that he had in his life-time often lost his barley crop by ploughing in the spring: and after turnips eaten early, so as to plough in time for frosts, he gives no spring ploughing, but puts in the seed without.

Mr. COOPER, at Langenhoe, never tried putting in barley without spring ploughing, but he made a remark, which, if pursued to its principle, will soon lead him to it: *the less we stir these stiff soils in the spring, the better, for we bring up land that is not in temper.* If you plough at all, this must be brought up.

In Mersea they used to plough their turnip land oftener for barley than at present: Mr. HAWES finds that one earth gives better crops than more.

Mr. SPERLING, at Maplestead, ploughs his turnip land but once for barley, if the soil breaks well. Should the surface bind after sowing, he harrows the young barley to set it loose, and this successfully.

Mr. THURLOW, at Gosfield, has for two years given a spring ploughing only to his turnip land for barley; and when even that has been fed off early, he has put in his barley, scarifying only.

The practice of putting in barley and oats on fallows without any spring ploughing, is unknown throughout
the

the vicinity of Maldon. Even Mr. PATTISON, who spoke to me much of his eradicator, had not made so obvious an application of it.

Mr. KETCHER, of Burnham, having last year fed off part of a field of turnips, and ploughed it immediately, left it and put in his barley on it without ploughing again in the common way, and only with cross-harrowing twice; and the crop was better than in the rest of the field, which was ploughed and sown at once.

In the Rooding district about Hallingbury, they know nothing of putting in spring corn without spring ploughing, though all the barley in the county is sown on fallows. Mr. CHAMBERLAIN, of Rise, remarked that there is such a gluey stickiness in the soil, that new fashioned implements will not work in it. This is precisely the reason why spring ploughing should be banished, for the mischief and hazard of it is in proportion to that circumstance: the surface mellowed by frosts is not gluey; turn it down, and you bring up glue. They sow half the barley under furrow on two bout ridges, and harrow half in on the surface; spraining the first; and broad-casting the second; and now they put wheat in, in the same manner.

Mr. TWEED, of Sandon, who drills barley and oats on a bean-stubble, manages in the modern system of avoiding spring-ploughings. Immediately on removing the beans, he ploughs with a very shallow furrow for cleaning; and after wheat seeding, ploughs again as deep as the soil will allow. He then leaves it till spring, when he goes over it with the extirpator, and drills without any more ploughing. The success answers his wishes; and he is well persuaded, that upon these strong and ticklish lands, spring-ploughing is mischievous nine times in ten.

Mr. NEWMAN, of Hornchurch, summer-fallows his strong land for barley, and never ploughs it in the spring; the

the land after the winter frosts, works like an ash-heap, and by means of this management, I get five quarters round, where they hardly attempted to grow it at all.

“ About Felix-hall, the barley is sown in the following manner broad-cast: the ridges laid up, are first well harrowed down, then springed a cast, three or four ridges at a time, then take a bout off every ridge, leaving a baulk in the middle: in this state they springe a second cast, then shut up the baulk, and springe a third cast, harrow down twice in a place; the land then lies upon flat ridges. The clover sown immediately after the barley, that is, between the first and second harrowing; after all, water-furrow well, if the weather permits; the lands are rolled with a light roll: quantity of seed-barley, four bushels the average; clover, twelve or fourteen pounds per acre. If oats are sown upon tilth land, they are put in after the same manner, and about the same quantity of seed; but this is rarely done*.”

MANURING.

It is a very general practice in this county to manure for barley upon the fallows; it is considered as a grain that pays better for dung, &c. than any other. It is carried on at various seasons; sometimes in the summer, sometimes in autumn; and turned in by the last ploughing before winter: by other farmers during frosts; and by some it is deferred till the spring, when it is turned in by the seed earth; but this is unquestionably bad management. All the malt-dust (an immense quantity) and pigeons' dung, are also applied to this crop.

* Mr. Western.

SEED.

Mr. HARDY, at Bradfield, sows three bushels per acre.

The Reverend Mr. SCOTT, at Little Oakley, drills two and an half.

Mr. COTES, of Great Holland, drills eight to ten pecks an acre.

Mr. BLYTHE, at Kirby, drilled nine pecks; broad-cast three bushels.

Mr. LEE, on the rich vale of Goldhanger, three bushels.

Mr. WAKEFIELD, at Burnham, two to three bushels.

In Foulness, two to three bushels.

Mr. WRIGHT, at Rochford-hall, three bushels.

At Chesterford, four bushels.

Mr. SPERLING, at Maplestead, five bushels.

Change of Seed.—“One circumstance is perhaps common to all sorts of barley, that it is not proper to sow them too frequently, or in any long succession, upon the same ground; but to change the seed every six or eight years. Among other evils usually attending the omission of this, is, that a large proportion of the ears become smutty or black. I myself saw a striking instance of this last harvest. Two very fine fields of barley which had been sown with precisely the same kind of seed upon the farm for many years; the black ears were at least in the proportion of one to six of the sound ears. Another field was sown partly of the same seed, and partly with fresh, procured elsewhere; the crop from the old seed was exceedingly smutty; that from the fresh was perfectly and entirely sound.

“It is a common remark of the farmers, that when the
black

black ears of barley are numerous, it will certainly yield well. Agreeably to this idea, the produce of the two fields first mentioned, was between six and seven quarters an acre; though there would doubtless have been eight or ten bushels an acre more, had all the smutty ears been sound*.”

Sort.—Sprat barley is sown at Burnham, and yields better crops than the common sort.

TIME OF SOWING.

“The time of sowing is from January to May. On the tilt land the sooner it takes place within the compass of this period the better, provided the soil and season admit of it. I have known barley sown in January, which has produced ten quarters an acre, which is more than double our average. But the most common time is the month of March, which, considering the great uncertainty of the weather, is the safest. After turnips the land is seldom ready for seeding before April; sometimes the middle, or even latter end of that month†.”

The early time of sowing here mentioned, I have often witnessed in Essex; and having put in a crop of above fifty acres in that county, I made many careful inquiries into the observations and practice of my neighbours; and I found that the general idea was in favour of sowing as soon as the *tempor* of the land would permit after the period of the great Christmas frosts was passed; and that such early sown crops very generally were the most productive.

* Howlett.

† Howlett.

DEPTH.

“That the land may require a change from clover, as well as from every other crop, is readily admitted; yet the frequent failure of that grass upon the stiff heavy lands in this county, may (it is humbly presumed) in too many instances be ascribed to mismanagement: for upon those lands, it is the usual practice, after making a summer-fallow, to lay up the land into four-furrow work for the winter; it being alleged (and with much reason) that the soil is of such a nature, as to require the meliorating influence of the frost, to render it sufficiently tender and open for the reception of the spring grain. As this land may be more or less liable to be chilled and injured with water, the furrows are shut close, and the ridges laid the higher. In this state the fallow remains through the winter, and the spring corn is too frequently sown without previously harrowing the ridges to a smooth and even surface, for the seed to lodge upon. The barley however is sown, the ridges are made the furrows, and after being slightly harrowed across, the field is sown with clover: hence the barley which fell into the furrows gets over buried, and a sick and languid appearance prevails along the top of the ridges during the spring, and early part of summer; and although at harvest the plant may appear both uniform and sufficient, it is nevertheless in the spring following found to fail upon the tops of the ridges, and the field too often remains partially barren, during the ensuing course of the summer season.

“To account for these effects it is necessary to premise, that the seed of barley, oats, wheat, and rye, should be placed in the ground, as nearly as possible to that point upon the main root, where the lateral fibres are put forth for feeding and supporting the plant, and which in most

soils will be found to be between an inch and a half and two inches below the settled surface of the field. Until these roots are formed, the seed roots, or those protruded directly from the grain, are the only organs by which, through a pipy cord, the plant can derive any possible nourishment. The more remote therefore the grain or kernel is placed from the crown of the plant, the more weak and languid must the circulation and supply of those juices be, which in the early growth of the plant, and before the unfolding of its foliage, must form its principal, nay only support. Hence the unhealthy appearance of young barley, and indeed that of every other grain, when improperly put into the ground, and injudiciously covered*.”

Upon this an Essex Annotator remarks: “Barley land is seldom harrowed *across*, but generally in the direction of the ridge itself. A very common mode of barley sowing is this: when the land laid up in the autumn is thought to be sufficiently dry, the four-furrowed ridges are harrowed; then a certain portion of barley is sown upon this in broad-cast; then they are drawn out into baulks (or balks) as they are here called; and another broad-cast sowing is performed; the baulks are then shut up by a double-breasted plough, which completes the ridge, now consisting of only three furrows instead of four, and thereby reduces the labour one-fourth part of what it formerly used to be. After the ploughing is thus finished, there is a third broad-cast sowing, which is immediately harrowed in by harrows drawn in the direction of the ridges. The whole of what respects the barley alone being thus completed, the clover is sown as soon as conveniently may be.

“The deficiency here pointed out seems effectually pre-

* Vancouver.

vented, by a method recently adopted by some judicious farmers in the neighbourhoods of Braintree, Coggeshall, and in the parish of Feering, which also at the same time spares an eighth, if not more, of the quantity of seed. They omit the first broad-cast sowing upon the ridges before drawn into baulks entirely; but as soon as they are drawn, a light pair of harrows is drawn over them in their own direction: then and not before, a broad-cast sowing takes place, and the baulks are struck up. When the ridges are completed, a second broad-cast sowing is performed, and the harrows follow as in the old way. The barley comes up with perfect uniformity, the middle of the new made ridge not failing any more than the furrow."

DRILLING.

Mr. SAVILLE, of Bocking, has found that his broad-cast barley has succeeded better than the drilled.

Mr. COKER, at Borely, drills all his barley; distance seven inches; no hoeing: seed two bushels and three quarters per acre. That on fallow is put in without any spring-ploughing, only scarifying.

Mr. COTES, of Great Holland, drills much barley on his fallows without any spring-ploughing.

PRODUCE.

About Finchingfield, the average produce is more than four quarters, and with good farmers five.

At Hedingham, four and a half to five quarters.

At Hempstead, on fallow, four quarters.

About Copdock, five quarters.

Around Colchester, four to five quarters.

At Bradfield, five quarters.

At Ramsey, four and a half to five quarters.

At *Deerhurst*, five to six quarters, by one account ; by another seven.

At *Essex*, on fallow, six quarters.

At *Essex* on a *Hop*, five quarters and a half.

In *Morse's Island*, five quarters.

At *Essex*, four quarters.

At *Essex*, four quarters and a half.

Mr. *James* says, on rich loam at *Coggeshall*, six to seven quarters of barley.

About *Malden*, by *Coggeshall*, five quarters. Mr. *Hewitt* says six to eight.

At *Essex's* *Wickham*, four quarters to four and a half. If the turnips are fed on the land, five quarters ; if drawn, six.

At *Essex*, four quarters ; perhaps four and a half.

At *Essex* (crop and fallow), four quarters and a half to five.

At *Essex* (crop and fallow), four quarters and a half to five.

At *Essex* (after turnips), four quarters ; after six.

At *Essex* (red land crop and fallow), three quarters.

At *Essex*, five quarters and a half.

At *Essex*, five quarters and a half.

At *Essex*, four and a half to five quarters.

In *Essex's* *Island*, according to Mr. *Wood*, six quarters to seven.

At *Essex* at *St. Lawrence*, four quarters.

At *Essex*, five to six quarters.

At *Essex*, five quarters.

At *Essex*, &c. three to seven quarters ; a coarse sample.

Mr. *Coverdale* had once at *Buttsbury* nine quarters and

and a half per acre, on a fallow manured with dung and earth.

Mr. BRAMSTONE, at Skreens, average six quarters; has had nine.

At Ongar, four to five quarters.

At Shearing, in the Roodings, five quarters a *good* crop; this implies an average of not more than four or four and a half. Six and seven are gained sometimes in some fields.

At Chesterford, four and a half to five quarters.

At Audley end, &c. five quarters.

Mr. HUBLAND, at Hallingbury, expects six quarters on an average of his crop (twenty acres) this year; and would have been more, had it not been *laid*. His average five and a half.

Mr. VAICHELL, near Hallingbury, five to six quarters.

Mr. CHAMBERLAIN, at Rise, has had seven; average five.

About Terling, six quarters: Mr. STRUTT has had more than ten on a fallow.

In Mersea Island, five quarters: the average there ought to be six.

Mr. SPERLING, at Maplestead, five quarters.

The Rev. Mr. RAYMOND, at Belchamp Walter, had in 1805, sixty-four loads of barley from ten acres and a half.

General average of forty minutes, four quarters, six bushels, three pecks.

As a general idea, I take this rather to be under than over the fact. I think that the average of the county is five quarters.

BARLEY.

MR. RICHARDSON'S TABLE OF PRODUCTS.

Name of Farm	Acres	Name of Farm	Average Produce per Acre in Bushels of Barley.
.....	36	Gasfield	32
.....	36	Halsted	36
.....	36	Peermarsh	32
.....	36	Colne Engain	32
.....	36	Wake's Colne	36
.....	34	Wormingford	32
.....	36	Mount Bures	34
.....	36	Earl's Colne	32
.....	36	Great Toy	30
.....	36	Altham	30
.....	36	Coggeshall	40
.....	36	Crossing	36
.....	36	Elveton	40
.....	36	Rayne	36
.....	36	Black Notley	36
.....	36	White Notley	36
.....	32	Toting	42
.....	32	Hatfield Peverell	32
.....	32	Great Waltham	32
.....	32	Great Leigh	32
.....	28	Little Leigh	28
.....	36	Belstead	36
.....	36	Stalling	36
.....	26	Elford	26
.....	26	Taxted	26
.....	32	Great Easton	32
.....	30	Little Dornow	30
.....	32	Barnston	32

West

<i>Names of Parishes.</i>	<i>Annual Produce per Acre in Bushels of Barley.</i>	<i>Names of Parishes.</i>	<i>Annual Produce per Acre in Bushels of Barley.</i>
West Bergholt	32	Kirby	32
Little Horsley	40	Thorpe	40
Great Horsley	28	Beaumont	32
Boxted	24	Mersea Island, gene- } ral average	40
Langham	32	Aberton	36
Dedham	32	Peldon	36
Ardleigh	32	Little Wigborough	36
Lawford	36	Great Wigborough ..	32
Mistley	32	Layer Marney	32
Ramsey	32	Layer Breton	32
Little Bromley	32	Langenhoe	32
Frating	32	Feering	32
Allesford	28	Inworth	36
Wivenhoe	32	Great Broxted	36
West Donyland	26	Little Broxted	32
East Donyland	26	Great Totham	34
Fingeringhoe	26	Goldhanger	40
Coptford	32	Tolesbury	45
Stanway	24	Maldon	36
Great Bromley	32	Woodham Walter	28
Little Bentley	32	Woodham Mortimer	32
Torrington	28	Sandon	40
Britlingsea	32	Great Baddow	40
St. Osyth	32	Chelmsford	32
Great Clackton	28	Downham	32
Little Holland	36	Stock	34
Little Clackton	32	Buttsbury	34
Weeley	32	Mountneysing	28
Great Holland	36	Great Bursted	36
Walton	40		

“We are told in the Corn Tracts, on the authority of a very experienced farmer, that the nutriment of barley for the support of human creatures was about two-thirds of that of wheat; that is, three bushels of barley, when ground, properly separated from the bran, or rinds of the grain, and made into bread, will go as far as two bushels of wheat. But the ingenious Count RUMFORD, in his late Essays, seems decidedly of opinion, that when the meal or flour is properly mixed with water and some other ingredients, and vegetables, and boiled and simmered down into soup, it is more nourishing than even wheat. This is a matter that deserves the highest attention*.”

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SECT. VI.—OATS.

IN Essex, the culture of this grain varies very little from that of barley, for the obnoxious practice of making them an after, or as it is called in that county, an *atsh* crop, though here and there practised, is no where the common husbandry of a district.

- | | |
|-----------------|-------------|
| 1. Preparation, | 5. Seed, |
| 2. Tillage, | 6. Sort, |
| 3. Drilling, | 7. Harvest, |
| 4. Time, | 8. Produce. |

TILLAGE.

At Great Wigborough, where the soil is too strong for barley, they sow oats on the fallows; and they plough once in the spring for them. It would, on so harsh and tenacious a soil, be a very great improvement to adopt the Suffolk system, of not ploughing at all in the spring.

* Hewlett.

But at Latchingdon, on a soil *almost* as stiff as that of Wigborough, Mr. RUSH assured me it had been tried, and did not answer; rain coming, he observed, would spoil the plan. Mr. DINES agreed to this. The reasoning must be connected with the fact, and it renders it questionable; for if there be a peculiar motive for the practice, it is that of being *safer* in case of rains. Every practical farmer knows, that the mischief of rain on very tenacious soils is in proportion to the recentness of the ploughing; the surface left dry, and friable from frosts, dries after rain speedily; but the fresh ploughed surface becomes glutinous, muddy, and hardens with an east wind into a block.

In Foulness, after wheat-sowing is done, they plough the furrows for oats; next turn back the furrows: then give two clean earths across: two more up and down: strike (a half ploughing) across, and lay up in autumn in *eights* (stiches of eight furrows) for winter; and in the spring plough and sow.

No oats put in at Bradwell without spring-ploughing; and some, to use Mr. SPURGEON's expression, are badly *muddled in*.

Mr. BARRINGTON, at Droggets, near Rochford, gives three or four clean earths and a strike or two, harrowing three or four times with a crab-harrow, that enters as deep as the plough, drawn by four horses, and has teeth a foot long: he *thinks* this harrow better on bean and pea stubbles than scarifiers or scufflers.

Mr. COVERDALE, at Ingatestone-hall, sowed oats on a fallow without any spring-ploughing, and got eight quarters an acre, which, for the land, was a very great crop. He neither harrowed nor scarified preparatively, only harrowed to cover the seed, and rolled after the plants were up, taking advantage of the surface as left by the
frosts.

frosts. This year, on the very worst field of his farm, he got five quarters an acre in the same way.

DRILLING.

Mr. COKER, at Borely, drills all his oats at seven inches, three bushels of seed per acre.

TIME.

Mr. MANSFIELD, near Epping, sows oats as early as he can: the earlier the better; but always spring-ploughs the fallows for them.

SEED.

Mr. HURDY, at Bradfield, four bushels.

Mr. BLYTHE, at Kirby, drilled three bushels; broadcast four.

Mr. OSBORN, on the very strong clays at Great Wigberough, five bushels.

Mr. LEE, on the rich flat of Goldhanger, four bushels.

Mr. WAKEFIELD, at Burnham, three bushels.

In Foulness, four bushels.

Mr. WRIGHT, at Rockford-hall, five bushels.

Mr. PARSONS, at Shoebury, four ditto; on a fallow, three. If a sack were sown there the clover would be spoiled.

At Chesterford, four bushels.

Mr. SPERLING, at Maplestead, six bushels.

SORT.

Mr. WESTERN, of Felix-hall, has this year a very fine crop of potatoe oats, eight, perhaps nine, quarters an acre: they are in much esteem here, for weight and quantity of flour.

The

The Reverend Mr. SCOTT, at Little Oakley, cultivates the Dutch brew and the potatoe oat; but prefers the latter. Drills three bushels and an half of seed.

The exertions that are made in Essex in the culture of this grain, exceed those of every other part of the kingdom, yet they sometimes fail, from the uncertainty of seasons.

Mr. KETCHER, of Burnham, sowed a field of black and white oats mixed on a complete fallow, the beginning of February, dry by draining quicksands, but a fall of rain perished them, and the black suffered most: yet the land did not bind. Ray-grass and clover were sown with them, and he fed all together.

Mr. WOOD, of Ingatestone, in the constant feeding of never less than 28 horses, has found that black oats are preferable to white. He is clear in the superiority.

Tartarian oats have spread much in Essex, and the crops they produce are immense; twelve and thirteen quarters have been often gained, and from eight to ten common. The quality of the grain is somewhat inferior, and the straw of use only for dung, which indeed is the best application of all straw.

HARVEST.

Mr. BUXTON, at Layer de la Haye, reaps and binds oats when a great burthen; and I saw a field thus harvested at Abberton; but in the hundred of Tendring, with their fine land and immense crops, I do not recollect once seeing it; all mown.

PRODUCE.

At Braxstead, 1784, five quarters.

At Castle Hedingham, five to five quarters and an half.

At

At Bishop's Wickham, five quarters and an half.

At Hatfield, five quarters and an half.

At Copdock, five.

Around Colchester, four to five.

At Bradfield, six quarters.

At Ramsey, five to six quarters.

At Little Oakley, six quarters.

At Beaumont, six quarters.

At Kirby, on fallow, seven quarters and an half.

In Mersea Island, five quarters.

At Birch, five quarters.

At Little Leighs, five quarters.

At Langford, near Maldon, six quarters: they follow turnips, Mr CHARLES WOOD has had eight quarters.

At Snorum, six quarters.

At Latchingdon, Mr. RUSH six quarters, if fine weather after sowing; but rain at that period renders them very hazardous.

Mr. WAKEFIELD, at Burnham, average five quarters and a half; greatest eleven and twelve.

In Fouiness Island, according to Mr. WOOD, nine quarters: Mr. POTTON, six quarters, because some on eddishes: but on fallows, nine or ten quarters sometimes.

Mr. SPURGEON, at Bradwell, has had ten and eleven quarters an acre, but does not reckon the average crop more than five.

On the strong clay-hills of St. Lawrence, Mr. PATTISON five quarters.

Major CARR assured me, that let them do what they will, they get but five quarters an acre on the strong lands in the vicinity of Assingdon Church.

At Rochford, Mr BARRINGTON five to six. Mr. WRIGHT at the Hall has had as far as twelve quarters; many crops of ten; but eight more common. These are supposing

supposing the crops escape the wire-worm; but much subject to it.

Average at Prittlewell, six to seven.

At Shoebury, six to seven.

Mr. HARWICH, at Rayleigh, seven quarters; has had eight and nine; but these crops go much beyond the average of the vicinity, and are the result of great exertions in all the common means of improvement.

At Pitsea, five or six quarters good crops; many farmers do not get so much. Mr. SPITH, of Billericay, had ten quarters here the year before last; but it was a very extraordinary produce.

At Romford, six quarters.

At Thorndon, &c. five quarters; rising from three to ten.

At Dunton, and to Billericay, four to ten.

At Buttsbury, five quarters.

Mr. BRAMSTONE, at Skreens, six to seven quarters; has had ten.

At Chesterford, five quarters.

At Audley-end, five quarters and an half.

About Hallingbury, Rise, &c. in the Rooding district, pease and oats mixed, four quarters.

At Terling, five quarters.

At Coggeshall, on the heavy lands, five and an half.

Mr. SPERLING, at Maplestead, six quarters.

General average of 37 minutes, five quarters five bushels and half a peck.

<i>Names of Parishes.</i>	<i>Annual Produce per Acre in Bushels of Oats.</i>	<i>Names of Parishes.</i>	<i>Annual Produce per Acre in Bushels of Oats.</i>
Aberton	40	Althorne	32
Peldon	40	North Fambridge	45
Little Wigborough ..	36	Woodham Ferrars ...	40
Great Wigborough ..	36	Rettenden	40
Layer Marney	40	South Fambridge	40
Layer Breton	40	Assingdon	40
Langenhoe	40	Hawkswell	40
Feering	28	Pakelsham	48
Inworth	22	Great Stambridge	44
Great Broxsted	26	Sutton	40
Little Broxsted	32	Shopland	36
Great Totham	36	Little Wakering	40
Goldhanger	45	Great Wakering	40
Maldon	40	North Shoebury	40
Woodham Walter ...	35	South Shoebury	40
Woodham Mortimer	40	South Church	48
Sandon	46	Hadleigh	32
Great Baddow	48	Marsh Islands, gene- } ral average	40
Chelmsford	32	Vange	40
Stock	34	Langdon Cray	32
Buttsbury	34	Ramsden Cray	32
Mountneysing	36	Ramsden Bell-house	32
Great Burstead	36	South Bemfleet	30
Little Burstead	36	Thundersley	30
Purley	32	Langdon Hills	28
Munden	46	West Tilbury	30
Latchingdon	44	Little Thurrock	30
St. Lawrence	40	Chelderton	36
Tillingham	48	Great Horndon	36
Southminster	48	Ingrave	40
Cricksea	36		

<i>Name of Parish.</i>	<i>Area in Acres.</i>	<i>Name of Parish.</i>	<i>Annual Produce per Acre in Bushels of Grain.</i>
Great Titchard	40	Great Chesterford	22
Chesham	38	Stretchall	32
Uppington	40	Elmdon	22
North Darnley	40	Great Chishall	22
South Darnley	40	Little Chishall	22
Arbury	16	Langley	18
Harlow	40	Rickling	32
Hempstead	14	Elsenham	32
Salvage	40	Berden	28
North Waltham	40	Clavering	20
Safron Walden	66	Harlow	40
Finchley	66	Chigwell	40
Essex	12		
Essex	64	Average	36½
Great Chesterford	42		

SECT. VII.—BEANS, PEASE.

BEANS are of importance in the cultivation of Essex, but they are not in the estimation in which they ought to be held, for there is not any county in the kingdom, of nearly equal size, that possesses so much land well adapted to this crop.

- | | |
|-----------------|--------------|
| 1. Preparation, | 5. Seed, |
| 2. Manuring, | 6. Hoeing, |
| 3. Ploughing, | 7. Produce, |
| 4. Drilling, | 8. Stubbles. |

PREPA-

PREPARATION.

About Kelvedon they plough the wheat stubbles before Christmas, laying up the land in two-bout ridges; and after the frosts dibble in the beans at once, without further tillage.

At Feering, near Coggeshall, I found the farmers in September carting compost dunghills on to barley stubbles, in order to plough it in as soon as wheat sowing should be over, by which ploughing, they form three feet on two-bout ridges, and in the spring, without any further tillage or scarifying, or even harrowing, they dibble in beans, usually Windsor beans, the end of February or beginning of March; they keep them very clean. After harvest if the stubbles are not quite clean, they hand-hoe them, dew-raking and burning all weeds; then they throw two ridges together and sow wheat.

The principle (and a most important one it is) is taken from the modern practice which has made such a revolution in the husbandry of Suffolk; that of avoiding, as much as possible, all spring tillage. They are deficient in the omission of horse-hoeing, which the wide intervals of 27 inches would amply admit; but the husbandry, however, has great merit.

Their course:

- | | |
|-------------------|------------|
| 1. Summer-fallow, | 5. Fallow, |
| 2. Barley, | 6. Barley, |
| 3. Clover, | 7. Beans, |
| 4. Wheat, | 8. Wheat. |

They never plant beans without mucking. As the teams with a few cows and pigs, are incompetent for manure, they spread their straw not only about the yards, but in lanes, cart-ways, &c. for being trodden into what

they call dung: a miserable practice, and quite unworthy of their bean husbandry. I should remark, that the fallows now (September) laid up for barley, here and about Coggeshall, and to Braintree, are in admirable order, and were they to put the barley in without any further ploughing, would produce more than with the usual spring tillage.

MANURING.

They often manure for beans at Kelvedon, but it is not general.

SEED.

About Kelvedon, two bushels dibbled in three rows, on two-bout ridges.

Mr. POWELL, of Birch-holt, two bushels of ticks. Mr. LEE, of Maldon, the same.

Mr. WRIGHT, of Rochford-hall, two bushels.

Mr. PRENTICE, at Prittlewell, sprained in every furrow a sack per acre; dibbled two bushels and a half: likes the former best.

Mr. PARSONS, at Shoebury, says thin beans generally *lead* best, but this year thick ones did very well.

Mr. SPERLING, every furrow three bushels per acre.

At Feering, six bushels of Windsors.

Mr. HARDY, at Bradfield, two bushels per acre.

At Kirby, two bushels and a half.

Mr. WAKEFIELD, at Burnham, ticks two bushels, Mazagans four.

In Foulness, Mazagans and hotspurs seed four bushels.

DIBBLING.

The manure about Felix, &c. carted on to the barley stubble for beans, and being ploughed in before winter, the
frost

frost mellows the land ; early in spring it is harrowed, and dibbled directly.

Mr. FISHER UNWIN, at Coggeshall, plants Windsors in rows at eighteen inches by ten.

About Kelvedon, they dibble three rows on two-bout ridges, seven inches from hole to hole, putting two or three beans in a hole ; 5s. per acre dibbling.

Mr. BUXTON, at Layer de la Haye, six rows on eight furrowed stitches.

Mr. POWELL, of Birch-holt, three rows on a four-furrow ridge.

Mr. LEE, of Maldon, six rows on eight furrows.

Dibbling beans well known in Foulness ; but the children in the island are too few for the system to be general. They are usually sown by hand under furrow.

Mr. BAWTREE, of Southminster, three rows on two-bout ridges.

Mr. HARWICH, at Rayleigh, dibbles every furrow.

At Thorndon, Lord PETRE has dibbled some, and sown some broad-cast. Mr. MILES, the bailiff, prefers the broad-cast : it is common to dibble every furrow, but he has tried every second, for the sake of better cleaning : they did well.

Mr. HANBURY, at Coggeshall, dibbles every furrow.

Mr. COOPER, at Langenhoe, dibbles all his beans ; six rows on *an eight*.

Mr. BENNET HAWES, in Mersea, dibbles them on clover-lays.

Mr. SPERLING, at Maplestead, dibbles every furrow, making fourteen on a four-ridge stitch ; that is, in twelve feet. Has tried also every other furrow ; in that case nine rows on a four-ridge stitch : they turn out best on every furrow.

At Feering, two rows at nine or ten inches, of Windsor beans on a two-bout ridge.

Mr. HARDY, at Bradfield, on every furrow.

Mr. KEMP, of Hedingham, dibbles all the larger beans, and drills the smaller ones. French ticks he has had the best success with, putting them in as early as he can in spring, and gets on good land five to eight quarters an acre.

DRILLING.

Mr. LOZELL, at Bradwell, has drilled beans; I saw one of his stubbles very clean; that of Mr. ANDREWS broadcast equally so.

Mr. SANXTER, of Bradwell, has drilled beans equidistant at nine inches, and never had a better crop, nor has there been a stronger in that rich and extensive parish.

Mr. NEWMAN, at Hornchurch, at various distances, usually eighteen inches to two feet.

Lord BRAYBROOK, at Audley-end, drills both pease and beans, by spraining into every third furrow.

Mr. VAICHELL, near Hallingbury, in the Rooding district, where nothing is orthodox but crop and fallow, manures for, and drills beans in rows two feet and a half apart.

Mr. AMROSE, at Coptford, drills his beans at twelve inches, and his pease at nine, and two inches and a half deep, to be secure against rooks, &c.

Mr. COKER, at Borely, drills at eighteen inches.

Mr. TAYLOR, at Wimbish, drilled double rows on three feet ridges.

HOEING.

Essex is too far advanced in husbandry, not to make this operation essential in the culture of beans. From all the information I gathered, I do not apprehend there is a single acre of unhoed beans in the county; but, as the
grand,

grand, and in general the only dependence is on *hand* work, they are very far from perfection in this business.

Well hand-hoed about Kelvedon.

Mr. FISHER UNWIN, at Coggeshall, four times.

Mr. BUXTON, at Layer de la Haye, hand-hoes thrice at 14*s.* and beer equal to 16*s.* yet there will be some black grass left among them.

Mr. POWELL, of Birch-holt, thrice.

Mr. RUSH, of Latchingdon, never hoes less than three times, at 18*s.* per acre; and if to be followed by wheat, four times; expense 22*s.*

In Foulness, hoe thrice, at 18*s.* to 20*s.*

The stubbles of Mr. LOZELL and Mr. ANDREWS, at Bradwell, so clean, as to imply ample hoeing.

Mr. SANXTER, of Bradwell, horse-hoes and hand-hoes.

At Prittlewell, Mr. PRENTICE, twice at 18*s.* or thrice at 21*s.*

Mr. HARWICH, at Rayleigh, twice or thrice, at 6*s.* each.

Mr. NEWMAN, at Hornchurch, incessant operations; and he has a Kentish horse-hoe, the whippetree of which is so mounted, that he hoes while they are in blossom.

Lord PETRE keeps clean by hand-hoeing, and the application of a horse-hoe.

Lord BRAYBROOK hand-hoes both pease and beans thrice.

Mr. VAICHELL horse-hoes, and earths up with a double-breast plough.

Mr. HANBURY hoes thrice, but in a wet season they are not clean.

Mr. COOPER, at Langenhoe, thrice, at the expense of 6*s.* 8*s.* and 10*s.* but less in favourable seasons.

Mr. SPERLING keeps perfectly clean by hoeing.

At Feering, keep them quite clean by three or four hoeings.

Mr. AMBROSE, at Coptford, hoes, and works the drills with the fixed harrow.

Mr. HARDY, at Bradfield, harrows across the dibbled rows as soon as the beans are up; then hoes lengthways; then harrows across again; next he hoes across, and then lengthways. By these means, when they are planted on a lay they are clean as a garden, and free even from black grass.

Mr. COKER, at Borely, horse-hoes his eighteen inch rows three times, with a shim drawn by an ass; hand-hoes once, and weeds the rows.

Mr. TAYLOR, at Wimbish, thrice.

“Harrowing twice is not so necessary, if they are early and well hoed, either by hand or horse; though the latter, I am sorry to say, has yet obtained very little vogue, notwithstanding it would be exceedingly beneficial. Hoeing by hand, however, is generally performed twice. This is by much too little, as evidently appears by the general foulness of our bean stubbles, and renders beans so far from an ameliorating, that they hence become an exhausting crop. In my apprehension they should be hoed three or four times, be the expense what it may, as the growing and future crop, from the thorough stirring and tilling the land will, for the most part, make ample compensation. The hoe should never cease going till either the plants completely shade the ground, or the labourer can no longer go between them without doing material damage. But this degree of culture is seldom given by our Essex farmers, especially in this part of the county; and our management of beans, as a branch of general agriculture, seems to me much inferior to that of Kent*.”

† Howlett.

PRODUCE.

Mr. FISHER UNWIN, at Coggeshall, Windsors six to seven quarters.

At Ramsey, four to five quarters.

At Beaumont, five quarters.

At Kirby, five quarters, broad-cast.

In Mersea, four to five quarters.

Mr. WAKEFIELD, at Burnham, three or three and a half: they rarely pay expenses. These are cut as soon as wheat, and yield as well as any.

In Foulness Island, according to Mr. WOOD, six quarters and a half. Mr. POTTON five quarters, sometimes six; general average four and a half.

At Romford; three and a half to four.

At Kelvedon, &c. three and a half to five quarters.

Mr. POWELL, of Birch-holt, dibbles in three quarters.

Mr. LEE, of Maldon, on the rich vale of Goldhanger, four quarters and a half. The crop I saw on the land must have been six, and the stalks of great size.

Mr. RUSH, of Latchingdon, horse-beans four quarters; ticks five.

Mr. KETCHER, at Burnham, never more than three and a half, to four quarters, except once five.

Produce on the clays of St. Lawrence two quarters and a half, Mr. PATTISON.

At Rochford, Mr. BARRINGTON four quarters.

Mr. WRIGHT, of Rochford-hall, is of opinion that the land is not favourable to beans.

At Prittlewell, five quarters. Mr. PRENTICE sprains into every furrow, ploughed very shallow.

Mr. PARSONS, at Shoebury, three quarters and a half.

Mr. HARWICH, at Rayleigh, four quarters.

Mr. NEWMAN, at Hornchurch, three quarters and a half per acre.

At

At Thorndon, Lord PETRE three quarters, rising from two to six.

At Dunton, and to Billericay, three to four.

Mr. VAICHELL, near Hallingbury, five quarters per acre.

Average crop in Mersea, four quarters.

Mr. DIGBY, a very little farmer, and tenant to Mr. RAYMOND, at Belchamp Walter, has three quarters of an acre of strong loam two feet deep on a clay bottom, which gave him fifteen coombs of beans two years running, or ten quarters per acre; then he sowed wheat, and got nine coombs six quarters per acre; then beans, the produce four quarters; then wheat, four quarters. It has not been fallowed for twenty years, nor had any dung.

I was assured that there is a large field at Walton, which produced beans and wheat for thirty-six years; and that another field was known to produce one year thirteen quarters and a half of beans per acre, by some accounts; by others eleven and a half.

MR. VANCOUVER'S TABLE OF PRODUCE.

<i>Names of Parishes.</i>	<i>Annual Produce per Acre in Bushels of Beans.</i>	<i>Names of Parishes.</i>	<i>Annual Produce per Acre in Bushels of Beans.</i>
Haverill	20	Hatfield Peverill	24
Sturmer	20	Thaxted	20
Birdbrook	24	Ramsey	20
Alphanstone	24	Wivenhoe	20
Aldham	20	Fingeringhoe	28
Coggeshall	24	Coptford	32
Kelvedon	24	St. Osyth	24
Black Notley	20	Great Clackton	24
White Notley	20	Little Clackton	28

Weeley

<i>Names of Parishes.</i>	<i>Annual Produce per Acre in Bushels of Wheat.</i>	<i>Names of Parishes.</i>	<i>Annual Produce per Acre in Bushels of Beans.</i>
Weeley	26	Woodham Ferrars	24
Great Holland	28	Rettenden	24
Walton	30	South Fambridge	24
Kirby	28	Assingdon	24
Beaumont	32	Hawkswell	24
Mersea Island, gene- } ral average	32	Pakelsham	26
Aberton	32	Great Stambridge	32
Peldon	32	Sutton	28
Little Wigborough ..	28	Shopland	24
Great Wigborough ..	28	Little Wakering	30
Langenhoe	40	Great Wakering	30
Feering	24	North Shoebury	30
Inworth	24	South Shoebury	30
Great Totham	22	The Marsh Islands, } general average }	32
Goldhanger	24	Vange	24
Tolesbury	30	Langdon Cray	32
Great Baddow	24	Langdon Hills	20
Chelmsford	20	Horndon on the Hill	24
Mountneysing	20	West Tilbury	24
Great Burstead	24	Little Thurrock	24
Little Burstead	24	Chelderton	26
Purley	24	Great Horndon	22
Munden	26	Ingrave	24
Latchingdon	24	Great Worley	26
St. Lawrence	22	North Okenden	24
Tillingham	24	South Okenden	24
Southminster	24	Hornchurch	26
Althorne	24	Stambourn	24
North Fambridge	24	Hempstead	24

Great

<i>Name of Parish.</i>	<i>Annual Produce per Acre in Bushels of Beans.</i>	<i>Name of Parish.</i>	<i>Annual Produce per Acre in Bushels of Beans.</i>
Great Samford	20	Berden	20
Radwinter	24	Clavering	16
Wimbish	22	Waltham Abbey	40
Langley	20		—
Elsenham	24	Average	27
			—

STUBBLES.

About Kelvedon they have a practice that has great merit, that of hand-hoeing the bean-stubbles, if at all foul.

At Feering they hand-hoe them well, dew-rake and burn the weeds, and throwing two three feet ridges together, sow wheat.

Mr. SPERLING, at Maplestead, works the stubbles well with a nidget, and harrows to make seeds grow to be killed by the wheat sowing earth.

Mr. TAYLOR, at Wimbish, shinned his stubbles, and then ploughed once for wheat.

Mr. HONEYWOOD is, in common with his neighbours, a bean cultivator: it is the practice of many farmers in this county to hoe the bean stubbles, if foul, to prepare them for wheat; for this object Mr. HONEYWOOD has used a shim plough, or broad share, which I saw among his implements: he probably brought it from Kent.

One fifth, sixth, or seventh part of the arable land at Bradfield, may be estimated to be under beans and pease; perhaps more. No application of any cutting machines to the stubbles, by reason of the hog-weed, which is apt to abound (*polygonum aviculare*); as well as by reason of the crop being the last in the course, and followed by a fallow.

I remon,

I remonstrated against this practice, but was assured, that if wheat came again after the beans, and made a sixth year in the course, such wheat would be choaked with black grass (*alopecurus agrestis*). Average produce five quarters.

PEASE.

Mr. COKER, at Borely, drills all his pease at twelve inches, two bushels and an half an acre; hoes them twice, with a shim drawn by an ass.

Mr. HARDY, of Bradfield, two bushels and an half of seed.

Mr. WAKEFIELD, of Burnham, nine pecks.

In Foulness (few sown), three to four bushels.

At Chesterford, three bushels.

Mr. WRIGHT has this year, on a gravelly loam, a small crop of the dwarf prolific pea; and it merits the name, for I have rarely seen so large a proportion of pods to the quantity of straw.

Mr. KEMP, of Hedingham, thinks white pease a most valuable crop, so that he has them on all soils both strong and dry: he has this year (1805) seventy acres. The stover is a material object, as from various observations, he is convinced that for sheep it is better than hay.

In the course of crops of Mr. ROGERS, of Ardsleigh, pease occur once in five years: I inquired if he did not find them liable to fail, from being repeated so often? He said not at all: that he had three courses of them, and found no change. He sows only the early garden pease. Has this any effect different from the more common sorts?

The frame-pease are valuable for their quick growth
and

and ripening. He once sowed rye upon a wheat-stubble, and fed it with sheep in April, at the end of which month, a London seedsman being with him, engaged to send him the seed of this pea, and to take the crop at 90s. per quarter. The seed came the middle of May. He immediately ploughed the land, turning in a coat of good muck very carefully, and rolled it down, drilling the seed, which he had malted to accelerate the vegetation. They were in bloom in six weeks from drilling, and harvested in eleven weeks: the produce four quarters per acre, or 16*l.* besides the straw. They were cut off in time for turnips, of which a profitable crop was gained.

In South Ockenden great quantities of pease are sown for the London market, which are podded and got off in time for good crops of turnips: reckoned very profitable, as they do not pick themselves, yet get ten or twelve guineas an acre for them.

“ Their principal culture while growing is that of the hoe, which, with respect to the white pease, whether intended for market, green, or as seed, is pretty diligently used; but with regard to the grey and Marlborough duns, not nearly enough so, and their stubbles of course are for the most part miserably foul, unless the crop has been plentiful, and the straw every where uniformly covering the soil; and then the stubbles are tolerably clean and the land mellow. But this is more owing to the favourableness of the season, than the care of the farmer, who might not do amiss, I believe, to receive instruction from the men of Kent*.”

At Ramsey, produce three to four quarters.

* Howlett.

MR. VANCOUVER'S TABLE OF PRODUCE.

<i>Names of Parishes.</i>	<i>Annual Pro- duce per Acre in Bushels of Pease.</i>	<i>Names of Parishes.</i>	<i>Annual Pro- duce per Acre in Bushels of Pease.</i>
Haverill	16	East Donyland	16
Sturmer	18	Fingeringhoe	20
Birdbrook	16	Coptford	20
Alphanstone	24	Torrington	18
Finchingfield	24	Britlingsea	20
Wethersfield	24	Great Clackton	18
Great Bardfield	24	Little Holland	16
Panfield	24	Kirby	24
Braintree	20	Chelmsford	20
Bocking	20	Hawkswell	24
Pebmarsh	16	Hadleigh	22
Wormingford	20	Langdon Hills	20
Great Tay	20	Stambourn	16
Black Notley	20	Great Samford	16
White Notley	20	Radwinter	24
Little Horsley	24	Wimbish	20
Great Horsley	20	Little Chesterford	16
Boxted	20	Great Chesterford	16
Langham	20	Elmdon	16
Dedham	24	Langley	16
Ardleigh	20	Elsenham	24
Lawford	20	Berden	20
Mistley	20	Clavering	16
Frating	20		
Allesford	24	Average	20½
Wivenhoe	24		
West Donyland	16		

tops begin to shoot, otherwise a very material injury will accrue to the succeeding crop.*”

Mr. WRIGHT, of Rochford-hall, in a field of thirty-seven acres, left for experiment five lands unmanured: on these there was no crop, though very fine turnips where dunged, next to these lands: sixteen bushels of pigeons' dung were spread, which gave a crop, but not nearly equal to the yard dung. He never but once got turnips without dung.

DRILLING.

Mr. WESTERN, at Felix-hall, drills turnips in the Northumberland system, and has a drill for that purpose: he does not approve of the culture of turnips on so heavy a soil, but having much grass-land and a flock of sheep, it is necessary to secure a certain provision for a portion of the year, though at an undoubted expense in the barley crop. The evil is, however, he finds, lessened by adopting this system, and his use of one-horse carts, he remarked, is another point favourable in the same view; as the horse and each wheel move always in a furrow for removing the crop; the broad wheels of the common tumbrils press and poach far more than the narrowness of his Scotch carts.

One of the most beautiful crops of turnips I have ever seen, for cleanness, and regularity of plant, was a field of fourteen acres of Mr. ROGERS, at Ardleigh, drilled at eighteen inches. The land yielded pease in 1804; had but two ploughings, and no manure: but it was well scuffled; nor has the hoeing cost more than 2s. 6d. per

for sheep and cattle, which is generally wanted rather after Christmas than before.”—*J. H.*

* Vancouver.

acre:

acre: the regularity of the drills, the evenness of the plants, their health, and the freedom from all gaps, formed a very pleasing spectacle. The soil very favourable; a loamy sand, dry and friable, but good.

Mr. KEMP, of Hedingham, has drilled turnips two years in the Northumberland method of ridge-work, and by means of that county drill: this year's crop I saw horse-hoeing, the rows eighteen and twenty inches asunder, well executed, and a fine plant; but the distance too small to admit more than one operation of the horse-hoe. His crop last year was an excellent one; and he preserved them from Mr. MUNNINGS's hint, drawing them, and laying in the furrows; the tap-roots cut; and then splitting the ridge buried against frosts, they kept extremely well.

Mr. COKER, at Borely, has drilled turnips at twelve inches, and hand-hoed them in the common way: he however, sows many broad-cast.

SEA AIR.

Turnips have been so certain a crop with Mr. HARDY, of Bradfield, and he has in so many other farms made the same remark, that he has no doubt of its being the effect of the vicinity of the sea air which operates in the same manner in preserving the wheat from the mildew.

FLY.

Mr. KETCHER, of Burnham, assured me that he never lost a crop of turnips in his life; and his only prevention is that of steeping the seed the night before sowing, in water mixed with black brimstone powdered; lets it dry, and sows immediately.

CONSUMPTION.

Mr. KEMP, of Hedingham, draws all his turnips;

he is convinced that one acre goes as far as two or three given to sheep in troughs in a littered yard; and by means of such a sheep-yard, he has raised more dung than before his time was produced by the whole farm. If not thus consumed, he spreads them on clover-lays intended for pease.

Mr. R. TABER, at Beerchurch, by Colchester, fed off his turnips with bullocks and wether sheep, and that light soil was the better for the trampling; the farm contains scarcely any grass, so that his live-stock system could be founded only on a combination of turnips and clover, green or in hay, in union with the straw of the corn crops in the Norfolk four-shift system. He bought Fife oxen (in preference to others) at the Michaelmas fairs, and put them at once to turnips and a little straw, never giving hay: about half would go to Smithfield directly from turnips; and the rest in April, May, or June, from the spring feeding such clovers as had ray-grass amongst them.

Captain LUARD, of Bishop's Wickham, has 90 acres annually with the straw of 180 acres of corn, 90 acres of clover and 90 of meadow: to convert so much food profitably into cash, demands a very appropriated attention. His stock in August 1805 was 14 horses, 28 cows suckled, 450 sheep, and 20 bullocks: with 24 more to be added to straw.

PRESERVATION.

Mr. BARKER's method of preserving turnips from the severity of frosts: "Lay the land upon three-foot ridges; upon each ridge drill two rows in the centre, about twelve inches apart; as soon as the turnips are grown to a tolerable size (sometime after hoeing), go between the ridges with a double-breasted plough, having high mould-boards to throw the mould upon the bodies of the turnips. The operation may be repeated, if sufficient mould be not
thrown

thrown on the first time. Turnips drilled in this manner have been found to grow much larger, and to be on the whole a much better crop, than those which are sown broad-cast. The double-breasted plough drawn by one horse, used on this occasion, affords an excellent opportunity of cleaning the furrows."

Value.—At Copdock and the vicinity, and round Colchester, the average price for feeding on the land with sheep is 3*l*. They are on the light soils of all this country sold cheaper, for being fed by sheep alone, than if by sheep and bullocks.

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SWEDES.

Mr. FENN has cultivated them at Middleton-hall with success; and his bailiff, Mr. POLLEY, remarked, that the tops are uncommonly valuable, and feed stock in a manner that shews their quality to be very rich in nourishment. If kept late, spring tares should be sown after them, barley is hazardous.

Mr. WAKEFIELD, at Burnham, has cultivated them four years: in 1802 he had four acres; in 1803, six; in 1804, twelve; and this year, 1805, he has ten; and I am in doubt whether I ever saw so fine a crop; certainly none except a large field of the Earl of WINCHILSEA's, at Burley. He has never lost a plant by the fly. In the former years they answered very well, though the crops were not to be compared to the present one. For these *he manured with long fresh dung from the farm-yard, unstirred*; they have been well hoed thrice. Mr. WAKEFIELD approves the culture greatly, and finds them of excellent use for fattening oxen and sheep; for feeding calves, &c. All other green crops are gone before he begins these, except for calves.

Mr. DYER, of Ongar, has cultivated these roots for four years, and approves of them highly; he finds them better for fattening sheep and bullocks *than* common turnips.

Mr. WILLIAMS, of Ongar, whose abilities and spirit of exertion have rendered him a very successful farmer, grazier, &c. &c. has cultivated these turnips four years, and has not lost a crop by fly or any other accident. He sows broad-cast in May and June; hoes them out as common turnips, and has them in a pretty general way, of 8 or 9lb. weight; but his manuring is for all crops uncommonly ample. He is curious to have those only with yellow flesh. They are one of his grand staples in fattening bullocks, and he has found that one bushel of them is worth three of common turnips. Beasts and hogs that once taste them will refuse other turnips. He this year got eight or nine quarters per acre of barley after Swedes; but his manuring is not to be forgotten.

Lord BRAYBROOK has seen enough of Swedes to know their value, and ordered the cultivation of them on his own farm; but Mr. NOCKOLD assured me, that the hares swarmed so, that it was impossible to get a crop.

Swedes abound greatly all around Hockerill, and they have spread to Hallingbury; in that vicinity they have been sold at 5*l.* per acre. They are much approved for lasting to the period when little beside is to be had.

Mr. MAJENDIE has four acres of these roots sown the third week in May, a regular and fine plant.

Mr. ROGERS, at Ardleigh, has cultivated them for some years with success: they have answered greatly: he fed off the leaves of a crop in autumn, which did not hurt them in the least; and though the sheep ate into some of the roots, the frosts had no other effect than to cover the wound with a thin skin of putrescence, but left the rest of
the

the root perfectly sound. He last year drew half a crop for his horses, and found them to be very fond of them, and nearly as useful as carrots.

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SECT. IX.—CABBAGES.

I WAS much pleased to find a scattering of this crop in almost every part of the county. No person has them on a large scale, but most of the good or great farmers have a small field: even those who appear to be prejudiced against them, find it necessary to have two or three acres.

It was with much pleasure I viewed a small field of cabbages belonging to Mr. WILTSHIRE, of Wethersfield; the large Scotch sort from Mr. HONEYBURN, of Dishley. They were sown in February, and transplanted in June, and promise to yield a very great crop indeed. He usually gives them to his cows, and finds that nothing will, from a given quantity of land, produce more food; they are also excellent for fattening with hay.

Mr. WEDD, of Wethersfield, is in the same husbandry, and assured me, that his success in applying them to fattening beasts has been to his entire satisfaction.

Mr. HONEYWOOD has four or five acres every year: sows in March, and transplants in June; his object is for feeding his ewes and lambs, for which they are excellent: the bailiff, Mr. EAST, assured me that they got better barley after them than after turnips. Some I viewed, which were excellent. He is however, very attentive not to leave the stalks in the ground; for if they are left to throw out fresh roots, they *draw* the soil greatly.

Mr. WRIGHT, of Hatfield, has a small field every year for his cows and sheep, and finds them so useful that he means to continue the practice.

Mr. MAJENDIE has for many years been a cultivator of cabbages: he has this year four acres of the Aberdeen. He gives them to cows, and also to fatten bullocks, for which use they are excellent.

Mr. MYALL, his tenant, has generally three or four acres, and manages them so as to command large crops: they are this year very fine: and adjoining is a capital piece of barley, after the cabbages of last year: it is proper, however, to remark, that both give them more dung than for turnips.

Mr. VAIZEY, of Halstead, has this year a small field under the drum-head cabbage, which is a very fine crop, and beautifully clean; the sort good and equal: he has a crop every year, of three or four acres, and finds them of excellent use for sheep: many come to 35lbs. a cabbage. He remarked the prominent veins in the leaves as a sign of a good stock, and never had but by transplantation for seed: he always saves his own seed.

Mr. SAVILLE, of Bocking, has also a very fine clean crop; and he is rarely without a few acres; but he thinks they exhaust.

About Great Waltham and the vicinity, there is a thin scattering of this crop.

Mr. WAKEFIELD, of Burnham, has no cabbages. Why not, Mr. WAKEFIELD? *They are a certain expense, and very little profit.* He could not better have described the culture of turnips. Spread a good dressing of manure, fallow well, and sow and hoe turnips: reckon all expenses, and strike a balance: then count the profit.

Sir THOMAS LEONARD, at Avely, has a field of the drum-head every year, rising to sixteen or eighteen pounds each; gives them to cows and bullocks; and they are of such use, that he would on no account be without them. His tenant, Mr. FITCH, has this year a very fine crop also.

Sir

Sir RICHARD NEAVE, at Dagnam-park, has a crop of cabbages on a few acres every year, for his cows while suckling calves, and they answer well in this application.

Lord PETRE, at Thorndon, tried cabbages, but they rotted so fast, that he did not renew the trial.

Mr. COVERDALE, of Ingatestone, has a piece of cabbages every year; he has not a good opinion of them, because they draw the land more than turnips; and he thinks turnips a better food; but he must have them. Why, then? they yield so much food, that we cannot by any other way equal it from the same land. His crop this year is very fine indeed, though late; planted on three feet ridges and three feet square; clean, and all vacancies filled up, and in flourishing growth; and the stock good. Manured for more highly, than for turnips. Uses them for cows, oxen, and sheep.

Mr. BRIDGE, at Buttsbury, has always a piece under cabbages; he does not like them, because they *draw* the land so much, but they are so useful in a frost, when turnips cannot be got at, that he knows not how to do without them. He thinks turnips better, and give more milk.

Mr. TABRUM, at Margaretting, has a piece under cabbages this year; and he had some last year, and found them so useful in the spring, that he thinks he shall always have them.

Mr. DYER, of Ongar, has cultivated cabbages for some years; five or six acres every year; the principal object, ewes and lambs in March. They are planted at three feet square on three feet ridges: they answer perfectly well, and never fail of giving him famous lambs; but attends to cut them the day before using, that they may be withered: if they are off in time, he sows oats after them; if not, spring tares. The objection to their *drawing* the
land,

land, is not of weight with Mr. DYER, as if they draw one field (which, however, he denies), they improve another: he has a field which twelve years ago received a great dressing of lime and earth on a fallow; was sown with wheat, and yielded only two quarters per acre; then oats, the produce but three quarters; this would not do; he therefore fallowed, and laid it down to grass, which was eight or nine years ago; he dunged it twice, and the result was not at all satisfactory; his next step was, to lay cabbages pretty close in rows across the field, and eat them with ewes and lambs, so as equally to dress the whole; and having finished, went back a second time in the same manner. This most effectually carried his point, and ever since the field has been a capital meadow.

Mr. NEWMAN, at Hornchurch, cultivates the drum-head cabbages successfully: sows the seed the 12th of February, and plants on three feet ridges at three feet square. He approves very much of them. An acre of good cabbages yields much more food than an acre of good turnips; and he can get cabbages better than turnips: has eight acres this year; and generally about that quantity; and respecting the barley which follows, he cannot see the least difference between what succeeds turnips and that which follows cabbages; has had five quarters an acre after them, which is more than the average here.

Mr. NOCKOLD, bailiff to Lord BRAYBROOK, did cultivate them on his Lordship's farm, but left them off for turnips, which he prefers.

Mr. STRUTT, at Terling, has a small piece every year for his cows: the corn after them not so good as after fallow.

Mr. SPERLING, at Maplestead, has tried them, but does not approve the culture at all.

Mr.

Mr. AMBROSE, of Copdock, has cultivated them for fifteen years, and of course approves of them; he finds them of very great use for cattle and sheep, especially in time of snows, and of greater value than turnips: he has generally two or three acres: plants on three feet ridges, and two feet and an half from plant to plant. His culture is, first to hoe round the plant, and then finish the ridge, after which he strikes out the furrows with a double mould-board plough. He does not approve of turning a furrow *from* the plants, as he thinks it impedes the growth, by hurting the fibres. Manures the same as for turnips. His present crop (1805) is very promising.

“ Cabbages at Sturmer are a new culture. For this crop the land is ploughed into four-furrow ridges, in the furrows between which, are laid about 400 bushels of long dung per acre. The dung is then ploughed under, making the furrows the ridges, on the tops of which, and at a yard apart from each other, about a quart of water is poured down; thus marking out where the plants are to be set; this operation is followed by a boy placing the plants ready for the dibber, who makes the holes, and presses the mould very close to the roots of the plants; a second watering immediately takes place, pouring the like quantity of water on each plant. The planting is generally performed by a gardener, as much depends on the plants being properly put into the ground; ploughing the intervals, hoeing, and moulding up the plants, follow in course. The drum-head cabbage is preferred; and the plants are always taken out of the seed-bed, for immediate transplantation into the field.

“ A few words with regard to the culture of cabbages, will be sufficient to point out the necessity of an intermediate transplanting of the young plants between the seed-bed and the field; for, when the plants are drawn from the
seed-

seed-bed, and put directly into the field, they are found to be out of all proportion, tall, slender, and altogether unfit for their new and exposed situation: to this must be added, a long tap root without lateral fibres; and which necessarily undergoes several twists and doubles in the hole by the operation of planting: here the plant languishes till its lateral roots are formed, which is gradually doing as the tap root decays. As the season may be more or less kind, the plant may droop for a while, but it too often happens, and that in despite of the most unwearied industry, that the plant loses its life and its tap root together: hence arises the necessity of such frequent replantings, and herein lurks the cause of that universal languor, which so long prevails through all the fields, of cabbages that are thus transplanted into the field directly from the seed-bed. It is the nature of the cabbage to lose its tap root upon its first removal; and in its place is put forth a bunch of lateral roots, just below the surface of the ground. The stem of the plant then begins to strengthen, and its leaves to spread. This change in the root being completed from an intermediate transplanting, the young plant will be the better able to combat the hardships of its new situation in the field; for being already furnished with lateral roots, its nourishment from the ground will be immediate and certain; it will flourish, and come to an early maturity, rather than languish for a while, and then perish, as thousands now do, or creep slowly on till late in the season they arrive at a stunted and unprofitable end. In proportion as the lateral roots increase, and collect nourishment, the plant heads and flourishes; nor would the kindliest plant upon the most favoured soil, ever come to perfection, were it not by some means or other deprived of its tap root. The expense therefore, of an intermediate transplanting
between

between the seed-bed and the field, to those who are desirous of excelling in the culture of cabbages, can bear no proportion whatsoever, to the labour, expense, and disappointment, that must for ever await the want of so material a training and preparation of the infant plant*.”

Against this supposed *necessity* of transplantation I must enter my caveat, having repeatedly had fine crops drilled where they remained: I took the husbandry from the late Mr. BAKWELL, who found *this* the best method to raise large crops.

From the various conversations I had in Essex on this branch of cultivation, I found the general objection to the crop was, that of drawing the land more than turnips; but I did not find any accuracy of observation relative to the connexion of this effect with the date of the consumption, upon which all depends. If cabbages are left on the ground, or their stalks standing after the white spring fibres of the roots are shot out, they certainly exhaust; but where is the necessity of leaving either turnip or cabbage till that happens? Cabbages may be drawn and laid close to each other, the roots resting on a bit of dry arable: they may be drawn and deposited close to each other in the same field, in furrows, one stitch containing the cabbages of eight or ten. But I did not hear of any trials or experiments made with a view to obviate the objection; nor did I hear of any *accurate* comparisons between the produce of turnips and cabbages, either by the ton or by value. Nearly all admitted that three or four acres are excellent, but not on any larger scale. The county upon this point affords presumption that it may be so, but no

* Vancouver.

proof. He who looks for scientific certainty from accurate discrimination, must be more fortunate in Essex than I have been to find it in this case.

—◆—

KHOLL RABBE.

Of this plant Mr. WESTERN has a very high opinion; they came with him in 1804 to a good size; were very much preferred by hares, freely eaten by sheep, and were quite juicy and palatable long after the running of the shoots for seed. He has a larger plantation of them this year; but apprehends the seed was not genuine, for next crop he will have his own growth.

Mr. WAKEFIELD, at Burnham, has two pieces of this plant, one transplanted and the other sown broad-cast, and hoed out: both are good; but the former best.

—◆—

SECT. X.—POTATOES.

THIS root, to which in modern times an importance has been attached which fifty years ago was unthought of, has been more largely cultivated in Essex than perhaps in any other southern county: the vicinity of London, which receives its chief supply hence, has occasioned this great extension of the culture.

So much, however, has of late years been printed on the subject, that the less will be necessary at present: since the scarcities, hardly any object has occupied so much attention, nor any article of cultivation so greatly increased.

At Ilford, where I made inquiries concerning the cultivation

tivation of potatoes, for which that neighbourhood is so famous, the favourite potatoe was formerly the red-nosed kidney, which is now neglected, because it is almost sure to be curled. The champion is now very generally preferred, which does not curl. The preparation is an autumnal ploughing, dunging in the spring, about fourteen loads an acre, which cost 5*s.* a load, spread on the field just before the second ploughing, on which they plant. Immediately after the plough, a man dibbles across the land, followed by a woman who drops the sets, for both which operations they are paid 7*s.* or 8*s.* an acre; the rows twelve inches by fourteen or fifteen, and some twelve square. Early in the spring, sixteen or eighteen hundred weight are planted on an acre; they are hand-hoed twice, each time at the expense of 4*s.*; they are dug up with three-pronged forks, and picked carefully clean. The product is from eight to fifteen tons an acre, when the crop stands to full perfection; but great quantities are taken up in summer, when the product is not so considerable. The autumnal crops are succeeded by wheat, which is generally fine; the summer ones by turnips. The general opinion here is, that they are not an exhausting crop. They mow clover, and plough it up in summer, to plant immediately. Some persons have taken two crops on the same land in the year, putting one in as soon as the other is taken up. I saw them ploughing and planting land that was cleared of winter tares for soiling, and they assured me that they very often got good crops from such late planting, and that many would be ventured into the ground a fortnight hence (July); digging and picking up are sometimes done by the acre. The price, 6*d.* a rod.

Some farmers have tried putting them in with a plough, and also ploughing them up; but from much experience,
they

they are decidedly of opinion that the other methods are much superior. I was informed that the common calculation of the expenses amounted to 15*l.* an acre, which may be thus calculated:

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Rent, tithe, and rates,	2	2	0
Manure,	4	0	0
Tillage,	0	13	0
15 cwt. of seed, at 5 <i>s.</i>	3	15	0
Cutting, 4 <i>d.</i> per cwt.	0	5	0
Planting,	0	8	0
Two hoeings,	0	8	0
Digging up, 6 <i>d.</i> a rod,	4	0	0
	<hr/>	<hr/>	<hr/>
	<i>l.</i> 15	11	0
	<hr/>	<hr/>	<hr/>

Besides the expense of picking, sorting, packing, and carrying to market.

Prime cost to the farmer in his barn 50*s.* a ton, at ten ton an acre; at seven tons and an half 40*s.* a ton; or 1*s.* 3*d.* a bushel; six ton at 4*s.* per cwt. which is 24*l.* per acre, will leave a good profit; but the crops will rise much higher, and the price likewise. It is evidently an exceedingly profitable culture; and when the wheat is considered, will be found to rank amongst the most advantageous classes of British agriculture.—*Note in 1784.*

Mr. **ABDY** gives an account of potatoes in woodland:—"I felled an acre of woodland of eighteen years growth, which, after deducting all expenses, paid 3*l.* 10*s.* about 4*s.* per annum. I determined to stub it up in the spring, and plant it with potatoes. The produce of the acre was 563 bushels. The expense as follows:

Rent

	£.	s.	d.
Rent of an acre of land,	0	4	0
Tithe of ditto,	0	3	0
Digging 160 square rods, at 6 <i>d.</i>	4	0	0
Twenty waggon loads of dung, at 4 <i>s.</i> per load,	4	0	0
Drawing ditto 5 days with 4 horses, at 12 <i>s.</i>	3	0	0
Ten bushels of potatoes for sets, at 2 <i>s.</i>	1	0	0
Cutting ditto,	0	2	0
Planting ditto, two men three days,	0	8	0
First hand-hoeing,	0	5	0
Second ditto,	0	3	6
Taking up, at 3 <i>d.</i> per rod,	2	0	0
Carting home 3 loads, of 80 bushels per day,	1	8	0
	<hr/>		
	£.	16	13
			6
	<hr/>		

“On the 5th of May I bought four Welsh runts, at 5*l.* per head; kept them nineteen weeks on clover, at 1*s.* 3*d.* per head, per week; I then put them into some aftermath, which my milch cows had the first bite of, where they staid seven weeks; the value of this keep was 1*s.* per week. I might then have sold them for 7*l.*

“They were then stalled up, and fed with potatoes and the best old hay. They ate, each of them, a bushel of potatoes, and a quarter of a truss of hay per day; the hay was worth 1*s.* 4*d.* per truss. A man at 7*s.* per week, and a workhouse boy at 4*d.* per day, attended these four stalled runts, five heifers that were stalled upon grain and barley-meal, six milch cows, six Scots, and three horses in the straw-yard, and my fattening pigs; so that I reckon, supposing their dung of some value in this account, the attendance upon these runts to be worth one half-penny per day; they were up 84 days, and I then sold

them for ten guineas each. Their increase was 3*l.* 10*s.* per head in 84 days, eating potatoes and hay.

	<i>£.</i>	<i>s.</i>	<i>d.</i>
Attendance 84 days,	0	3	6
Hay,	1	8	0
84 bushels of potatoes, at 5½ <i>d.</i>	1	18	4
	<hr/>		
	<i>£.</i> 3	10	0
	<hr/>		
Expense to procure 563 bushels of potatoes,	16	13	6
563 bushels, at 5½ <i>d.</i>	13	7	2½
	<hr/>		
Loss,	<i>£.</i> 3	6	3½
	<hr/>		

“ The potatoes were a good eating sort, and were sold, at the time these were taken up, at 9*d.* per bushel; had I sold them instead of feeding these runts with them, the account would have stood as under :

	<i>£.</i>	<i>s.</i>	<i>d.</i>
563 bushels of potatoes, at 9 <i>d.</i>	21	2	3
Expenses in producing ditto,	15	5	6
Deducting the carting home, as the buyers fetched them away at their own expense.			
	<hr/>		
Profit,	<i>£.</i> 5	16	9
	<hr/>		

“ I must trouble you once more—it may, perhaps, drive impeachment and slave trade out of your thoughts for a few minutes; if it serves to amuse you, I am satisfied; if not, the fire you know is near you.

“ Expense

“ Expense of half an acre of potatoes near my house :

	£.	s.	d.
Rent,	0	9	0
Tithe,	0	1	6
Town charges; for this land is rated, the other was not,	0	1	6
Digging 80 rods, at 6d. full of bushes and stubbs of trees,	2	0	0
Five bushels of sets,	0	10	0
Cutting and planting,	0	4	0
Eighteen cart-loads of farm-yard dung, at 1s. 6d. per load, the other dung was car- ried in waggons, and the best dung from Epping, being from the common fly horses	1	7	0
Carting ditto 1 day, 2 carts, 4 horses, 2 fillers,	0	14	8
Digging, at 3d.	1	0	0
Carting home,	0	12	0
	£.6 19 8		

“ About Christmas, a Scotch cow, which had had two calves, and slunk in November, was turned into the straw-yard : as it would be a long time before she would be fit for business (and it was a great chance she never might), I determined to sell her : 5*l.* 5*s.* was the most money offered for her ; and the jobber I originally bought her of advised me, as I had more potatoes than the four bullocks would eat, and my sheep did not like them, and the hogs would be then fattening on pease, to try her with some potatoes : I therefore put her on upon the 4th of January, meaning to set as much flesh upon her as I could, before I gave away the meat, which, as warden of STENNARD'S charity, I am to give to the poor of the parish of Theyden Garren.

The 563 bushels in the former account were kept by themselves, and the 320 from this half acre (which is a most wonderful produce), by themselves. As it happened, the four bullocks were stalled up in the farm-yard; this cow was necessarily stalled in the cow-house, and therefore had those potatoes given her which were the handiest to the man who served her. Until she was killed, I had hardly observed her, and therefore was astonished to find that she was as fat as any butcher could wish his prime beef to be: she weighed 60 stone, 8lbs. to the stone, and the way I have disposed of her, is as follows:

	£.	s.	d.
Sixty stone of beef, at 2s. 8d. per stone,	8	0	0
50lbs. of tallow, at 4d.	0	16	8
Hide,	0	14	0
Tongue 2s. 6d. Heart 1s.	0	3	6
	£.9 14 2		

“ You see what they call the fifth quarter comes to 1l. 14s. 2d.

“ She ate much the same hay as the four runts, a truss in four days, and about a bushel of potatoes per day; she was up fifty-one days.

	£.	s.	d.
I must charge a penny per day attendance, as } the other fattening beasts were gone,	0	4	3
Hay 51 days, at 4d.	0	17	8
Value of the beast,	5	5	0
	£.6 6 3		
Sold for,	9	14	2
Cost (exclusive of potatoes),	6	6	3
	£.3 8 0		
Fifty one bushels of potaoes, in whole numbers, £.3 8 0	Exactly		

Exactly 1s. 4d. per bushel. Thus then, stands the account of these potatoes :

	<i>£.</i>	<i>s.</i>	<i>d.</i>
320 bushels of potatoes, at 1s. 4d. per bushel, ..	21	6	8
Expense of procuring ditto,	6	19	8

Profit upon half an acre of potatoes,	<i>£.</i> 14	7	0

“ The great difference between this and the other account, arises from the dung being, though equally good for the potatoe fibres to run in, of an inferior value.”

—*Note in 1786.*

Mr. MAJENDIE has this year (1805) four acres of potatoes, which he has planted professedly that the crop may be a reserve for his stock in the month of April: he was convinced of the propriety of making this provision, by Mr. ROBERTS's paper in the Annals of Agriculture, No. 259; they are on three-foot ridges.

The Rev. Mr THURLOW, of Gosfield, had last year (1804) four acres, which yielded 1600 bushels, and sold at 1s. 6d. for 120*l.*: he has a crop this year.

Mr. ROGERS, of Ardleigh, has become a considerable cultivator of this crop since the increase of the troops in the vicinity: he had a large field of them last year, which yielded 500 bushels per acre. His haulm houses for receiving the crop are well contrived, and hold 5000 bushels, and he thinks them cheaper than pyeing. Of this I have great doubt; for they must be skipt in, whereas in pyes they are shot down from the carts into the trench; and the labour of covering is very little.

Mr. ROGERS has generally ten or twelve acres in rows at eighteen inches. He would not sell them at 1s. a bushel, but use them at home; gets good wheat, but better barley after them.

Mr. NEWMAN, of Hornchurch, had last year fourteen acres of potatoes, planted in rows at thirty inches, and cleaned by every means of horse and hand work; the fourteen acres produced 150 tons. He had barley and wheat after them, and the wheat the worst crop on his farm. This year he has eleven acres, part at 30 inches, and part nearer; the crop very good. He has not the smallest doubt of their exhausting.

Lord PETRE has generally a few acres for hogs; and Mr. MILES thinks they answer well.

The Rev. W. MACKLIN, of Chesterford, has generally one or two acres, producing above 200 bushels per acre; sells them, if the price be adequate; if not, consumes them for hogs, &c.

There are above 100 acres of potatoes cultivated in the extensive parish of Saffron Walden; mostly for sale, and spring corn sown after them.

Lord BRAYBROOK, at Audley-end, generally has a small field of them. The method his Lordship's very intelligent bailiff, Mr. NOCKOLD, pursues, is to get the land into a good tilth, and then strike it into *bout* ridges; cart on sixteen loads an acre of long dung, and before spreading it, plant the sets a foot apart in the furrows, and lay the dung above them, for two reasons: first, the horses do not kick them out of their places; and secondly, the potatoe always rises in its growth; the roots being produced *above* the set. The ridges are then split, covering up the dung and sets; when they come up hand-hoes the tops of the ridges, and ploughs the intervals with a double-breast plough twice. In taking up the crop, the coulter being removed from the same plough, every other ridge is split, by which means the horses do not trample where they should not, and there is room for the pickers. Produce from 250 to

280 bushels, preserved by straw in sheds and other buildings. They are boiled for hogs, and after some time pease given in the middle of the day, and potatoes twice; and at last barley-meal. Mr. NOCKOLD does not approve of them raw; and cattle will scour with them raw more than with turnips; but boiled, they are very good for hogs.

Mr. BURRELL, at Birdbrook, had eighteen acres in 1804, and six in 1805 on ridges; produce 190 bushels per acre, without dung; but one acre dunged yielded double. Sows barley after them.

Mr. STRUTT, at Terling, has generally a small field of them, and gets good crops of spring corn after them.

Mr. T. PITTMAN, of Barking, is one of the greatest potatoe planters in the kingdom, if not the greatest. Has generally from two to three hundred acres; soil a shallow loam on a gravelly bottom; burns in a hot summer. He had 300 acres last year, which, when the exertions and expenses necessary be considered, must be admitted as a business of almost unexampled extent and vigour. What would a Kentish man say to 300 acres of hops? Yet the expenses of potatoes are fully equal to those of hops. He never attempts them without dung; that from his yards, mixed with what is brought from London (not night-soil, as it makes them scabby); the state in which he prefers it is that of heat; to spread it as hot as possible: the dung now in his yard cannot be used till March; but *bat* will then go as far again. This expression plainly implies *long* dung; not, however, fresh, for it has undergone a mixture in order to get a heat; the heat destroys all weeds; in two or three months it is fit for use, but the time depends on the weather. The dung being turned in by one ploughing, the sets, 16 cwt. per acre, are dibbled in on every furrow at nine or ten inches apart, and lightly harrowed;

rowed; no rolling, as the looser the surface is left the better; depth five or six inches: many farmers plant every other furrow after the plough, but Mr. PITTMAN prefers dibbling. The sets should not be small, and with from one to three eyes. Before they come up the ground is shimmed over (*Plate XLIV.*); this is considered as a new contrivance*; some years ago it was done by hand-hoeing. They hand-hoed sufficiently to keep them quite clean, and for moulding up enough to prevent any green roots from being exposed to the air: he never ploughs them up, but always digs with three-pronged forks; they are all holed or *pyed*. An article of attention not customary formerly, is that of washing. Mr. PITTMAN washes his whole crop!! What an undertaking! to wash four and twenty hundred or THREE THOUSAND TONS of potatoes! He dug a well that cost 200*l.* for having water in a building convenient for this purpose; they are washed with smooth paddles and very carefully, or the roots are damaged for market. They have two enemies in their growth; the *thousand legs* eats and makes them scabby, and a large grub of a bottle green colour eats out the heart.

EXPENSES.

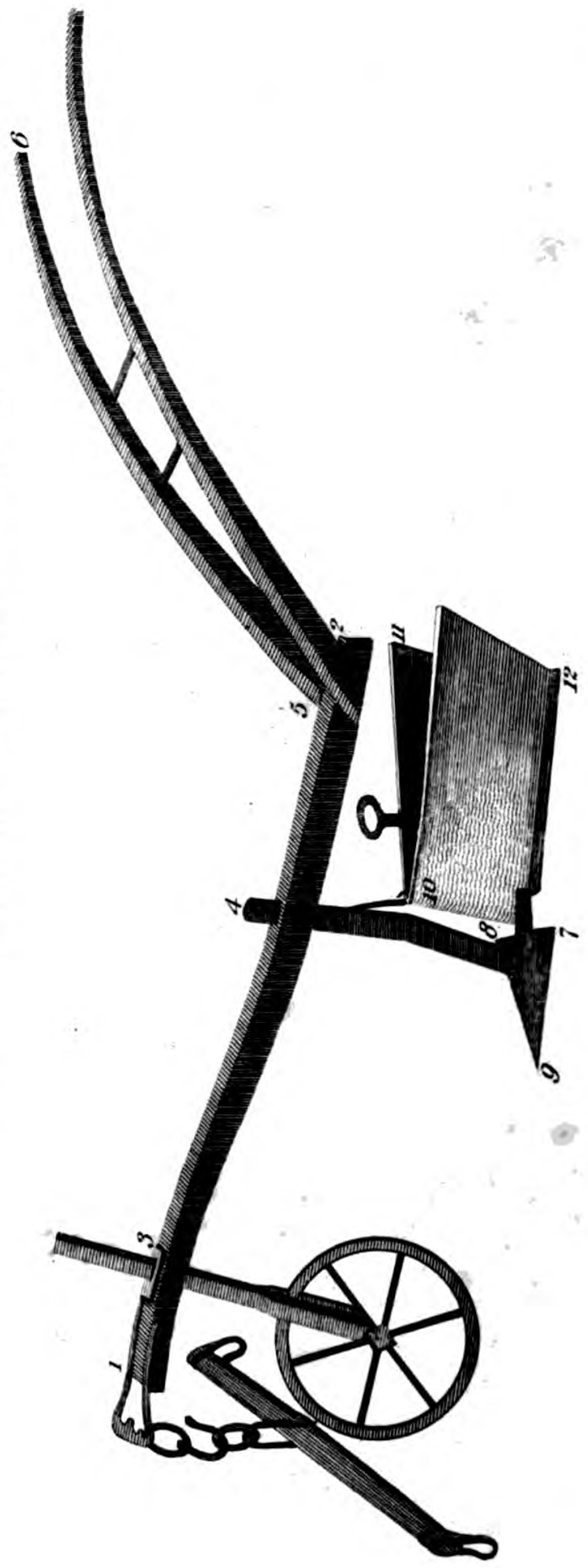
	£.	s.	d.
Rent, tithe, and rates; I know not the exact sum, nor is it material; suppose	3	0	0
Ploughing, .....				0	15	0
Harrowings,	0	5	0
Carry forward,	£.4	0	0

* I practised and published this shimming twenty years ago.—A. T.

Brought

C. M. Pittman's Potatoe Chisel.

Plate 44. P. 392.



Wade & Brown.

	£.	s.	d.
Brought forward,	4	0	0
Dung and carriage,	15	0	0
Sets, 16cwt.	4	0	0
Cutting,	0	5	0
Planting,	0	10	6
Four hoeings,	1	5	0
Taking up,	4	0	0
Holeing in and out, and teams, 10s. per ton,	4	0	0
Washing, sifting, sorting, &c and sending } to market,	12	0	0
Salesman,	2	0	0
Wear and tear of sacks, tubs, and implements, } &c.	0	15	0
Prime cost of eight tons, 5l. 19s. 5d. per ton	£.47	15	6

The hundred weight of potatoes is 126lbs.; a ton therefore is 2520lbs. or 36 bushels, at 70lbs. per bushel; eight tons are 288 bushels, which for such dunging is a very small crop, and the prime cost per bushel is 3s. 4d.; hence it is sufficiently clear, that the sale price must be on an average 8l. 9s. or 10l. per ton, or else that the average crop must run, as is much more probable, far beyond eight tons.

Further, it is to be considered, that the potatoe-planter is liable to great losses: the frost takes them in raising the crop, and though not rotted, they are unmarketable; they also abound so in some seasons, that they cannot be sold; they are given, whether wanted or not, to all sorts of stock, and after all, many still remain, so that Mr. PITT-

MAN last year threw many on the dunghill; for he was not acquainted with any means of slicing or drying.

In regard to the consumption at home, nothing is better for bullocks, hay being given at the same time: of this consumption it may be supposed Mr. PITTMAN is a competent judge, having built the largest bullock-house in the county, which holds 100 oxen in a double row, with an ample space between them. They are also excellent for cows, and will fatten hogs very well with a small mixture of barley meal.

That the culture is beneficial to the soil with such manuring, Mr. PITTMAN has no doubt; and remarks, that he gets better wheat after them than after clover; and has had many ears on potatoe land *five sett*.

The sort he chiefly plants is the champion; and very few of them are curled; but he is attentive to get a fresh renewal from Yorkshire, Lincolnshire, and Scotland.

But it is in the marshes that Mr. PITTMAN gets the finest crops and the most beautiful roots: he had last year forty acres in Dagenham marsh, on a soil he calls a sort of black marl, but stiff and binding, though with frosts it is in powder like ashes. It yields them as white as the finest wheat.

Mr. GREENALL, whose father was for many years by far the greatest potatoe-planter in England, is himself a very considerable one. Last year he had 300 acres, and yet his farm is not of the extent which this circumstance might be thought to imply, for he grows them for many years in succession on the same land, for twenty and even thirty years together, dunging for them every year, but not more than eight or ten loads an acre, about half a common manuring for this crop. In this successive method of culture, the crops are just as large and the potatoes

tatoes as good as in a varied course ; he sees no difference. In any other rotation he always sows wheat after potatoes, and considers himself as sure of a crop ; but it is apt to be too strong, and *laid*. Ray-grass and clover, with the wheat, which is cut twice for hay. Plants on the lay, ploughing but once, but some planters twice. Mr. GREENALL dibbles every furrow, but many plant with the plough, and there is this advantage, he remarked, that they are much easier and better earthed up with the plough than with the hand-hoe. Shim the ground and hand-hoe twice ; want no weeding, as he does not like to have them touched after they get high. Digging up 6*d.* 9*d.* and 1*s.* the sack of 3*cwt.* ; this is the common way, but Mr. GREENALL prefers day work, 11*s.* a week and beer ; in September 15*s.* The expense of washing is 4*s.* a ton : average crop eight ton : has had 14 and 15, but those great crops do not market well. He has heard of 20 ton, but never had it. The price of sets is sometimes a heavy expense. He has planted 100 acres of red nosed kidney, at 15*cwt.* per acre, bought at 1½*d.* per lb. At present, champions, oxnobles, and Shaw's defiance, a new early sort. After early crops he sows turnips ; and his land having paid 20*s.* tithe of potatoes, pays in that case 10*s.* more for these turnips.

A low price the planters' great evil ; last year he threw some hundreds of tons on the dunghill, having fed bullocks, &c. with all they could consume. He never knew cattle choak with them ; but they should be fed carefully, and not with too many at a time, for he thinks they would eat till they burst ; has had cows on them as fat as bears. For hogs, they are given boiled with barley meal.

Mr. HATCH, of Claybury-hall, began his husbandry from books, but found that practice was a better guide,
and

and this has led him to the system of an extended culture of potatoes, by way of *improving his land*. He has much strong land, and has banished fallows by means of this root: this year he had sixty acres: he manures for them with ten or twelve loads of rotten dung per acre, the more rotten the better; three loads of common dung are thus reduced to one: he has given as high as a guinea a load for dung. At Plaistow he has been informed, that ten tons are a common crop, but he gets here seven on an average: 4*l.* or 5*l.* a ton a good price, but has had 10*l.* and 11*l.* He always gets good wheat after them.

“ We are told that potatoes are very generally cultivated in the lighter parts of the neighbourhood of Finchingfield; that the most approved management is to winter fallow, and prepare the land as for barley; ploughed into four-furrow ridges, and planted with two rows of sets at eight inches square, upon each ridge. In the early part of the summer, the furrows are ploughed, and the plants moulded up as much as possible.

“ We find a very different preparation used by a very intelligent farmer in the parish of Avely, viz. wheat stubbles are sown with rye or tares for spring food, then dressed with raw dung, ten loads to the acre, ploughed under upon four yard stitches, carrying the furrows or slices about ten inches wide. The ground is then planted with potatoes, dibbling the seed in upon every furrow, at the distance of ten inches apart, and about four inches deep; thus forming a square of about ten inches from plant to plant, and costing for cutting, dibbling, and dropping the sets, about 8*s.* per acre. In the course of the summer the plants are once hoed and moulded up, at 4*s.* 6*d.* per acre. The planting is generally finished by the 1st of June.

“ Upon

“ Upon the more gentle soils, adjacent to the village of Hornchurch, the potatoe husbandry is conducted to great advantage: the potatoes which are designed for feeding cattle are planted upon three-foot ridges, and managed in the same manner as at Finchingfield.

“ In the Finchingfield account, the crop is gathered by first splitting down the ridges with a double-breasted plough; this, with the subsequent harrowing and housing, will cost about 30s.

“ In the Avely mode, the crop being ripe about the 1st of November, and ready to be taken out of the ground, the operation is usually performed with a three-pronged fork, and costs, gathering and housing included, about 40s. per acre.

“ In the Finchingfield management, the average produce is 300 bushels, and may be readily sold for a shilling a bushel in the field. This crop proves an excellent preparation for wheat; but as early sowing is precluded, it will be found necessary to keep the land as close and as much compressed as possible during the ensuing spring, to prevent the wheat from root-falling. At Avely, the average produce is estimated at six tons, and reckoning 126lbs. to the cwt., will equal 15,120lbs. per acre.

“ In the neighbourhood of Hornchurch, upon the lowest computation, the potatoe crops average 20,000lbs. to the acre*.”

“ When the potatoes are gathered, they are deposited upon the driest and most convenient spot which can be found, and the heap raised and formed in imitation of the common roof of a barn, terminating in as narrow a ridge as may be. Over the heap thus raised, there is

* Vancouver.

laid a thin covering of straw. The soil round the heap is dug about eight or ten inches deep; this is laid upon the heap covered with straw as uniformly as possible on both sides from bottom to top, about ten or twelve inches thick. Over this is placed a covering of thatch, of the thickness and perfectly resembling that of corn and hay stacks. The work thus finished, the potatoes are secure against all the inclement contingencies of the winter, whether of rain or frost*."

"Potatoes are extremely advantageously used as food for horses. Fifteen thousand one hundred and twenty pounds is stated in the Avely account to be the lowest average produce per acre. For the purpose now in view, this produce undergoes a preparation with steam, which, including the washing, will cost 2*d.* per 100lbs. To every 300lbs. of potatoes thus washed and steamed, is added half a pint of salt, and occasionally a small portion of sulphur; and this quantity will be more than sufficient to support a horse that shall be kept constantly at work for six days: 9000lbs. will consequently be required for the maintenance, and preserving in good condition, a constant working horse 180 days, or about one half of the year; and this may be stated at three-fifths of the usual produce of an acre.

"Horses fed in this manner will perform with the greatest facility and ease, all the common labour of the farm, without hay or oats. The expense therefore, in wintering a team of five horses, in the usual way, when compared with this management, will stand as follows:

* Howlett.

<i>Horses fed with Potatoes.</i>		<i>Horses fed with Hay and Oats.</i>	
Three acres of potatoes producing 45,000lbs. will support 5 horses 26 weeks, charging the potatoes at $\frac{1}{4}d.$ per lb. they are equal to - -	£. s. d. 46 17 6	Five horses, 26 weeks requiring 2 bushels of oats a horse per week, in all 260 bushels, at 2s. 6d. per bushel - - -	£. s. d. 88 10 0
Washing and steaming ditto at 2d. per 100lbs. - -	3 15 0	Five horses, 26 weeks, requiring 24lbs. of hay each horse per night, equals 10 loads and one-third of a load, which at 3l. per load is	31 0 0
Three bushels of salt at 6s. per bushel - - -	0 18 0		
Sulphur - - - -	0 2 6		
	<hr/> 51 13 0		
Leaving a balance of	12 17 0		
	<hr/> £.64 10 0		<hr/> £.64 10 0

“ In favour of wintering a team of five horses upon potatoes, steamed, and thus prepared, rather than upon hay and oats.

“ This management of the potatoes has answered equally well for feeding or fattening bullocks, when mixed with about twice its bulk of cut straw and hay*.”

“ Potatoes have not very generally, if at all, been applied to the fattening of sheep, as I was informed by a skilful farmer in Kent, was frequently done there, to the most effectual and profitable purpose. I think they give them to the sheep in the fold, after having been sliced

* Vancouver.

by

by a machine admirably contrived for that purpose. This machine has not yet, I believe, found its way into this country, but I hope it soon will. The manure arising from the above mode of feeding the folded sheep, the farmer alluded to assured me is now uncommonly rich*.”

* Hewitt.

END OF VOL. I.

