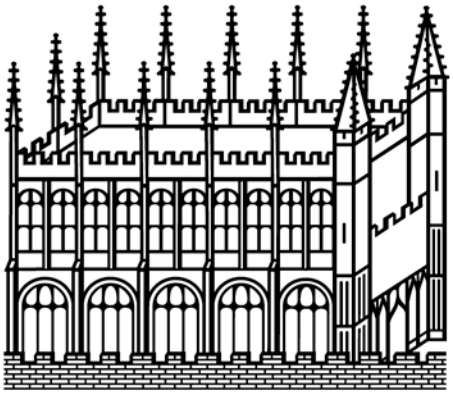

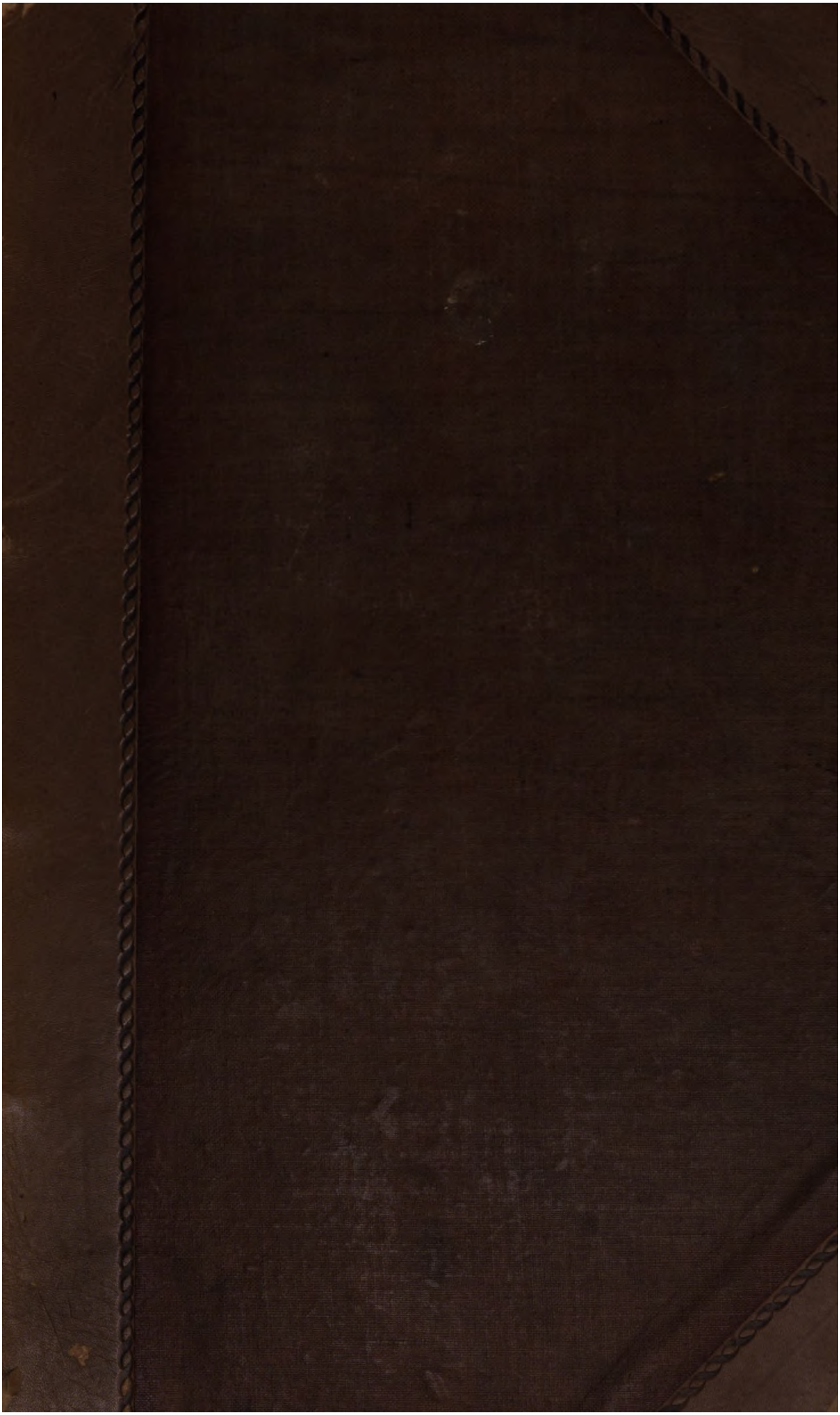

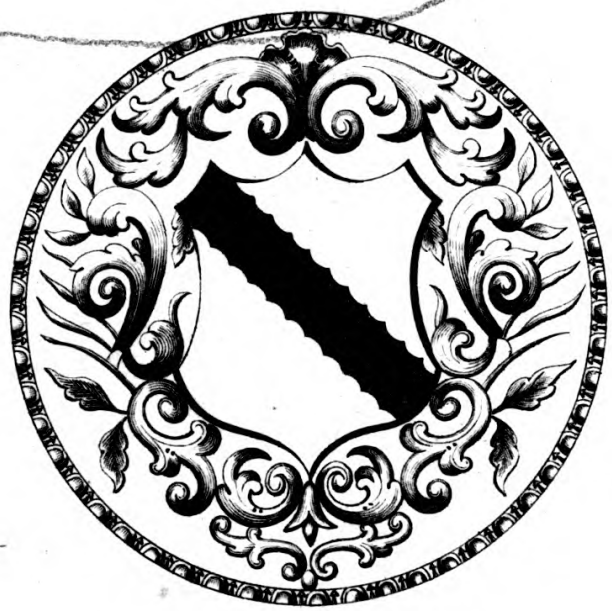

GENERAL VIEW

OF THE

AGRICULTURE

OF THE

COUNTY

OF

NORTHAMPTON,

DRAWN UP FOR

THE BOARD OF AGRICULTURE,

AND

INTERNAL IMPROVEMENT.

By WILLIAM PITT.

" While through the well-ploughed field the sower stalks
" With measur'd step, and liberal throws the grain
" Into the faithful bosom of the ground,
" The harrow follows harsh, and shuts the scene.
" Here sits the shepherd on the grassy turf,
" Inhaling healthful the descending sun;
" Around him feeds his merry bleating flock,
" Of various cadence, and his sportive lambs
" This way and that convolv'd, in friskful glee
" Their frolics play. THOMSON."

LONDON:

PRINTED FOR RICHARD PHILLIPS, BRIDGE-STREET;

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ROBINS, DAVENTY.

1809.

[Price Eight Shillings, in Boards.]

Galabin and Marchant, Printers, Ingram-Court, London.

ADVERTISEMENT.

THE desire that has been generally expressed, to have the AGRICULTURAL SURVEYS of the KINGDOM reprinted, with the additional Communications which have been received since the ORIGINAL REPORTS were circulated, has induced the BOARD OF AGRICULTURE to come to a resolution to reprint such as appear on the whole fit for publication.

It is proper at the same time to add, that the Board does not consider itself responsible for every statement contained in the Reports thus reprinted, and that it will thankfully acknowledge any additional information which may still be communicated.

N. B. Letters to the Board may be addressed to SIR JOHN SINCLAIR, Bart. *M.P. the President, No. 32, Sackville-Street, Piccadilly, London.*

CONTENTS.

CHAP. IV. OCCUPATION.

CHAP. VII. ARABLE LAND.

CHAP. VIII. GRASS LAND.

CHAP.

CHAP. XII. IMPROVEMENTS.

CHAP. XIII. LIVE STOCK.

CHAP. XIV. RURAL ECONOMY.

CHAP. XV. POLITICAL ECONOMY.

CHAP.

ERRATA.

Page 61, line 25, for *per weight acre*, read *weight per acre.*
62, line last but two, for *always*, read *almost.*
86, line 14, for *the disease*, read *this disease.*
98, line 4, for *country*, read *county.*
102, line 2, the same error occurs.
103, line 3, for *wots*, read *roots.*
103, line last but 5, for *country*, read *county.*
108, line 3, after processes should be a period.
108, line 17, for *wots*, read *roots.*
129, line 16, for *furnished*, read *finished.*
137, line 17, for *daily*, read *dairy.*
153, lines 3 and 4, for *ax fellocs*, read *ax fallers.*
197, line 11, for *both kinds*, read *other kinds.*

PRELIMINARY OBSERVATIONS

ON THE

NORTHAMPTONSHIRE SURVEY.

THE Board of Agriculture having resolved to have the different County Reports revised, and the matter therein contained thrown into one uniform system, agreeable to a specified plan, and it being found that several of the subjects contained in this plan had been omitted in the original report, I was requested in the spring of the present year, 1797, by the President of the Board, to make a tour through Northamptonshire, to collect information on those particular subjects, or any other that seemed worthy of public attention: This I have accordingly endeavoured to do, and, for that purpose, have made several tours through the county; and, in addition to my own observations, have procured intelligence from many respectable practical farmers and graziers, and hope, in its present form, the survey of this county may, in some degree, meet the intentions and expectations of the Board, though I fear that, for want of a more complete local knowledge of the county, many particulars deserving attention may have escaped notice.

The particular facts stated, and observations made by Mr. Donaldson, I find generally accurate.

rate. Where he appears to have been misinformed, corrections are attempted; but, upon the whole, his report has much assisted the writer of this survey, and tended to shorten his labour.

One great feature of the county of Northampton is its common fields, which are generally upon good soil, and oftentimes very productive of grain and pulse. This circumstance naturally leads to the discussion of the often-agitated question respecting the utility of dividing such land in severalty; upon which subject the writer of this, without regarding private interest or opinion, has endeavoured to lean to the side of public good.

Some pretty free remarks are made upon the forest-lands, and their present management and productions, which the writer has done wholly from his own ideas of their present misapplication; and from his thorough conviction of their greater national utility, if in part disafforested, and thrown into a three-fold system, or division, of woodland, cultivation, and pasturage.

The writer had intended to have availed himself of the patronage of several of the great land proprietors of the county, to whom he had recommendations from the Board; but finding, on his first applications, the principals not in the county, and the agents little disposed to forward his inquiries, without directions from their employers, he afterwards applied to practical farmers, and agricultural societies, from whose

whose candour and liberality he has received such information as he desired.

The county may, at present, be justly ranked very high, both as a corn and grazing county; conducive to which may be named, with equal truth, the natural fertility of its soil, and the spirit of improvement and emulation amongst its land-occupiers, which last circumstance has been for some time excited, and will, doubtless, be followed by good effects, particularly in the improvement of its sheep-stock, in which a rapid progress has been made, and is now making, and will, I doubt not, in a few years, extend itself very generally through the county.

1797. *WILLIAM PITT.*

P. S. HAVING received some written papers of remarks by the Secretary, and Members of the Board, stating deficiences and omissions still remaining unsupplied in the account of the agriculture of so interesting a county, I was induced, at their request, to make another tour, in the month of August, 1806, for the purpose of making farther inquiries and observations; and, on this occasion, gained information from many respectable characters, gentlemens' agents, and eminent graziers, whom I had not an opportunity of consulting before, and have no doubt but the additional matter thus obtained will render the work much more interesting, and more worthy of the approbation of the public.

In

In this latter tour the cultivation of woad dropt in my way, which, though not an object of general agriculture, is yet not altogether devoid of interest. Several new particulars of grazing also occurred, and considerable information respecting the smut in wheat, which I am sorry to observe, is this season said to be more than commonly abundant. I hope, with the additions now made, this survey may in some degree answer the expectations of the Board.

I am obliged to the following persons for assistance and information in this Survey, and insert their names, in the order in which I received their communications:

Mr. Smith, Tichmarsh, written remarks.

Mr. Knight, formerly of Walgrave, but now steward to Lady Carberry, of Laxton-Hall.

Mr. Pickering, formerly of Walgrave, but now of Kettering.

Mr. Martin, Tansor-Lodge, near Oundle.

The Lamport Society, collectively.

Mr. Daniel Bosworth, Holmby-Lodge.

Mr. Thos. Bosworth, Highgate-House, since dec.

Mr. Ekins, Brixworth.

Edward Bull, Esq. Pitsford.

Messrs. Wright, Kettering.

Mr. Roper, steward to his Grace the Duke of Grafton.

Mr. Bull, Daventry.

Mr. Whitmore, of Rothwell, and Mr. West, of Desborough, tenants to Thomas Mottershan, Esq. of Staffordshire.

The bailiff of Mr. Bosworth, of Brampton.

The Rev. Mr. Brotherhood, of Desborough.

Oct. 1806. *WILLIAM PITT.*

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Map of the Soil of
NORTHAMPTONSHIRE.
Statute Miles 69½ to a Degree of Latitude.
1 2 3 4 5 6 7 8 9 10 11 12
WARWICK SHIRE
LEICEST
OXFORD
BRIDGE S.
Stanford Hall Park
Swinford
Cathorp
Dove Bridge
Lilbourn
Stanford upon Avon
Clay Coton
Yelvertoft
Crick
West Haddon
Kilsby
Barby
Onley
Old Swan
Lodge
Watford
Ashby Lodge
Braunston
Welton
Norton
Daventry
Dodford
Staverton
Catesby
Newnham
Weedon
Camp
Hellidon
Charwelton
Fawsley
Upper Boddington
Three Shire Stone
Byfield
Woodford
Farthingston
Maidford
Hinton
Cannons Ashby
Edgcott
Culworth
Wood End
Plumpton
Weedon Bois
Croperdy
Williamscot
Thorpe Mandeville
Sulgrave
Marston St. Lawrence
Helmedon
Lodges
Radston
Halse
Banbury
Warkworth
Purston
Newbottle Hall
Charleton
Hinton
Adderbury
Croughton
Astwell
Brackley
Evenley
Aynho
Astrick

AGRICULTURAL SURVEY

OF

NORTHAMPTONSHIRE.

CHAP. I.

GEOGRAPHICAL STATE AND CIRCUMSTANCES.

SECT. I.—SITUATION AND EXTENT.

NORTHAMPTONSHIRE is an inland county, situated between 52 and 53 degrees of north latitude, and between the meridian of London and 1 degree 20 minutes west longitude. It is bounded, on the north, by Leicestershire, Rutlandshire, and Lincolnshire; on the east, by Cambridgeshire, Huntingdonshire, and Bedfordshire; on the south, by Buckinghamshire and Oxfordshire; and, on the west, by Warwickshire. The form is oblong; and its greatest length, from the south-west at Aynhos (not far from Brackley) to the north-east part of Peterborough Fen, is 65 or 66 miles in a straight line; and the breadth across the county, from the east side of Yardley Chase to the entrance of Leicestershire, near Welford, about 24 miles.

It contains, according to Mr. Donaldson, 910 square miles, or 582,400 acres; and, according to Mr. Carey, 1000 square miles, or 640,000 acres: and I am disposed to believe the extent of the county not over-rated by this latter estimate.

By accounts since published in the Monthly Magazine, and, I believe, from Parliamentary inquiries, this county is said to contain 965 square miles and 617,600 acres. — 1806. W. P.

The antient and modern connections and divisions of the county were and are as follow in the next section.

SECT. II. — DIVISIONS, &c.

THE antient inhabitants of this county formed a part of the people termed Coritani: during the Saxon Heptarchy, it belonged to the kingdom of Mercia. In the modern political arrangement of the kingdom, it is in the midland circuit; and, respecting its ecclesiastical government, within the diocese of Peterborough. It is divided into 20 hundreds, comprising now 316 parishes, or townships; though, on the first division of the county into parishes, the number was 330, but several of them have been united of late years.

The following is a list of the hundreds into which this county is divided, but I have not been able to ascertain their precise and relative situation; and, as some of the places from whence their names were originally derived have declined and are become extinct, I am not sure of the orthography being correct.

Names

Names of the hundreds in the county of Northampton.

1 Cleley.
2 Corley.
3 Fawsley.
4 Guilsborough.
5 Hamfordshoe.
6 Higham-ferrers.
7 Huxloe.
8 Nassaburgh.
9 Navisford.
10 Newbottle Grove.
11 Norton.
12 Orlingbury.
13 Polebrooke.
14 Rothwell.
15 Spelhoe.
16 Sutton.
17 Towcester.
18 Warden.
19 Willibrooke.
20 Wymersley.

SECT. III. — CLIMATE.

THE climate of this county is (as observed by Mr. Donaldson) "very favourable both to health and vegetation. It is, in a great measure, exempted from deep falls of snow and long-continued rains; and, as the seasons change gradually, the health of the inhabitants is little affected by them, and the operations of husbandry are seldom or long unexpectedly suspended by the inclemency of the weather." These advantages are to be accounted for from its inland situation and happy aspect in point of elevation; the aqueous vapours, from the distant ocean, being, in some measure, exhausted before their arrival here, and there being no mountains to break the rolling clouds overcharged with snow; for, the whole county has properly neither mountain nor bog, the highest point of land in the county, probably, not exceeding about 800 feet perpendicularly above the sea; for, the highest level of the main

line of the Grand Junction Canal, at Braunston Tunnel, in this county, is 375 feet above the tide of the Thames at Brentford, and it is very probable no hill in the county exceeds this level more than about 400 feet perpendicularly, which falls below the mountainous region of this island. On these accounts, the inhabitants are, in a great measure, free from those sudden vicissitudes of weather, which are so injurious to farmers in the vicinity of mountainous countries.

I have made observations on many mountains both of England and Wales, and have found, almost invariably, that the mountainous region commences at between 800 and 900 feet perpendicularly above the level of the sea. By mountainous region, I mean rocky impracticable land, incapable of cultivation, huge masses of rock breaking through the surface with an insufficiency of vegetable mould. Very little grain is produced above this elevation; although Scotch firs, sycamores, and many other hardy trees and shrubs, often succeed well. Similar appearances occur at this height in the Moor-lands of Staffordshire: on the summit of Rowley-hill in the south of that county, on the Wrekin and the Clee hills of Shropshire, and the mountains of South Wales, the rocks are generally composed of a coarse-grit stone, a conglutinated breccia, or a quartzose rag-stone, lime-stone being seldom found higher than at 500 or 600 feet.

This county contains no land that can properly be termed bog, nor any but what may be easily drained, the fall being every where sufficient, and the bottom, or under stratum, generally loose and open in its texture. The lowest land in the county is Peterborough

borough Fen, which is, at present, in some degree drained, and may easily be done more effectually, the writer of this having observed several situations where outlets with a good fall might be obtained, which have never yet been opened. Upon the whole, the country being free from mountains and bogs, the climate may be pronounced temperate, salubrious, and healthy, and congenial to the constitution and economy of animal and vegetable life.

The following table exhibits the elevation of sundry points of land in this county, perpendicularly, above the level of the tide of the Thames at Brentford: they are all from accurate actual survey, taken from the Grand Junction Canal, except the summits of the hills, which are by estimate.

Particular spots.	*Elevation.* Feet.
The river Ouse, near Stony Stratford	200
The river Nen, above Northampton	195
The Grand Junction Canal, at Blisworth and Weedon	315
The Grand Junction Canal, at Braumston Tunnel	375
Buckby Road, about half a mile east of Daventry	430
The summits of the hills around Daventry, which I suppose the highest land in the county, about	800

This county has certainly less rain than the counties nearer the Western Ocean, the largest proportion of rain coming from the south and west. The clouds, many of them, break upon the hills and high grounds before

before they reach thus far within land; and it is apparent to my observation, that the drought of May and June, 1806, was more severe here than in Staffordshire and Worcestershire; the beans, particularly, being more checked and stunted in growth, especially on thin soils.

SECT. IV. — SOIL AND SURFACE.

Mr. Donaldson has observed upon "the great variety in the soil of this district," in which I cannot at all agree with him. The nature of the upland-soil is more uniform than I have ever before observed over so large an extent of country; so much so, that it is impossible, by colouring a plan of the county, to discriminate the varieties. In other counties, I have often observed sudden abrupt changes from clay to sand, and from that to chalk or limestone. The neighbouring county of Bedford is remarkable for this, and so are many other counties for changes of soil equally sudden. But here the changes on the upland are by gentle and almost imperceptible shades of difference, yet varying considerably by increasing the distance; but, in general, so gradually, that no line can be drawn, except between the upland and the natural meadow and pasture, or the fen land. The upland surface very generally consists of a grey or brown loam, and sometimes of a snuff-coloured or reddish loam, more or less tenacious, but seldom or never approaching the sterility of sand or the harshness of clay. This upper stratum, or vegetable mould, is of greater or less depth; and, upon this circumstance, combined

combined with its friability, aspect, and means of retaining a sufficiency of or discharging with facility its superfluous moisture, depends, in a great measure, its greater or less fertility. The under stratum is most generally stone in loose fragments; often so near the surface as to be brought up by the plough, which circumstance always indicates weak or inferior land, particularly when the surface-soil is of a light staple, which is often the case upon a gritstone bottom. The thin soils on a calcareous or limestone bottom are much better than those on gritstone, the surface-soil being generally of a stronger staple.

A large proportion of this county is upon a calcareous or limestone substratum, in many places pure enough for burning into lime; in others, much incrusted and intermixed with argillaceous and other extraneous matter; and often abounding in a great variety of marine substances, as I particularly observed in the neighbourhood of Charwelton: I believe, in all cases, the deepest or thickest soils may be considered as possessed of the greatest fertility. Besides the stony under stratum, in some places, is found clay or gravel. The soil of the county, in general, is equally adapted for corn or pasturage, and fertile in both; and, upon the deep rich soils, are produced naturally the best diadelphia pasture-plants and the most valuable grasses. In the north-west of the county, particularly in the common fields of Easton and Collyweston, the soil is light, thin, and weak, and crops accordingly. These poor soils should be enclosed, and thrown into a favourable turnip system: turnips are not now grown here. The under stratums here are,

1. A loose stone brash.

2.

2. Limestone.

3. A brown sand, or soft sandstone.

4. A calcareous shistus, or slate, large quantities of which are used for covering buildings.

The soil of the forest-lands in this county is generally a moist grey loam, well adapted to the growth of oak, and equally proper for pasture or cultivation. The county contains no chalk.

The soil of the natural meadows and of the fen land, north of Peterborough, is a dark-coloured sediment, often very rich and productive; but, in many places, much injured by stagnant water, owing to the want of sufficient drainage; also, liable to damage from floods, particularly when under grass for hay.

Surface. — The general aspect comprehends great beauty and variety: very few instances of dead extensive flats. The greater part of the county is agreeably varied by waving hills and gradual declivities with intervening vales, and rivulets murmuring down towards the rivers, forming an interesting scene of vale and upland. Not an inch of impracticable land, or but what is, or may be rendered, useful; the hedges and trees therein growing with luxuriance, the country well watered by its brooks and rivers, interspersed with woods and seats of gentlemen; even the open common fields, covered with crops of grain, within sight of every rising ground, increase the variety and add to the general appearance of beauty and fertility.

Soil; farther observations. In my excursion through the county, in October, 1797, I observed several districts of lighter land than I had generally noticed before. The rising grounds, at a mile or two distance around Northampton, are generally light land,

land, particularly to the north, south, and west; Boughton and Moulton have a good deal of light land on a sandy bottom; part of Walgrave and Brixworth is a rich red light loam; Spratton and Creaton have tracts of good light land; Kingsthorpe, the two Bramptons, and Harlestone, have a good deal of light land; the latter place contains some of the weakest light soil, on a sandy bottom, that I have seen in the county. Harlestone Heath is of this kind, enclosed, but only in part cultivated. East Haddon and Ravensthorpe a good light arable soil.

Rothwell common-field and neighbourhood is a light turnip soil, and turnips are grown on it on an extensive scale. Upon all these light tracts of land a considerable quantity of rye is also produced.

Notwithstanding these instances, much the greatest proportion of the land of this county is of a strong heavy staple, applied to the culture of beans and wheat before enclosure; and, when enclosed, generally laid down to permanent pasture. The lighter enclosed lands are kept more in tillage, and therefore produce a larger proportion of grain. The soil of the country has, therefore, a considerable variety, but seldom changes abruptly, or attains the extremes of sand or clay; and, upon the whole, may be pronounced fertile and productive.

"The upper and middle parts of the county are richly ornamented with extensive woods, which are intersected with numerous vistas and beautiful lawns. The various avenues of trees, extending, in many parts, for miles together; the rivers and streams, winding along the vales and answering a variety of purposes in both agriculture and trade; the many beautiful villages and populous towns, with their churches

churches and lofty spires, (twenty of which may be seen at a time, when viewed from an eminence;) present a prospect beautifully diversified and highly picturesque, and which cannot fail to delight the eye and enliven the heart of every spectator."—*Donaldson.*

In a farther tour through the county, in 1806, I was desired more particularly to notice the red soils (as they are called) of Kettering, Glendon, &c. This term red land is rather provincial than real, being applied to all land that has a brown, snuff-coloured, or reddish, cast, as the term black land is to all the dark-coloured loams. The red land is, therefore, generally, what I have noticed before under the terms brown, snuff-coloured, or reddish, loam, and extends through and over many parts of the county; as, Kettering, Glendon, Rothwell, Walgrave, Brixworth, Spratton, Pitsford, and many others: and the black land is what I have called grey and dark-coloured loams. In the same parish, or common-field, one streak, range, or swell, of hills, shall often be red land, and the next parallel or contiguous swell black land. In the common-field of Kettering, lately enclosed, there are three ranges or streaks of hills; the middle range is a black or dark soil, and the outer ones red, but these colours generally intermix by imperceptible shades. The black or dark soil is a strong loam of two or three feet deep, composed, I suppose, of a greyish calcareous clay and a rich dark vegetable mould, combined upon a loose stony bottom. The stones composed of loose fragments of encrusted matter, the middle parts apparently calcareous, with interstices between the stones of loose porous loam, which act as natural hollow drains to take off superfluous

fluous moisture. This soil is reckoned too strong or harsh for turnips, but is sometimes sown with coleseed, and is excellent for beans, wheat, and other grain; and, also, makes excellent feeding grass land. The red land has, for its colouring ingredient, I suppose, a red sand, combined with red calcareous earth, being uniformly lighter and dryer than the black, and adapted for the growth of turnips. It is of considerable fertility; and, with good management, produces excellent crops of grain, bears good clover for pasture and often for seed, and is generally left at grass two years, and then brought again into tillage; and, being pleasant and easy for cultivation, is generally kept under the plough in the up and down system.

A considerable tract of country, between Northampton and Stony Stratford and to Towcester, consists, in some places, of a cold white clay; in others, of a strong grey loam on limestone. This description of soil characterizes several parishes; as, Wooton, Rode, Stoke Bruern, Yardley Gobion, Potterspury, Blisworth, and many others. By Mr. Roper's information, this is not generally a bad soil; but I observe its fertility is in proportion to its depth, and that the present season, 1806, the crops on thin soils of this nature have suffered extremely from drought, and are short and poor; and the beans, in particular, on some thin soils at Stoke Bruern and Blisworth, were, August 18th, cutting, prematurely ripe, not more than eighteen inches or two feet in length; and, in some places, raking into rows about half beans and half weeds, and so miserably poor as scarcely to yield the seed again.

Kettering, to Northampton, through an enclosed country, having common fields in view, soil often brown

brown or reddish, and sometimes of a grey or darkish hue, the red soil always of the lightest quality, as containing most sand, but so far combined with red calcareous earth as to be sufficiently retentive of moisture to promote the purposes of vegetation, and seldom approaching to sand. The under stratum generally loose stone, of a sandy or grit quality, or sometimes calcareous stone, encrusted with gritstone. The grey or black soils are more tenacious, composed of less sand, and more calcareous earth; with, also, a loose stony under stratum, which stone is generally either semi or wholly calcareous, and often encrusted with congealed matter. This latter description of soil is generally more harsh and difficult to cultivate; and, at the same time, more disposed to produce a close, rich, matty, and nutritious, herbage of grass than the red land, and is, therefore, more generally preferred for permanent pasture. But this soil is often upon a gravel or clay bottom, and, when the water is intercepted by beds of clay, stands in need of artificial drainage.

The general excellency of the Northamptonshire soils seems owing to two circumstances: firstly, their being of sufficient thickness or depth; and, secondly, to the looseness, openness, or porous nature, of the stony under stratum, beneath a sufficient thickness of rich loamy vegetable surface mould, the loose and open under stratum not only admitting the fibrous sorts of vegetables to strike deeper in search of moisture and nutriment, but, also, acting as natural hollow drains to carry off stagnant and superfluous moisture, and thus putting land naturally in that state which, in many other countries, can only be imperfectly done by the expense of hollow draining.

This

This state of things, however, though pretty extensive, is not general; as many districts and local spots want draining and other improvements in common with other countries.

The soil of Northamptonshire may, I think, in general, be classed as follows:

1. The black or dark-coloured soils, being generally a deep strong loam, on a stony, or a gravel, or a clay-loam, bottom. Of this soil the county has the largest proportion, including almost the whole of its rich upland feeding-pastures, and a part of its cultivated common fields and enclosures.

2. The red land, including the brown and snuff-coloured loams. This soil is pretty extensive, including a portion of the common fields as well as enclosures; in which latter state it is generally kept in tillage in the up and down system. In point of general produce and utility, this soil stands very high, and is of considerable fertility.

3. The white or grey loams on limestone, inferior, I think, to the above. This, also, is contained in both common fields and enclosures, forms a good turf and grazes well, and produces good crops in kindly seasons: but, in sudden transitions from moisture to drought, is apt to cake suddenly, to the great injury of the crop, especially on thin soils.

4. Miscellaneous upland, including the light thin soils near Stamford, and those dispersed in other parts of the county, and not coming under or within the above descriptions; as the sands of Harlestone and light soils in other districts of the county.

5. The soil of the natural meadows and pastures, and of the fen land, north of Peterborough. The

natural

natural valleys contain an excellent meadow-soil, particularly the banks of the Nen, near Northampton, and of the several rivulets which supply that river, the banks of the Welland, and, indeed, of all the rivers and brooks in the county. This soil consists of the decomposed matter of decayed grasses and aquatic vegetables, combined with the sediment of the streams of water issuing down such valleys; which, being drained and consolidated, form the basis of meadow soil.

The second variety, or red and brown loam, extends through many parts of the county in various shades of colour and consistence. At Pitsford, Edward Bull, Esq. states his level upland to be a lightish brown loam, but the declivities in the same fields a harsh clay. The adjoining parishes of Brixworth and Chapel Brampton are generally a brownish loam, on a loose stony under stratum, and often light enough for turnips.

Mr. Colman's farm, Glendon, of about 400 acres, contains in part a red, and in part a darker coloured soil. The red soil, not of the best quality, being often thin upon a stony bottom, called here cale, particularly the sloping land; but the flat upland deeper and better. This cale, which is a congelation of stone near the surface, is always considered as an indication of inferior land.

Daventry-field and neighbourhood consists, generally, of a brownish or greyish loam, on a rubble stone bottom. Long Buckby, East and West Haddon, Holmby, Floore, and a considerable tract of country north and east of Daventry, consists of a greyish or brownish loam, generally on a clay, marl,

or

or gravel, bottom, but sometimes a stony under stratum: a good deal of pasture, and some old feeding-land in this district.

SECT. V. — MINERALS.

THE county of Northampton is not very famous for minerals; it produces no coal, and I believe not any of the metals. Its mineral productions may be classed as follow:

1. Common clay, brick clay, (argilla communis,) is found and used for making brick and tile in various parts of the county.

2. Limestone (calx lapis) in great plenty almost all over the county, and plentifully raised for the various purposes of burning into lime, either for mortar or manure; for building fence-walls for courts, yards, and, in some instances, for enclosures; and for repairing roads. This stone is sometimes tolerably pure calcareous earth; in other places, intermixed with argillaceous and other extraneous matter; and often contains a variety of marine substances. The principal lime-works in the county are at Duston and Kingsthorpe, from which 30,000 quarters are annually sold for manure; besides which, there are public kilns at Moulton, Hardwick, Blisworth, and many other places; as, also, many private kilns kept on by farmers for their own use. I also observed lime-kilns on the Union Canal, near the borders of the county.

3. Marl, (marga friabilis). Plenty of excellent friable marl has been found in executing the tunnels of the Grand Junction Canal at Braunston and Blisworth.

worth. Mr. Donaldson observes, "there is rich shell marl in different parts of the county, particularly on his Grace the Duke of Buccleugh's estate of Boughton, and Sir George Robinson's estate of Cranford."

4. Freestone for building is raised at Brackley; also at Kingsthorpe, near Northampton; and in many other places. This stone is often of a calcareous nature.

5. Slate (shistus). Dug in considerable quantities at Collyweston in this county and used for covering buildings. The quarries of slate here are and have been very extensive: it is generally of a good size, but rather thick and heavy. Most of the buildings in that and the neighbouring townships are covered with it.

Dr. Watson, the present Bishop of Llandaff, has observed, "some of our old buildings in Cambridge are covered with a whitish kind of slate, which is dug at Collyweston, in Northamptonshire. This slate is, as to its principal component part, a calcareous earth, very similar to the Barneck stone of which Peterborough cathedral and part of King's chapel, in Cambridge, are built. This Collyweston slate imbibes more water and retains it for a longer time than the Westmoreland slate does; but it does not imbibe half so much, nor retains it for a quarter of the time that a common tile does. The manner of its being formed into slate deserves notice: — large blocks are dug up in autumn, and these blocks, being placed in a position different from what they had in the quarry, the rain insinuates itself between the layers of which the stone is composed; and, in frosty weather, the water, swelling as it becomes ice, splits the block of stone into

into plates of a proper thickness. There is a stone, of a calcarious nature, called Clunch, in this neighhourhood; it is soft and easily wrought, and, when properly placed in a building, is very durable; but, if the position of the stone in the building be different from what it was in the quarry, that is, if the side of the stone, which, in the quarry, was parallel to the horizon, be either perpendicular or inclined to it in the building, it soon cracks and moulders away; and, perhaps, the durability of Portland and other stone may have some dependence upon this circumstance.

"A cubic foot of this slate weighs 2592 ounces, which is, bulk for bulk, near one-twentieth part lighter than the lightest of the Westmoreland slate, but its thickness is at a medium much greater; hence, its weight, in a definite surface of roof, is greater than that of the coarsest kind of Westmoreland slate. Its durability is very considerable, as may be collected from the time it has lasted on some of our college-buildings." *Chemical Essays*, vol. iv.

Good free-stone has also been discovered, and is now getting upon the Laxton estate (Lady Carberry's), and in the fissures of the stone have been found a good permanent paint, which was shown me, and described as being useful and valuable in painting and preserving gates, posts, pales, or any timber-work exposed to the weather. I suspect it to be of a ferruginous or ochery quality.

SECT. VI. — WATER.

Rivers and Waters. There are, perhaps, few districts better supplied with water than this, while the inconveniences, which so often happen from enjoying that advantage, are here felt but in a very inconsiderable degree. In almost every part it abounds with fine springs, which, being very plentiful in the upper part of the county, form numerous small brooks and rivulets, several of which, uniting in their course towards the sea, at length become navigable rivers.

There are five rivers which take their rise in this county, the Nen, Welland, Ouse, Leam, and Charwell; and, what is very remarkable, considering the different courses which they take, the sources of the former and of the two latter are said to spring out of one hill, near Catesby and Hellidon, in the hundred of Fawsley.

The Charwell, after running for several miles along the western boundary of this county, enters Oxfordshire, and joins the Thames at the city of Oxford.

The Leam joins the lesser Avon, near Warwick, and, afterwards joining the Severn, falls into the western ocean.

The Nen is the most considerable of these rivers. After taking its rise as above mentioned, it is quickly joined by a number of other small streams and brooks in the vicinity of Daventry, and continues its course from thence to Northampton, where it becomes navigable, and forms a considerable river: extending its course along the east side of the county, it passes Wellingborough, Thrapston, Owndle, and Peterborough,

rough, and, from thence, by a new cut, (called Morton's Leam,) to Wisbech, below which it discharges itself into the German ocean.

The Welland takes its rise near Hawthrope, in the hundred of Rothwell; and, winding along the north boundary of the county, it passes by Rockingham and Stamford, where it becomes navigable; from thence to Spalding, below which place it communicates with the sea.

The Ouse, which is one of the principal rivers in the kingdom, takes its rise from a spring called Ousewell, near Brackley, in the hundred of Sutton. It quickly leaves this county, and, after taking a circuitous course through part of Buckinghamshire, touches again upon it at Stoney Stratford; from whence it passes to Newport-Pagnel and to Bedford; from which last place it is navigable to the sea, at Lynn.

These are the most considerable rivers; but there are a great many small streams and brooks, which, after taking various windings through different parts of the county, discharge themselves into one or other of these rivers: and, besides the convenience and advantage which the inhabitants enjoy from such an abundant supply of water, these rivers and streams are not only useful for supplying the mills,* for grinding

* Upon the application of water to working corn-mills, the following observation is made by Mr. Smith, of Tichmarsh: "In flat countries, mills worked by water are extremely detrimental to the adjoining meadows: it is the interest of the millers to hold up the water, and they do it frequently unnecessarily, and thereby occasion floods, when, otherwise, there would be none. Steam-engines would be better, as being more certain; the water-mills being affected either by too much or too little water. The cokes would pay the expense of fuel, and especially in this

grinding wheat and corn, of which there are great numbers erected upon the banks; but great advantages are also derived from the navigation of the Nen and the Welland, particularly the former, as it passes through the greatest part of the county, and by means of which the inhabitants are supplied from the ports of Lynn and Wisbech with coals, fir-timber, and other articles, while considerable quantities of oak-bark and grain are sent back in return.

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county, where they are scarce and dear. Ovens are erected for no other purpose than that of converting coals to cokes." Perhaps one of the greatest improvements that could be effected in the county would be that of placing the waters upon the best possible system.

Besides these natural waters, may be named the Grand Junction and Union Canals, concerning which, see chap. xv. subject Canals.

CHAP.

CHAP. II.

STATE OF PROPERTY.

SECT. 1.—ESTATES AND THEIR MANAGEMENT.

THERE are many very considerable estates in this county; and by far the greatest part of the landed property is in the possession of noblemen and gentlemen, who reside at least some part of the year in the county.

Mr. Young has observed, (Annals, vol. vi. p. 465.); that "the county of Northampton is remarkably full of large properties: we presently reckoned up, at Mr. Ashby's, of Hazelbeach, thirty-seven estates in it, of three thousand pounds a year and upwards; sixteen of which are from five thousand to ten." There are many other estates under that sum, down to £ 500 per annum; and a part of the county is in possession of that respectable class of men, who have been long known in England under the denomination of Yeomanry; who either occupy their own estates, of the value of from £ 300 per annum downwards, or who rent extensive farms from gentlemen of large property.

Of the 316 parishes in this county, 227 are in a state of enclosure, and 89 in open field; besides which, there are many thousand acres of woodland, and a large tract of rich valuable land, called the Great Peterborough

terborough Fen, in a state of commonage; so that there is full one-third of the private property in the county under a defective system of cultivation or management.

In describing the present state of the county, the land may be classed in three divisions, viz. Enclosure, open or common field, and woodlands, each under peculiar and different modes of management; perhaps one-half of the enclosed land may be denominated old enclosure, and is, generally, occupied as grazing land.

As a pretty large proportion of the land of this county is the property of noblemen and gentlemen of large fortune, whose time is, in part, occupied in state affairs, and other pursuits distinct from the cultivation of land, their estates are, consequently, under the management and direction of stewards. Some gentlemen, less engaged in such pursuits, and who have a turn for business, are their own stewards. Respecting the particular management in cultivation and stock, as well as of the woodlands, they will naturally be treated of, under their respective heads, in the succeeding parts of this survey.

From the year 1794, when the above number of common fields was ascertained, to the present year, 1806, there have been about nineteen or twenty enclosures of common fields, so that there remain, at the present time, about seventy common fields unenclosed within this county.

SECT. II. — TENURES.

THE tenures of land, in this county, are, I am informed, mostly freehold; but, there are some copyhold and some leasehold. It does not appear to me, either from observation or information, that the tenure, under which land is held by the owner, has any effect upon management or cultivation, which are more particularly affected by the relative situation of landlord and tenant; between whom, either a proper set of covenants, securing possession and the benefit of improvements to the occupier, or else a mutual confidence in each other, is absolutely necessary as a stimulus to exertion; for, a tenant at will cannot be expected to sink his property in expensive improvements, unless he has reason to consider his landlord as his protector and his friend.

CHAP. III.

BUILDINGS.

SECT. 1. — HOUSES OF PROPRIETORS.

THIS county contains a great many magnificent and elegant seats of nobility and gentry, which is naturally accounted for, from the number of large estates, the general salubrity of the air and fertility of the soil, as well as from the great variety and beauty of landscape. The following are the principal seats in the county, according to my observation and information, in alphabetical order.

1. Abingdon, near Northampton, Mr. Thursby's.
2. Althorpe-Park, Earl Spencer's.
3. Burleigh-House, near Stamford, Marquis of Exeter's.
4. Carlton-House, Sir John Palmer's.
5. Castle-Ashby, Earl of Northampton's.
6. Cottesbrook, Sir William Langham's.
7. Cranford, Sir George Robinson's.
8. Dean Rockingham-Forest, Lord Cardigan's.
9. Delapre-Abbey, near Northampton, Mr. Bouverie's.
10. Dingley, Mr. Hungerford's.
11. Easton-Mauduit, Lord Sussex's.
12. Easton-Neston, near Towcester, Earl of Pomfret's.
13. Fawsley, near Daventry, Sir John Knightley's.
14. Harlestone, near Northampton, Mr. Andrew's.
15. Horton Yardley-Chase, Sir Robert Gunning's.
16. Lamport,

16. Lamport, Sir Justinian Isham's.
17. Milton-Park, Earl Fitzwilliam's.
18. Rockingham-Castle, Lord Sondes's.
19. Stoke-Park, near Towcester, Mr. Vernon's.
20. Wakefield-Lodge, Duke of Grafton's.

To these I shall now add, for 1806,

21. Laxton-Hall, in the north of the county, the seat of Lady Carberry, who, by marriage, is become the Lady of G. F. Evans, Esq.
22. Fineshade, near the latter, the seat of the Hon. John Mockton.

At which places I had entertainment and information: but, there are a great many more seats of gentlemen in this county; and, it is said, more than in any other in the kingdom of equal extent; but this, being only a secondary object in this Survey, may be thus passed over.

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

RESPECTING farm-houses and offices, they are very generally most inconveniently placed: instead of being in the middle of the farm or occupation, they are, almost universally, pent up in villages, and are, consequently, either on one side of the farm or totally detached and off from it. This system was, very probably, originally adopted for the sake of society and security in times of weak police and unsettled government. In a state of civilization and security, the occupier, being placed in the middle of his farm, has many advantages over this system: and, it may be naturally

naturally supposed that, by degrees, as the present buildings decline and wear out, the future ones will be transferred to their proper place. A few farm-houses, properly placed, are now to be found under the denomination of Lodges; and some of these commodious and convenient enough; but a very great majority of them are in the predicament above named; and a great many farm-houses, as well as out-buildings, are covered with thatch; this, it is to be hoped, will, by degrees, be changed for the more substantial and safe covering of tile or slate. Thatched buildings, in hot, dry, or windy, weather, are exposed to the danger of conflagration, insomuch that I wonder accidents of this nature are not more frequent. In this mode of covering too, the ground is deprived of a large portion of manure by the quantity of straw thus used. I hope the land-proprietors will gradually introduce a system of building with materials more durable and less combustible than those now in common use. The following are Mr. Donaldson's observations on this subject.

The farm-buildings are, in general, as badly constructed as they are improperly placed. It being only on such farms where the houses have been recently built, and under the direction of the landlord's steward, where any attention has been paid either to regularity or convenience.

It is the practice for the proprietor to furnish materials, (except straw for thatch,) and the tenant to be at all the expense of other repairs; and, therefore, considering the uncertainty of the tenure on which he holds them, it is no wonder that he should allow the houses to fall into a ruinous condition. Upon the whole, it is certain that the farm-houses in this district

are

are not kept in that tenantable state of repair which is for the mutual interest of the landlord and tenant.

The farm-houses are built either of stone or brick, and covered with slate or straw. The barns, which are very large in proportion to the farm, owing to the practice, which here prevails, of housing as much of the crop as possible, are either built wholly of stone, and clay used as cement, or partly of stone wall, on which a house framed of wood (generally oak) is erected, and plastered over the sides with clay. They are commonly thatched with straw. The byres, stables, &c. are generally built of stone, and covered in the same manner and with the same materials as the barns.

In this county, as well as in many other parts of England, the farmers still live crowded together in villages, or townships, as was the practice in the most remote ages, and when the system of open, or common field, husbandry universally prevailed. Though these crowded situations might, no doubt, be attended with considerable advantages in antient times, and though the system of open field husbandry, where practised, precludes the possibility of placing the farm-houses in central situations, yet it appears surprising that the buildings, belonging to the farms in a state of enclosure, should still remain at such a distance from the farms, there being but very few instances where the houses are properly situated in the centre of the farms. The inconveniences which the farmers must labour under, in consequence of residing at so great a distance from their farms, and the loss of time and consequent extra-expense of bringing the produce from the extremity of the farm to their home-yard, (as it is here called,) and of carrying the manure to the distant

distant fields, are so obvious as to require no explanation.

Plate xix. in the Communication on Farm-buildings, is a good general sketch for the disposition of a farm-house and offices, in which alterations may be easily made to adapt it to local circumstances, so as to be suitable to this or any other county.

Stall-feeding being little practised in this county, there are few farms accommodated with convenient feeding-sheds; but the convenience is every where understood of having an open bin, or space, before the cattle, from whence to deliver their food, and which should be roomy enough for a wheelbarrow to pass along for conveying turnips or other articles. I shall beg leave to refer the curious in this matter to the publication of the Board on Farm-buildings, where they will find a variety of plans and sections of double and single feeding-sheds, and many other curious matters, respecting farm-offices, from communications had from various parts of the kingdom.

I viewed, August, 1806, one of the most capital grazing farms in this county, from whence two or three hundred oxen are annually sent to Smithfield, but principally from grass; though a lot of twenty or thirty, or sometimes more, are occasionally stalled with oil-cake and hay: the sheds are old, of no particular construction or contrivance, timber and thatch, and the oxen simply tied to a post.

SECT. III. — COTTAGES.

In a country where so little attention has been paid to

to farm-houses, it can hardly be expected that labourers cottages should have been an object of much regard; accordingly we find these crowded amongst the former in villages, and built with the same or with inferior materials. I observed, in various parts of the county, particularly in the open parishes, a great number of tenements built with mud and covered with thatch. It is very possible that sufficient shelter and warmth may be afforded by these materials, and that they may afford health and comfort to the humble inhabitant; but they certainly have a miserable appearance, and are hardly consistent with the dignity of a rich country. I think nothing is a greater ornament to a country, or gives more the appearance of comfort or the idea of rural happiness, than a display of neat and decent cottages, built with economy, but with lasting materials; and, as the labouring class of people are of great consequence to a country, their comfort and well-being has a claim to attention and regard.

Mr. Young has observed, the Duke of Grafton never makes cottages an object of revenue, expecting only that, on the general account, they should repair and support one another; they are accordingly let at from twenty to twenty-five shillings. This liberality deserves imitation: I found, however, other cottages letting at thirty-five and forty shillings.

The design for a double cottage, given by Mr. Holland, and published by the Board, plate xxxv. is extremely simple; it is well adapted for being constructed with the rough stone with which Northamptonshire abounds, and might either be thatched or covered with slate: also, for several more simple and elegant designs for cottages, I must beg leave to refer the curious

curious to the publications of the Board on Buildings, published by Mr. Nicol, of Pall-Mall.

In my tour over the county, in 1806, having been requested to pay more attention to cottages, I accordingly noticed those common in the villages, and, particularly, examined some of Lady Carberry's, at Laxton, which are both comfortable and ornamental. The primitive building-materials, in the Northamptonshire villages, were mud-walls and thatch; of these, cottages, the fence-wall of yards, and even farm-houses, have been constructed, and many of them still remain: the fence-walls are often covered with different varieties of the sedum, or stone-crop, growing thereon, as sedum's acre, reflexum, &c.

To such materials have succeeded, in some places, stone-walls, both rough and hewn, and thatch, of which materials many farm-houses and some respectable inns are constructed. The Swan inn, Lamport, which contains several decent parlours, and furnishes tea, coffee, spirits, or wine, as well as good lodging, stabling, post-horses and chaises, to the travelling customer, and where a very respectable agricultural society holds its meetings, is covered with thatch; however, in the better and more modern houses, stone walls and slated roofs are become more general.

The old cottages seem to have had very little design, respecting either convenience or comfort; shelter from the weather, and room to sit or sleep in, rather in a promiscuous manner, seems to have been the whole extent of the object in view in their construction.

In the village of Pottersbury, and other places upon the Duke of Grafton's estate, considerable attention has been paid to the accommodation of the cottagers: the cottages are built of stone-walls and thatch, and let,

let, as I was informed by Mr. Roper, at less than forty shillings per annum each; but comfort to the occupiers and not outward appearance, is the object in view. They are built in an oblong row, forming the side of a street, with conveniences beneath, and two or more lodging-rooms to each.

The following is a plan and elevation of double cottages, lately erected upon the estate of Lady Carberry, at Laxton, two of these erections, or four cottages, have been lately built, and more are intended.

The back rooms are a shed, or lean-to, of one story only; the walls are stone, and roof covered with thatch. I asked Mr. Knight, whether these cottages would cost £100 each; but he had not particular accounts. I think that would be about the expense, built with brick and tile; but Mr. Roper thinks, that cottages of stone-walls and thatch may be built, in this country, at two-thirds the expense of brick and tile; and that they would not cost more, built in this manner, than 60 or £70 each, the rent of each is two pounds per annum.

By the benificence of Lady Carberry, nine cottagers in Laxton are furnished with land and cows. They give a full price for the land, the same as given by farmers. The cow-sheds I did not see, they being upon the land at some distance from the cottages.

Although these cottages seem to pay the owner only about 3 per cent. for building, they are, if fairly reckoned, a good speculation; for if, by thus increasing the comforts of the poor, the poor's rates are lessened, the whole contiguous estate becomes of more value: suppose one cottage, with a cow, to every £100 per annum in land, then, if by this means the poor's rates be reduced two shillings in the pound, the additional

additional value to the whole estate is 10 per cent. by erecting and endowing these cottages.

Mr. Roper thinks, that, in their part of the county, about Pottersbury, cows for cottagers are less necessary than in many other places. The females are employed in lace-making, by which they can earn from sixpence to eighteen pence each per day, and a little dairy might interfere with that employment, without making the best of the cow. The neighbourhood is full of dairies, and butter for the London market being the object, skim milk and buttermilk are easily attainable, and may be had at a reasonable price.

CHAP. IV.

MODE OF OCCUPATION.

SECT. I. — SIZE OF FARMS. CHARACTER OF THE FARMERS.

BY the information I had from the Lamport Society, in 1797, it appears that the average size of open-field farms is 130 acres; rent, 7*s.* 6*d.* subject to tithes. The average size of enclosed farms from 180 to 200 acres, mostly tithe free, except some antient enclosures.

Mr. Donaldson observes, "there are no very large farms in this county; for, although great progress has of late years been made in enclosing the open fields, yet the lands are generally parcelled and let out again to the former tenants, who occupied them in the open-field state, and to such extent as it is supposed their abilities and circumstances would enable them to manage properly; so that it is only in the old enclosed parishes where there are farms of any considerable extent, and even there the rent of one farm seldom exceeds 500*l.* a year."

An anonymous correspondent of the Board observes, this is too much by 200*l.*; such large farms give too great a latitude to monopoly, or command of markets.

Mr. Donaldson farther observes, "in the new enclosed parishes the farms are generally from 100*l.* to 300*l.* per annum; and, in the open-field lands, the rents run from 50*l.* to 150*l.* per annum. The rent of enclosed land runs from 17*s.* to 25*s.* per acre; the average may be reckoned at 20*s.* The open-field lands run from 6*s.* to 10*s.* per acre, subject to tithes, worth about 3*s.* 6*d.* per acre more." This in 1794.

In Mr. Young's journey through Northamptonshire, 1791, he observes, "in the open fields the farms are generally small, usually about 70*l.* a year. These little occupations, with which the Duke of Grafton and other good landlords have patience, in order to nurse up industrious families, are yet a heavy loss in repairs and sometimes in other circumstances. Enclosed farms rise to 300*l.* per annum, which is the greatest size. In farms of a tolerable size, the tenantry are substantial; and it gave me great pleasure to find them with such confidence in their landlord as to raise considerable erections at their own expense, and this while tenants at will."

Stock and produce. — Mr. Young observes, 1791, "they commonly reckon 4*l.* per acre necessary for stocking a farm, and that the produce of arable land is about four or four and a half rents." I believe that one-fourth, at least, more capital for stocking is now, 1797, necessary; and that, in the produce, every article of home-consumption must be reckoned to bring it to that amount.

By alteration in times and circumstances, 6*l.* per acre is now, in 1806, little enough for stocking an enclosed farm, managed in the up and down system, part grazing and part tillage; and, respecting capital grazing farms, where the best sheep and oxen are kept,

kept, the occupier must have an almost unlimited command of money to manage to the best advantage. Even 20*l.* per acre may be sometimes employed; as, in a plentiful time or flush of grass, an ox may be put upon every two acres, besides other stock, goods, and chattels; this, however, will seldom last long, but the stock must be lessened by drawing off for market.

Mr. Young has observed, upon the grazing system of this county, "their favourite beasts are Shropshires, bought at Oswestry fair, in March; also, many cows from Cheshire, very few Scotch."

I shall observe farther a great many Staffordshire beasts also, particularly heifers and barren cows from Lichfield fair, (Ash Wednesday); Albrighton, Leek, Rudgeley, and several other, fairs, in May and June; and, in my journeys through the county, I observed a great many Scotch and Welsh cattle.

Mr. Young very justly farther observes, "all the graziers of this country, in buying lean beasts, judge, in a great measure, by handling. To feel the points of a lean beast, they think to the full as essential as when fat; and will, on no account, buy a beast without feeling it." This is matter much attended to here, though little regarded in some other counties.

Respecting the general character and disposition of farmers in this county, I can pronounce, that, as far as my observation goes, they are not at all wanting in enterprize, energy, or the exertions necessary to effect improvements. Witness the great progress already made in the improvement of their sheep stock, and the activity and acuteness displayed in laying in their beasts for fatting. I have also found them, in general, liberal, communicative, and free from those narrow jealousies which are often excited by the inquiries

of a stranger, and which are, in some places, received with apparent suspicion and distrust, but which here seem to be regarded as a means of collecting general knowledge, to be diffused for the public good, and as a means of improvement.

In a more particular examination of this county, in 1806, I find that the general modes of occupation may be reduced to four.

1. The common field occupations, consisting of arable land in the common field in constant tillage, and enclosures near the town or village generally at grass, together with the natural grass-land of the valleys, enclosed or open: these occupations are titheable, and the present rents from 10*s*. to 20*s*. per acre. In Rothwell, a farm, of what is called four yard lands, or about one-twentieth part of the parish, has about one hundred and twenty acres of open land, and thirty acres enclosed, five horses, eighteen head of cattle, of which one-half may be milkers, and ninety-six sheep, twenty-four being attached to each yard land. — See common fields.

2. Modern enclosures, in alternate tillage and pasture. The pastures generally stocked, principally with sheep, of which there are farms of various sizes, with sometimes old pasture land attached, and employed in the feeding of cattle.

3. Enclosed land, in alternate tillage and pasture, with pasture land attached thereto, the pasture land generally applied to supporting dairy cows. Of these, there are farms of various sizes, on which from seven, eight, and ten, to twenty, forty, and even sixty, dairy cows are kept, the principal object being generally butter for the London market. The enclosed land of this county is generally tithe free. Rent of

farms,

farms, at present, 1806, from 20*s*. to 30*s*. per acre; but, near towns, land lets much higher. — See rents.

4. The antient enclosed land generally at grass, and applied to feeding sheep and oxen, or part mown for hay. In some parishes, of this class, little or no grain is grown; the rent generally from 25*s*. to 30*s*. per acre. These farms are the largest occupations in the county: I viewed one of six or seven hundred acres, and heard of much larger; but a considerable proportion of this land, of uncouth appearance and over-run with ant-hills, is, probably, at a rent of not more than 20*s*. per acre.

SECT. II. — RENTS, IN MONEY, IN KIND, IN PERSONAL SERVICES.

RENTS are very generally paid in money, though (as I am very well informed) not without an instance of their being paid in kind; but, of this instance, I had not the particulars.

Mr. Donaldson observes, "the rents are paid in money, by half-yearly instalments, the first half-year's rent being payable twelve months after the tenant's entry on the farm, he being allowed to keep six months in hand. This is good credit, and has been allowed in other countries formerly, but is now seldom the case."

The credit now most commonly given is one quarter, the rent due at Lady-Day being paid at Midsummer, and that due at Michaelmas paid at Christmas; but some landlords expect the rent within a month after becoming due.

Personal

Personal services are, in many places, kept up in a small degree; such as a day's work with a team, annually, to draw coals, fuel, or other articles; the keeping of a game dog, &c. These, being considered as slight matters, are little regarded.

The amount of rents, in 1797, is stated to have been, of open field farms, subject to tithes, 7*s*. 6*d*. per acre; of enclosed farms, from 10*s*. to 30*s*. per acre, tithe free; and of land in the vicinity of towns, from 30*s*. per acre, upwards. These rents are greatly advanced to the present time, 1806, and cannot now be less than as follows: of the thin soiled open field districts, which may be one-third of that class of land, 10*s*. per acre average; of the rich open field land, 10*s*. to 20*s*. per acre, 15*s*. average; of the poorer thin soiled enclosed land, which may be one-sixth of the county, 10*s*. to 20*s*. per acre, average 15s. per acre; and, of the rest of the enclosed lands, 20*s*. to 30*s*. per acre, average 25*s*. per acre. From this data, and supposing the cultivated land to be 600,000 acres, the rental of the county may be calculated as follows.

Acres.		£.
50,000	of the poorer thin soiled common field districts, open, or with some enclosures attached, at 10*s*. per acre	25,000
100,000	of the rich common field districts, open, or with some enclosures attached, at 15*s*. per acre	75,000
150,000	. . . . . Carried up	100,000
		150,000

Acres.		£.
150,000	. . . . . Brought up	100,000
100,000	of the poorer or colder thin soiled enclosed land, including Easton, Collyweston, &c. at 15*s.* per acre,	75,000
350,000	of rich enclosed land, including the rich feeding pastures as well as tillage land, at 25*s.* per acre . . .	437,500
600,000	Total.	Amount £612,500

It appears, from Parliamentary inquiries, that the sum collected for poor's rates, in 1803, in this county, was 120,592*l.* which is reckoned to be 4*s.* 7*d.* in the pound; this gives 526,220*l.* as the rental of the county; but I suppose the amount in the pound of such poor's rate to have been from an estimated and not from a real value, and believe that the present real rental of the land of this county may not be less than the above.

The rent of land near towns is much higher. In the neighbourhood of Kettering, by information of Messrs. Wright, part of the new enclosed common field adjoining the town lets from 2*l.* to 3*l.* 15*s.* per acre; the best meadows near Northampton let at 5*l.* per acre, and garden ground higher still, to 8*l.* per acre, and land for potatoes, with manure, from 4*l.* to 6*l.* per acre; also, old pasture land, fit for the growth of woad, (isatis tinctoria,) will let for three years at from 5*l.* to 7*l.* per acre; and, after that term, at the rent formerly given. — See woad.

Rent

Rent of a farm in Desborough, 1806, but has not been raised for many years.

	£.	s.	d.
86 acres let for	75	0	0
But the land-tax paid by the tenant, upwards of	5	0	0
Poor's rates expected this year, 12s. in the pound	45	0	0
	£125	0	0

Soil, dark heavy loam in tillage for wheat, beans, and barley or oats, and grazes well; keeps seven milking cows and eighty sheep, of which forty are breeding ewes.

The rent, from Lady-Day, 1807, to be advanced to 90*l.* per annum, taxes as before paid by the occupier.

SECT. III. — TITHES.

RESPECTING tithes in this county, all the modern enclosures seem to be tithe free, and, the old enclosures being at grass, the evil is not there severely felt; the principal burthen, therefore, seems to lie upon the open or common field parishes.

I am afraid there is little chance of this burthen being removed, except by enclosure. Mr. Young observes, that, in the enclosures of this country, the rectors have generally had a seventh in lieu of tithes, never a sixth, and their livings much improved by it; rarely

rarely any pretence to the contrary, and then unjustly. On an average, the improvement very considerable.

In this state of things, there is little chance of exonerating the open field land from tithes, except by enclosure; and, in that case, I hope such exoneration will never be omitted, (though it has been in other counties where enclosures have been lately made subject to tithes). Mr. Donaldson observes, the tithes may be reckoned at from 3*s.* to 3*s.* 6*d.* per acre, over the whole open field farm, including even that part of it which is annually under fallow.

The Lamport Society inform me that most of the antient enclosed lordships, and almost all the open fields, are subject to tithes; some of which are taken in kind, though it is much to be wished that custom were discontinued, as being an almost insurmountable obstacle to improvements. They are, also, of opinion, that, where the tithes are collected in kind, the loss to the occupier is much more than the sum stated above, and that it may be reckoned at 5*s.* or 6*s.* per acre.

As a proof that no injury is likely to be sustained by the clergy by commuting tithes and allotting land in lieu thereof, I shall quote the instance of the living of Kettering, lately enclosed, which, in the open state, was worth from tithes from 200*l.* to 300*l.* per annum, but is now improved by enclosure, abolishing tithes and giving land instead, to between 700*l.* and 800*l.* per annum. This information from Messrs. Wright, Kettering. — 1806.

Mr. Donaldson observes, the collecting of tithes in kind is very generally complained of; and, in those parishes where that mode is adopted, it certainly operates very powerfully against the introduction of

improvements

improvements in husbandry, while, at the same time, it is attended with very disagreeable consequences, both in a religious and political point of view, as it is often the means of creating such divisions between the clergyman and his parishioners as render the religious instructions of the former of little avail, while it loosens that chain of intercourse and connection which it is considered of so much importance to keep united. It has happened, (though to the credit of the clergy of this district be it said, the instances are very rare,) where the tithes have been let to a layman for the purpose of oppression, he has been known to exert that authority with which he was invested, and has not only taken the tenth stock of corn and the tenth cole of hay, but, also, the tenth lamb, pig, hen, egg, &c. nay, has even gone into the garden and taken not only the tenth part of the fruit, but, also, the tenth of the produce of the kitchen-garden. Under such circumstances as these, it may be asked, who is the farmer who would not feel himself aggrieved?

Many plans have been suggested in order to bring about an arrangement of tithes and to place them on some permanent footing. It has been proposed, that the proprietors should farm the tithes in each parish, or that a corn-rent should be fixed by the average price of grain for a number of years past; but that which appears most likely to meet general approbation, and which seems best calculated to do justice to all parties, is to give the clergyman a compensation for his tithes in land, because the depreciation in the value of money has been so great as to render any arrangement, which is to be founded on it as a medium by which the value is to be ascertained in future

future times, very uncertain; whereas, the produce of land must always bear reference to the value of money at the time.

Whether the open field parishes are to be enclosed, or allowed to remain in their present state, still it is humbly supposed, that a general arrangement might be made respecting the tithes, by giving a compensation in land, and that upon the same principles in which those, who act as commissioners under enclosing-bills, determine these matters, which is generally by finding the clergyman entitled to one-fifth or one-sixth of the tillage land and one-ninth of the pasture, or two-thirteenths of the whole parish.

Were this desirable object by any means obtained, improvements in agriculture, and the different breeds of stock, would no doubt take place; and, instead of the clergyman and his parishioners living in a state of contention or warfare, we should see them living as one great family, in harmony and peace, and the clergyman considered as the parent and preserver of that bond by which they are united.

SECT. V.—POOR'S RATES.

THE poor's rates vary greatly in this district: in the country villages they run from 2*s.* to 5*s.* in the pound of real rent, and, in the manufacturing towns, much higher; particularly when any depression happens to the manufacture. Mr. Donaldson observes, that, in 1794, owing to the late decline in the woollen manufacture, the poor's rates, at Kettering, were advanced

vanced so high as 12*s.* in the pound; and I understand, that now, in 1797, they are at that place even higher still. This is, doubtless, a lamentable fact, that so large a proportion of real property should be swallowed up by the parish poor, and calls loudly for a revisal of the present system, and an amendment of it, if possible.

Mr. Donaldson mentions particular instances where poor's rates are 3*s.* and 3*s.* 6*d.* in the pound, and which is, I believe, about the general average of farming parishes.

By an account published in the Monthly Magazine, November, 1805, and there said to be from parliamentary authority, it appears, that the poor's rate of this county, in 1776, amounted to 38,899*l.*; and, in 1803, to 120,592*l.* being, in this latter case, 4*s.* 7*d.* in the pound upon an estimated value.

By farther inquiries, in 1806, I find that the poor's rates in this county are extremely various. In some of the grazing parishes, where the population is small, they are little or nothing, except what is collected for county rates, church reparations, &c. while, in populous villages and some towns, owing to the failure of manufactures, they are 10*s.* or 12*s.* in the pound; and, during the scarcity of 1801, they were, at Kettering and some other places, actually 20*s.* in the pound and upwards.

Desborough poor's rates . . . 1801, 25*s.* in the pound.
Ditto . . . . . 1805, 10*s.* ditto.
Owing to some church repairs, 1806, 12*s.* ditto.

This parish has been many years enclosed, and has a declining manufacture of tammies, &c. The population,

lation, probably, about one-half commercial, and amounting, in all, to about eight hundred.

SECT. V. — LEASES.

THIS county may be said to be principally occupied (with a very few exceptions) by tenants at will. The few leases that are granted are for the term of either seven, fourteen, or twenty-one, years, and the general conditions, in modern leases, are, that the tenants shall pursue a certain rotation of cropping; that they shall not break up any old pasture ground, nor dispose of hay and straw from off the farm; and that they shall keep the houses, buildings, and fences, in proper order. The times of entry are at Lady-day, Michaelmas, and, not unfrequently, at St. Thomas's day, the former being the time for entering on a grazing farm and one of the latter on arable land. It is the opinion of many respectable farmers that the want of leases is a great check to improvements; and that a farmer cannot, in justice to himself and family, embark in expensive and lasting improvements, unless he has some certainty of enjoying the advantage thereof, at least for a time; and landlords, being often influenced by an idea that leases render their tenants independent, and lessen that respect which they would otherwise command, are, upon this consideration, prejudiced against granting them. I have now before me the following remarks made on this subject in Donaldson's report. "Granting leases" (says this remarker) "has a tendency to obliterate that principle of due subordination which ought to be preserved between

tween landlord and tenant; the latter feels his independence, and, like the peasant in our admirable Poet of Nature, delights to bring his toe so near the heel of his master as to gall his kibe."

It is to be lamented that narrow jealousies of this kind should stand in the way of public utility. If gentlemen will not grant leases, they should make improvements themselves and charge interest to their tenants; but I cannot think there is the least weight in the above observation. In the present state of society, every gentleman and other person, landlord or not, will have that due respect paid him which his behaviour merits. No landlord of feeling, benevolence, and good sense, will expect servile abject submission; and no tenant of common sense will withhold that consideration and respect which is due, not only to his landlord, but to every other gentleman and person of respectability. I should always, in my own mind, suspect the want of merit in that person whose system it is to extort respect, not by deserving it, but by authority and power.—W. P.

SECT. VI.—EXPENSE AND PROFIT.

The expense and profit of farming, or, indeed, of any other private concern, is rather a delicate subject, and people are not easily persuaded to go into real matters of this nature for the sake of laying them before the public. It may, in general, be observed, that few fortunes are made simply by farming, and none rapidly. The object of the generality of farmers is to procure a decent livelihood; to bring up their family,

family; and to make suitable provision for such family and for a comfortable old age; in which, if they succeed, it must be by persevering industry, and they may be deemed fortunate. I believe this is all, that, in common situations and circumstances, can be either expected or effected.

In a business so very much multiplied and divided as that of farming, it must naturally be supposed that the competition between the numbers employed in it must, by enhancing rents and diminishing the price of produce, bring the result to the lowest living profit; and that this is the case no one can doubt who is acquainted with the subject. In dear seasons, the reduced quantity and extra expense generally turn the balance against the seller, notwithstanding he is then generally abused with the charges of combination and monopoly.

In a business whose sole object is that of raising and producing the necessaries of life, no great profits ought to be obtained; the nature of the case will not admit it, and that this is really the case will be equally proved by facts as by arguments.

In taking a general review of the farmers of a country, how small a proportion will be found in any thing like affluent circumstances; and, of that proportion, the success of the greater part may be traced, not to the profits of their profession, but to local advantages, and circumstances distinct from farming.

In the common routine of management the farmer must be content with small profit; but even this, by persevering industry and length of time, may accumulate. Extra exertions, successfully made, may, sometimes, produce larger profits; as, in any other business, he, who excels his neighbour in skill and industry, will,

will, probably, exceed him in gains. The arable farmer has little to expect beyond a bare subsistence, unless he possesses such superior skill and industry, or makes additional efforts in some other way, not generally made by others.

In the grazing line a new field is opened for enterprise and speculation. The grazier is a kind of merchant; and on his capital and judicious management depends his success. The immense supply of London takes off all his stock when ready; and his profit, in a great measure, depends upon his laying in a judicious selection of lean stock upon reasonable terms.

The system of breeding superior stock is another subject for enterprize and the exercise of judgement and skill and success in which has been and may be attended with more than common profits; and, in this system, many persons are now exerting their abilities, and those who succeed, may, probably, get money. Upon the whole, it is pretty clear, that, if any thing considerable is made by farming, it must be by striking out of the common way and excelling the common stile of management. Sometimes fortunate connections may benefit the person forming them, and many persons better their circumstances by dealing in articles connected with landed produce; as, live stock, grain, pulse, malt, flour, butter, cheese, clover and grass seeds, timber, &c. or by getting employment as surveyors; but, in all common cases, the profits of farming will be found little enough, and no one, who knows the truth of the matter, will have reason to envy those who are making them.

In inquiring the profits of grazing, August, 1806, I was assured, by an eminent grazier, that many bullocks, which were hard growers, were now selling off at

at Smithfied at 6*d.* per pound, sinking the offal, by which they would make little or nothing more than they cost in 1805; the best Smithfield price for prime cattle was then 7½*d.* per pound, but for ordinary ones only 6*d.* could be got. He says, they were bought in dear in 1805, and that this year store-beasts are lower.

I was shewn a lot of Welch bullocks, bought in at 13*l.* 10*s.* each, which the grazier hopes will, in one year's grazing, make nine score the quarter each: this, at 7½*d.* per pound, would be 22*l.* 10*s.* each, or 9*l.* per head for a year's grazing, which, at two acres per head, is 4*l.* 10*s.* per acre.

I asked a grazier, whether one-third of the value of their finished oxen was gained by the grazier for one year's keep, trouble, attendance, and interest of capital; but he says, this is more than is generally done; though, in case of growing well, and coming to a good market, it may be expected.

Some good, and even large, fortunes have been made by grazing; but this is a mercantile and speculative concern, in which the land is but an auxiliary assistant; large capital and length of time are requisite to effect this, as well as judgement, perseverance, and industry. I suspect, however, that 5*l.* per acre may be made by successful grazing, either with sheep or cattle, of the prime sort, of which rent and taxes will probably take 2*l.*; and the 3*l.* gained will be little more than a fair living profit, when labour, risk, and interest of capital, are deducted.

CHAP. V.

IMPLEMENTS.

THE waggons, carts,* harrows, rollers, and common implements of husbandry, have nothing particularly singular in them, either to condemn or approve. Their form and figure is somewhat different to what may be found in other counties; but it is generally in those particulars that may be termed non-essential, and they are, commonly, well enough adapted to the uses for which they are intended.

On the ploughs, Mr. Donaldson has made the following observation:

"The principal implement, the plough, is a clumsy "piece of work, with a long massy beam, and an ill-"formed timber mould-board, better adapted as a "machine for four or five horses to pull along than for "the purpose of turning over a neat clean furrow. And "it cannot admit of a doubt, but that, with a well con-

* Dimensions of a dung-cart, from Mr. Donaldson:

	Feet.	*Inches.*
Length at top	7	6
Ditto at bottom	5	9
Breadth at top	3	9
Ditto at bottom	3	0
Height of sides	2	0

structed

" structed light plough, with a cast iron mould-board,
" (such as are common in many parts of England and
" Scotland,) a man with two horses a-breast, and with-
" out a driver, would do as much work, and to better
" purpose, than is here done by a man and a boy with
" three, four, or five, horses; indeed, by the practice of
" the county, this is clearly admitted, as a double fur-
" row plough, of a similar construction with the other,
" is pretty generally used, and which does double work
" with the same number of horses."

As I have frequently observed these kind of general remarksmade by persons whose good sense and experience should have taught them better, it may not be improper to enter into a slight discussion of this subject, and to shew the absurdity of laying it down as a maxim, that two horses will plough properly in all kinds of land.

What I have to say on this subject is in part anticipated by Mr. Smith, of Tichmarsh, who says: " I
" have heard and read much on this subject, and have
" tried a great variety of ploughs myself upon North-
" amptonshire soils; but, from its adhesive quality, (for
" the most part,) I have met with none which scour so
" well, or run so easy, as the ploughs in common use.

" It is ridiculous to assert, that two horses can
" plough a-breast in almost any part of this county; I
" mean, if land is ploughed of a sufficient depth, there
" is an adhesive quality in the soil, and no plough that
" I have ever seen will at times scour, so as to keep
" clean, consequently the draught must be considerably
" retarded. Double ploughs are only used upon light
" or gravelly soils, or in stirring strong soils in fallow-
" ing, and in dry weather only; if strong land be any

" way moist, they will not work at all." Thus far Mr. Smith.

It is very absurd to assert so general a thing, as that two horses a-breast will plough in all kinds of soil: the resistance of different soils, under different circumstances, and the force necessary to overcome that resistance, will vary as much as in the proportion of five to one; consequently, if two horses be sufficient in one case, one will be more than twice sufficient in another. Who can pay a moment's attention to that theory, which states the same force necessary to plough a light sand in fallow and a strong clay loam in turf. The force necessary, in ploughing with differently-constructed ploughs and under all circumstances, might be measured with great accuracy, by applying a well-constructed spring steelyard between the horses and the plough. An ingenious attempt at one, with a circular index to measure the force, was shewn me by Mr. Hanford, of Hathern, Leicestershire, of his own construction; but, not being exactly in his way, he wished to get it executed upon the same principle in Birmingham. From the experiments he has made, he believes, that in common work and upon soil of a medium staple, in point of adhesion, the force necessary to plough a furrow nine inches wide and six deep would be equal to what would raise, over a single pulley, a body weighing from two to three hundred weight; and, under different circumstances, upon various soils, I believe this force will vary from one to five hundred weight; and if, (as I suspect to be nearly the case,) an effort equal to that of suspending or raising one hundred weight, over a single pulley, be as much as a horse ought regularly to make

make for a day together, then the force necessary to plough a single furrow, under different circumstances, must vary from the strength of one to that of five horses.

Mr. Young observes, in one of his tours in Northamptonshire, " The Duke of Grafton's steward, " Mr. Roper, who came from Suffolk, brought with " him ploughs for the horses to go a-breast; but, on " trial, he found it would not do on the strong soils of " this county; the land was too much trampled, and " the plough too short and unsteady." I observed, on the light red soil at Brixworth, wellconstructed double furrow ploughs, ploughing up land for wheat-sowing, October 1797, and drawn some only by four horses, and some by five, and often with a driver only, no holder; these ploughs are much used on the light soils to plough fallow ground or stubbles; but, on the strong soils, and under the circumstances of ploughing up turf or hard ground, they cannot be used, nor any other, without sufficient strength of construction, and strength for draught, and the attendance of a holder as well as a driver.

In the introduction of new and some useful implements, I think this county behind many others. Few drill-machines have been introduced; and the best constructed machines for dressing or winnowing corn from the chaff have not yet met with the attention they deserve.—1797.

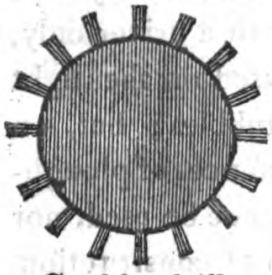
In a farther examination of this county, in 1806, I find more attention has been paid to machinery. Mr. Wright, of Kettering, shewed me a winnowing machine, at work, of the best construction, which would dress well sixty bags of beans in six or eight hours,

and

and made in the neighbourhood by a person who furnishes the county with these implements.

At Mr. Bull's, Pitsford, I noticed a wheel-sledge, for conveying ploughs, harrows, &c. from home to the different parts of the farm, and which is much superior to the common sledge, as going easier, with less friction, and, consequently, with less wear and tear. The following is a sketch of this implement.

In Daventry-field, I saw a ribbed, or plated, roller for breaking clods, seven or eight feet long, with double shafts, sixteen bars of iron being laid in, lengthways, the whole length of the roller, and projecting from the surface of the roller about two inches; the section thus:



This ribbed, or plated, roller, I think better adapted for breaking clods, and less liable to choke or clog up than the spiked roller.

Cook's drill, and other machines for drilling in beans and barley, have been introduced by Mr. Weston, of Brixworth; Mr. Pearce, of Chapel Brampton; Mr. Daniel Bosworth, of Holmby; and others; upon light soils. But, the majority of soils being heavy and tenacious, these machines are used but partially, and upon a small proportion of land.

Wheel-carriages have nothing singular; the most improved have iron axletrees, which, being but about one-third of the diameter of a wooden one, must, therefore, move with less friction. The best for harvest-use are also constructed for the fore wheels to run under the chest or body of the waggon to the middle

middle piece, upon which construction they will turn much quicker, and in a narrower space, without danger of overturning, than in the common form; but these improvements are not peculiar to this county, but well known and practised elsewhere.

Ploughs. The old, ill-formed, swing plough, is generally used upon the heavy soils; and, notwithstanding its uncouth appearance, I am assured it passes smoother through the soil, and does its work, on strong soils, easier and better than any other plough; this must be owing to its cutting these tenacious soils, wet or dry, with an acute angle, and thus clearing itself of soil or mud adhering. On the red or lighter soils, the new improved wheel-ploughs are introduced and approved, both one and two furrow ploughs, and are much more compact and neater looking tools.

Threshing-machines. I neither saw nor heard of any threshing-machine erected in this county, which I much wonder at, considering the quantity of corn grown therein; and cannot but recommend this ingenious and useful piece of machinery to the attention of the corn-growers of this county. I am assured, by a very respectable farming friend, who has erected one in Staffordshire, that smutty wheat, threshed by a machine, receives no taint from the smut-dust, the grain being beaten out in suspension, instead of lying solid on a floor: the smut-dust flies away, and the bladders may be blown or dressed out, so as to leave the quantity as clean and well coloured as the best and soundest corn, and no loss is sustained, except of the smutty part, which may thus be separated without tainting or staining the rest. I think this an advantage of some importance.

CHAP.

CHAP. VI.

ENCLOSING.—FENCES.—GATES.—COMMON FIELDS.

A CONSIDERABLE proportion of this county remains unenclosed. The waste lands are, indeed, trifling, but there is a little of that description: the bulk of the unenclosed land consists of common fields, which includes the land of eighty-nine parishes, in which small enclosures are generally made near the village, allowing for which, I suppose three-fourths of the county is enclosed land and one-fourth open.

Mr. Young remarks, Annals, No. xxxvi. p. 457: "In a grazing county, particular methods of plashing "hedges have been found necessary, for the bullocks "destroy every thing with their horns that is not very "strong; they, therefore, instead of the common me-"thod, plash down the largest branches the hedge "yields, with all the spray, so large and broad as to "spread five or six feet thick; but, where many cattle "go, the only secure way is, to leave very good and "strong rows of white thorn uncut; and, when so old "as to want renewing, to cut them off and keep cattle "out till grown out again."

The most general mode of enclosing is with post and rail, and planting white-thorn quicksets, the ex-

pense

pense of which is about 7*s.* 6*d.* the perch of five yards and a half, including every expense, till the quicksets are grown to a fence, but gates not included: but some fences have been raised at a less expense, by raising mounds, or banks of earth, on each side the quicksets, instead of post and rail. The expense of obtaining and executing the act of parliament has been generally very high.

There are some instances of stone fencing upon a considerable scale; an instance may be found at Brixworth, and similar ones in many other places; a little mud, scraped from the highways, is used as mortar; and the whole expense, carriage included, is about 7*s.* the perch of five yards and a half. The work is done by masons, at about 8*d.* per yard, running measure; but can only be practised where stone abounds on the spot, near the surface; it is only applicable to dry land, as no ditch can be made without undermining the wall; the advantages are, less waste of ground than by a quickset hedge, and they are, in some situations, preferred by the occupiers, who observed to me, that they could plough close to the wall, and, by that means, very little ground is lost: though I should prefer quicksets, yet I have much less objection to stone fencing on land of moderate elevation than on high ground, where shelter is wanted, and, indeed, necessary to the production of corn crops.

The gates have nothing particular; they are made of such timber or wood as can conveniently be met with.

The utility of enclosing common fields has been a subject much agitated, and many arguments have been advanced for and against the practice; some thinking

thinking it for and others against the public interest; and, in some few instances, the popular feelings have been so inflamed as to occasion riot and outrage. And it may, perhaps, still be doubted, whether a system of enclosing, and the application of the land that follows, in consequence, is, in all cases, a public benefit.

I think many of the arguments that have been advanced against enclosures are futile and weak: they have been charged with throwing the labouring poor out of employ, and diminishing population, which I believe, except under particular circumstances, to be an erroneous idea. Much employment is occasioned by the act of enclosing; and, if the land be kept in the best state of cultivation, it will employ many more persons after enclosure than before.

Mr. Young, in his various tours, has collected many valuable facts on this subject, from which it appears in general, that by the enclosure of a common field parish, and continuing it in cultivation, the population will be increased, and the poor's rates diminished.

But it is not from land enclosed and continued in cultivation that any evil can arise; on the contrary, nothing can be a greater improvement, or tend more to increase the produce. If any complaint be made on this head, it must be of rich common field land, enclosed and converted to pasturage, to permanent pasturage, which must have a tendency to depopulate, not only the particular parish, but the kingdom at large; this has sometimes been done upon a considerable scale, and the loss of population reported to me as evident to the slightest observer: and I have often observed, myself, that rich old pasture-parishes,

devoid

devoid of corn or cultivation, are amongst the thinnest population of the island; and it will appear, upon a critical examination, that they not only require but a very small number in management and occupation, but that they are calculated to support, and supply with food, only a small population: but as this kind of land, in a grazing system, can be managed at an easy expense, it is very probable that the net produce, in this system, may be more than that from a greater gross produce under a more operose cultivation; but it is not from net profit, but gross produce, that an estimate is to be formed of greatest public utility; as, in a national point of view, that system must be the most important that will support the greatest number of human beings with wholesome and comfortable subsistence from any given tract or breadth of land.

The following extract, applicable to this subject, is from a very profound modern writer, who says: "I was informed, by Dr. Franklin, that, in the savage state, where men live solely by hunting, there was seldom more than one family existing in a circle of five miles diameter; which, in a state of pasturage, would support some hundreds of people, and, in a state of cultivation, many thousands. The art of feeding mankind on so small a grain as wheat, which seems to have been discovered in Egypt by the immortal name of Ceres, shewed greater ingenuity than the feeding them with the large roots of potatoes, which seems to have been a discovery of ill-fated Mexico.

"This greater production of food by cultivation than pasturage shews that a nation, nourished by animal food, will be less numerous than if nourished by vegetable;

getable; and the former will, therefore, be liable, if they are engaged in war, to be conquered by the latter, as Abel was slain by Cain; this is, perhaps, the only valid argument against enclosing open arable fields. This greater production of human nourishment evinces the advantages of society over the savage state, as the number of mankind becomes increased a thousand fold by the arts of cultivation and pasturage; and their happiness is, probably, under good governments, increased in as great a proportion as they become liberated from the hourly fear of beasts of prey, from the daily fear of famine, and of the occasional incursions of their cannibal neighbours.

"But pasturage cannot exist without property, both in the soil and the herds which it nurtures; and, for the invention of arts and production of tools necessary to agriculture, some must think, and others labour; and, as the efforts of some will be crowned with greater success than that of others, an inequality of the ranks of society must succeed; but this inequality of mankind, in the present state of the world, is too great for the purposes of producing the greatest quantity of human nourishment and the greatest sum of human happiness, there should be no slavery at one end of the chain of society, and no despotism at the other. By the future improvements of human reason, such a state of society may, possibly, hereafter be established, as may, a hundred fold, increase the sustenance and the numbers of mankind, and a thousand times their happiness."—*Darwin Zoonomia, part ii. p.* 670.

As I was this summer (1797) over the greatest part of the county of Northampton, in the month of July,

I had an opportunity of seeing the crops on a great number of common fields, and believe, upon many rich soils, the wheat would rise to four quarters per acre; and, in the present system of management, about one-fourth of the land is under wheat; the other three-fourths being beans or other crops, as barley, oats, &c. fallow or pasture; in this case an acre of wheat, when the seed is deducted, will afford a year's subsistence for four persons, taking the average of men, women, and children; and, it is believed, that the other three acres would afford additional necessaries in the style that labouring people and their families live; and, consequently, that four acres of rich land, in the present defective common field system, would afford necessary subsistence, the whole year, for a family of four persons, (which is supporting a population equal to the number of acres,) with necessaries, and in as good a style as labouring people are now supported.

But will this be done upon rich land in permanent pasture, and applied to fatting sheep or cattle? instead of it, not a crust or crumb of bread is to be produced; and, according to my calculation, supposing stock bred, reared, and fatted, upon the land, the annual produce would not exceed 180lb. per weight acre, of beef or mutton, besides the appendages: this I suppose insufficient to support half the population, or near it, that may be supported by cultivation.

But it may be said, how is beef and mutton then to be produced; is it not equally necessary with corn? I answer, I have no wishes to prevent the growth and production of either. I only state the above to illustrate the position, that the enclosure of rich com-

mon

mon fields is sometimes gone into upon other principles than those of public utility.

I particularly put the question in the county: Is not more grain raised in open fields than upon the same land after enclosure? The answer is, this depends upon the nature of the soil, whether it be heavy or light, as the heavy soils are generally converted into pasture after enclosure, whilst the light soils are continued in tillage, and rendered much more productive by the introduction of lime and an improved cultivation.

Hence appears the greater utility of enclosing light than heavy soils, and unproductive wastes or commons, rather than rich arable fields. The heavy soils above referred to, being of a rich deep staple, are, generally, very productive of wheat and beans, under the present system of cultivation.

To the enclosure of unproductive commons, or wastes, I think no rational objection can be made, provided the interests of the poor be liberally considered; and, as this goes forward and the quantity of corn-land increases, the breadth of pasture-land may be also extended; but I think any system of enclosure, tending to contract the breadth of corn-land, is very impolitic.

Notwithstanding the boast that has often been made of the consequence of pasture-land, yet it appears clearly, that such land, considering its quality and staple, is much less productive, both to the state and the community, than inferior land in cultivation; nor will this appear wonderful, when it is considered, that the produce of the former is always spontaneous, with little effort of human labour; whereas, that of the latter is the value of the land, and that of the labour

bour bestowed on it united; whence it will follow, in spite of all prejudice to the contrary, that, if the former were partially put under a more operose management, it might be rendered vastly more productive to the public, though, probably, not of more net value to the owner or occupier; this, therefore, is an instance in farming, in which private and public interest clash with each other.

The conclusion to be made is, that it is for the public interest, that all land should be under a mixt system of cultivation, pasturage, and stock, which mutually aid and assist each other; that, under such system, enclosures must be always a public benefit; but, wherever they have a tendency to lessen the breadth of corn-land, however privately advantageous, they may justly be regarded as a public injury.

In a farther examination of this county, in 1806, I find that nearly twenty common fields have been enclosed since the former enumeration, and that the number now remaining unenclosed is about seventy: several of these I examined, as well as some of the lately enclosed ones, of which I give the following particulars:

Kettering common field, lately enclosed, about two thousand acres; rent, when open, 1*l.* to 1*l.* 10*s.* per acre, but, since enclosed, worth from 2*l.* to 3*l.* 15*s.* per acre; but some of the richest land near the town thrown to grass, or intended for it, the breadth of corn grown here will, in consequence, be lessened, but the quantity grown per acre doubtless increased. It is, however, an unquestionable fact, that, since corn has advanced in price, more attention has been paid to the common field culture; the fallows having been cleaner and better managed. Viewed the

the common fields of Warkston, Weekly, and Geddington, the latter large, of four or five thousand acres; the soil and management of all being similar, a good brown or darkish coloured loam, on a loose stony under stratum: on all the strong soils the course of crops is, 1. fallow, 2. wheat, 3. beans, pease, barley, oats, or vetches, but no grass-seeds sown.

On some of the light lands in Geddington field, temporary enclosures are made, by fences of brushwood and coppice underwood; and here the common turnip and Swedish turnip are grown, and promising for good crops, August 13, 1806. The average of all crops in these common fields may be three quarters per acre.

The wheat-fallows, in the common fields of Rockingham and Cottingham, as well as those of Gretton, are in good tilth, and more attention has been generally paid to clean fallowing, in consequence of the high price of corn, than formerly. As the common field system of management is in all places similar upon similar soils, I shall beg leave to detail that of Rothwell, as a general specimen, having examined it with considerable attention.

The parish of Rothwell is supposed to contain about 3000 acres, of which 600 acres may be enclosures near the town, and 2400 acres open land, in three distinct fields of about 800 acres each; these fields contain a considerable breadth of grass-land never in tillage; for the sake of round numbers, I will suppose 600 acres of arable land in each common field, and 200 acres of grass-land. The nature of the soil varies from a brown or snuff-coloured to a reddish brown light loam, more or less tenacious; some inclined to

sandy,

sandy, and others more loamy. About one-third of the whole is, also, a grey or darker coloured loam, stronger and more tenacious than the red land: in the familiar dialect, the former is called the red land and the latter the black land. By the above estimate, the red land in tillage will be one thousand two hundred, and the black land six hundred, acres, which, with six hundred acres of open grass land, and six hundred acres of enclosures, form the parish of three thousand acres.

The course of cropping is thus: one of the fields is always in fallow or turnips, and two in crops. The fallow field is thus conducted: about one-half of the red land is annually surrounded with a temporary fence of coppice underwood and fallowed for turnips, the other half of the red land being fallowed for wheat, and this alternately, the course upon the red land being, 1. turnips; 2. barley; 3. promiscuous crops, at the pleasure of the occupier, beans, pease, barley, rye, oats, or vetches; 4. fallow, for wheat; 5. wheat; 6. promiscuous crops, as before; and then turnips again.

The black land is invariably in the course, 1. fallow; 2. wheat; 3. beans, or other pulse or grain. The general distribution is, therefore, as follows:

Acres.	
400	wheat fallow.
200	turnips.
400	wheat.
200	barley.
600	beans, pease, vetches, barley, oats, or rye.
600	open grass land.
600	enclosure, near the town.
3000	total.

Grain is sometimes grown in the enclosed land, but in no great quantity: no clover or grass seeds sown in the open field. A large live stock kept, as follows:

The common field is occupied in what are called yard lands, but the distinct meaning of the term I could not learn. The parish consists of about eighty yard lands, each comprehending about thirty acres of the common field, with a right of pasturage for four heads and a half of cattle, and twenty-four sheep to every yard land. The number of horses I could not ascertain, but learnt that fewer are kept than formerly, in consequence of the horse-duty: I estimate them at five or six horses to every four yard lands, or a hundred to a hundred and twenty in the parish. The cattle are kept in two distinct herds, of about a hundred and eighty in each, and pastured on different sides of the parish, attended each by a herdsman and assistant. I counted one of the herds to near two hundred head, and questioned the herdsman, who said, the whole parish stock was eighteen score, or three hundred and sixty head of cattle, about one-half of which may be milkers. They are driven home at night, through the summer, separated, to each one his own, confined in yards or home closes during the night, and sent out again in the morning to pasture in the grass land of the common field. After harvest, they are left at large in the common field till wheat seed time. Notwithstanding the attendance of the herdsman, depredations on the skirtings of the crops are sometimes committed. The cattle are of various breeds; Holderness, Long Horn, and mixed breeds of their own rearing, are in general of a respectable quality and in good condition. The

land

land I consider as excellent pasture, and part is annually mown for hay.

The sheep attached to the common field consist of one thousand nine hundred and twenty, or twenty-four to every yard land. These graze promiscuously on the grass-plots of the fallow field; or, if the owner thinks proper, in his own enclosures in the day-time, and every night are folded on the fallows, each one's flock on his own land, the distinct occupations being dispersed and intermixed throughout every part of each field, and every occupier has land in all directions, part of it from two to three miles from home, the parish being four or five miles long and one to one and a half broad, containing about five square miles.

	Acres.
Eighty sheep will fold an acre in three weeks, or about seven acres in a season, the whole parish flock can, therefore, fold	168
The remainder of the wheat fallow, manured from the farm-yard with dung, &c.	232
Total fallow field . . .	400

The turnip land must generally go unmanured; but, being eaten by sheep folded thereon, it is put in condition for barley. The turnips are clean hoed and pretty well managed, and the wheat fallows are better managed than formerly, advanced prices having roused the farmers' attention.

The crops of this parish are, the present year, 1806, extremely respectable. The wheat generally heavy and bent under its own weight, or laid by the rain,

three to four quarters per acre, and other crops in proportion. Barley, after turnips or fallow, four or five quarters per acre; but, upon the third and sixth years of the course, one quarter per acre less. In general, every crop of wheat, barley, oats, rye, beans, pease, and vetches, (of the latter there being a considerable breadth reserved for harvesting,) may be estimated at from three to four quarters per acre the average, and in some places more.

A circumstance, very striking and singular to me, occurs very generally among the wheat and barley crops in the last year's fallow field, which is, that the crops and stubbles are quite full of the hop trefoil, (trifolium agrarium,) with an intermixture of melilot, (trifolium melilotis ornithopioides,) insomuch, that I could not persuade myself but that they (particularly the former) must have been sown, but was assured by my guide, who was a son of one of the farmers, that they were natural; they were, August 16, just going into blossom, and not at all injurious to the crops. These excellent plants will fill the stubbles, and would form a perfect matting of pasture herbage, were the land to be left alone to nature, but will be ploughed under for succeeding crops. I observed no similar appearances in the other fields, except, sometimes, the melilot in a more mature stage of growth and gone to seed, in which state it is a weed, and injurious to the crops. I suppose the profusion of these plants, in the last year's fallow field, to have arisen from the pulverization of the soil, and the showers of the present summer promoting the vegetation of seeds, formerly shed on the land, from ripe plants.

I consider Rothwell common field as a most interesting agricultural spot; and, though not of so rich

and

and deep a staple as Kettering, and some of the stronger land common fields, yet, from the extent of its red arable soil, (which it will always be profitable to keep in tillage in the up and down system,) its enclosure is more to be desired in a public point of view, and as an object of national improvement and general utility, than that of rich black land, which is often, after enclosure, thrown to pasture, and the growth of corn upon it given up.

The improvements to be effected by such enclosure would be, 1. an immense saving in the labour of occupiers, by concentrating their business, now so dispersed; 2. enabling them to practice a cleaner tillage, by which the produce of the land, though now respectable, may be increased one quarter per acre, which I believe may, in most cases, be effected by enclosing common fields; 3. increasing the quantity of pasture-food for sheep, by sowing clover and other seeds, now omitted, and thus increasing the numbers of their sheep; and, by the manure from them arising, adding to the staple and fertility of the soil; but, above all, 4. by improving the quality and healthiness of their flocks, (now injured by folding and promiscuous assemblage, and, from those causes, subject to rot, scab, and other fatal complaints,) and thus enabling the farmer to finish and feed up for the butcher a numerous increase from his flock, while, at present, he can only dispose of a limited number, of inferior quality and in a lean state, at the fairs in the town or neighbourhood, to be finished up by others. The quantity of wool produced would also be increased.

As a private speculation, and improvement of the revenue of the owner, the enclosure would answer well. The present rent of the open field is less than

20s.

20s. per acre; when enclosed and exonerated of tithes, its value cannot be less than from 30s. to 35s. per acre. The lowest improvement, therefore, after allowing for loss of land allotted to the tithe owner, must exceed 10s. per acre per annum, which would be a good per centage upon the capital employed, and upon the best possible security. The increase of the annual value of land in Kettering, by enclosure, has, from the best information, exceeded 20s. per acre.

It may be observed here, that the seeds of the plant, so abundant in the stubbles, hop trefoil (trifolium agrarium) of Linnæus, though not generally known, have found their way to market, and have been sold at high prices, more than they are worth, under different names, particularly having been called real cow grass, a new variety of perennial clover, &c. and has occasioned some disputes. The real value of the plant is upon a par with that sold under the name of trefoil, though really a medick, the medicago lupulina of the Linnæan botanist.

From the observations I have made in this county, I have no doubt, but, if the average produce of common fields be three quarters per acre, the same land will, after a little rest at grass, and the improvements to be effected by enclosure, produce, on an average, four quarters per acre; and I believe that the produce of every common field may be increased in a like proportion by enclosure and an improved cultivation.

The Lamport Society are of opinion, that all grass land, that is suitable for the growth of turnips, which includes a great breadth of land in the kingdom, ought to be broken up, and kept in an alternate system of tillage and pasture; this, by being properly cultivated

vated and by the introduction of lime, would produce a great quantity of grain, and might be improved in every tillage, so as to yield a greater produce of pasture, when at grass, than at present; and would thus yield a greater quantity of provision to the community, as well as pay more to the occupier and owner by such cultivation. Some clays, also, produce but little grass, and are liable to rot sheep, where the scite is favourable to the discharge of its surface water; these, also, ought to be drained, broken up, improved by tillage, and laid down with better herbage; but, respecting rich strong loam pastures, these, as well as the natural meadows, should remain at grass.

CHAP. VII.

ARABLE LAND.

SECT. I.—TILLAGE.

ON the strong or medium soils of this county, ploughing is performed by a man and a boy, with three, four, or five horses, according to the strength of the soil and other circumstances; nor can ploughing, upon these adhesive soils, in many cases, be done of a sufficient depth, without a strong tool of proportionable weight, and which requires considerable strength as well to guide it, as to draw it forward.

On the light soils, I have often seen a two-furrow plough, drawn by four horses, or sometimes five, with only a man to attend it: in other cases, attended by a holder and driver.

The tillage given for wheat is sometimes a fallow, and sometimes only the single ploughing up of an oat, barley, or other, stubble, or clover ley, and harrowing in the seed; but, on fallows, the seed is more commonly ploughed in.

For beans, sometimes a single ploughing of a turf or stubble, harrowing in the seed; but, much more generally, they are sown upon a barley or wheat stubble, and ploughed under furrow.

Tillage,

Tillage, for barley, in common fields, is sometimes a summer and winter fallow; in other circumstances, barley is sown after turnips, with one or more ploughings, according to the time of eating off the turnips. In lightish enclosed land, barley is often sown upon one ploughing of a clean mellow turf; it is, also, sown after cole-seed, with the same tillage as after turnips.

Oats are sown upon one ploughing of a turf or stubble.

Rye, for a crop, has the same tillage as wheat, and pease are sown upon one ploughing of a turf or stubble, and most commonly sown broad cast, very little drilling being practiced in this county.

Vetches are generally sown upon once ploughing of a wheat stubble, the wheat having been sown upon a fallow.

In general, the tillage of a wheat fallow consists of a first ploughing, given in spring, a stirring lengthwise or across, given in May or June; the ground then well harrowed and the manure got on, another ploughing given in August to plough in the manure and lay the land in its proper form; in October, the land is harrowed down, the seed sown, and ploughed in. When the land is harsh and weedy, an extra ploughing is given.

The tillage for turnips is nearly the same, except being earlier in the season. The first ploughing should always be in autumn; the second, a cross ploughing in March and well harrowed down; the third ploughing in May, the land again well harrowed and the manure got on; the fourth ploughing in June or July and the seed sown, which, with good and clean hoeing and hand weeding, in August, completes the tillage.

The

The Lamport Society is of opinion, that the last ploughing for a crop should be given to all land, at or near the time of sowing.

SECT. II. — FALLOWING.

FALLOWING for wheat is very general in open fields, and it is seldom grown in any other way. I was assured, more than once, that the first ploughing is scarcely ever given before May or June; this I think an omission, and that the second ploughing should then be given, as the winter frosts would certainly ameliorate these tenacious soils, especially if they were laid round and dry. The ground receives three more ploughings, and is sown in October. In some fields, a part of the fallow is suffered to lay till spring, and is sown with barley in March or April. Fallowing is indispensable in these open fields, and is the life and main support of the cultivation, and often followed by very respectable crops. Nothing could be done in heavy land, constantly in tillage, without frequent fallows, by which weeds are destroyed and the land ameliorated. On light land, in open fields, I often saw considerable quantities of turnips sown. Fallows are considered as less necessary in enclosed land, turnips or cabbages being generally substituted in their stead as a cleaning crop; I, nevertheless, found many instances of fallows upon cold or strong enclosed land, nor can such land be advantageously cultivated without fallow, upon any considerable scale.

The

The following note on fallowing I have from a gentleman of judgment and experience.

" Whoever farms strong clay lands, will (notwith-
" standing he adheres to the maxim of sowing ame-
" liorating crops) find it necessary to make fallows.
" When land is going foul and stubborn, it is the
" only mode to recover it, and it is sure to make a
" grateful return for the indulgence."

When fallows are limed, it should be laid on after the ground has been ploughed across and harrowed down; the lime should then be well harrowed into the pulverised soil. In the use of muck to fallows there are different opinions: some lay it in a heap, to rot down, till it will cut with a spade, before laying it on the fallow; others take it fresh from the yard, spread it immediately, and plough it in. Having tried both methods, I give the preference to the latter, from conviction of its ameliorating and breaking the soil more than the other; it will go farther, and, when ploughed after the crop, rises in a better state.

August 13th, 1806, viewed a twenty acre fallow for wheat, belonging to Mr. Wright, of Kettering, and being two years enclosed from the common field of Kettering. The soil a dark strong loam, and fallowed in a capital style, being intended to lay down for permanent pasture, by sowing red and white clover among the wheat in the spring. Part has been ploughed twice; and, where less kindly, three times, and the whole has been well harrowed down for the manure, which is well reduced, rotten dung now lying in a heap in the field for part of the fallow, and the other part has been and will be folded with sheep, of which a hundred and fifty sheep fold two acres per month, or ten acres in the season. This is stronger folding

folding than in some other places, and a little dung is meant to be strewed along the hollows where the sheep never lay; as the land is meant to be laid down in the best condition, the manure will be got on and the whole ploughed again immediately, then to lay till October, when it will be again harrowed down and sown with wheat, three to four bushels per acre, and the seed ploughed in, from which a produce of five quarters per acre may be expected.

SECT. III. — ROTATION OF CROPS.

THE rotation of crops in this county is subject to great variation. In the open fields, the most general course is, 1. fallow; 2. wheat; 3. beans; but often, instead of beans, other promiscuous crops are introduced, as, pease, vetches, barley, oats, &c.

In Rothwell common field the strong soil is in the course above stated, but the red land is in the course, 1. fallow; 2. wheat; 3. beans, pease, or other crop; 4. turnips; 5. barley; 6. beans, pease, or other promiscuous crop; and then fallow again, and the same round as before.

On some of the light soils in Geddington and other common fields, enclosures are made for turnips by temporary fences, and clover is also sown. Here the course is, 1. turnips, common or Swedish; 2. barley; 3. clover, for pasture, or hay, or seed; and, 4. wheat. The common fields are cropped by antient custom, which cannot be altered but by general consent. If the parties could agree to it, a five tilth system seems well

well adapted to open fields on good land, thus: 1. fallow; 2. wheat; 3. beans; 4. clover or vetches; 5. wheat: or, 1. turnips; 2. barley; 3. beans; 4. clover or vetches; 5. wheat. Either of these sytems would yield support for cattle as well as grain and pulse, the proportion of wheat would be increased, and more live stock might be kept; and, consequently, more manure made, and barren fallows would be less frequent.

In the common field, near Cottingham, between and Rockingham, a good many potatoes are grown. One of the greatest improvements in the common field system would be the introduction of some useful crop upon the fallow; and this, if not done every time the fallow year occurs, may be done every other time, thus: 1. fallow; 2. wheat; 3. beans, or other promiscuous crop; 4. potatoes, or other fallow crop; 5. wheat; 6. promiscuous crop; and then fallow again, and the same round as before.

The Rev. Mr. Mastin, of Naseby, gives it as his opinion, "that, in open fields, it would be an improvement upon the common system to sow broad "clover and ray grass with beans, for winter and "spring feeding, prior to a fallow." He adds, "I "have almost persuaded the farmers to do it at "Naseby."

Mr. Wright, of Kettering, states, that their common field, before enclosure, had been fallowed in a good style, and that the course of cropping had been varied from the common mode, sometimes thus: 1. fallow; 2. wheat; 3. beans; 4. coleseed; 5. barley; 6. clover.

ENCLOSED LAND

On the red soil of Glendon, Mr. Colman's course on the best land is, 1. oats; 2. wheat; 3. turnips; 4. barley, with seeds, and three years at grass. On weaker land, 1. oats; 2. pease; 3. turnips; 4. barley, with seeds, and at grass three years. No wheat grown on this soil.

On the better stapled red soils, it is common to take three crops in a tillage besides turnips, and is either two crops before turnips and one after, or one crop before turnips and two after.

Thus, on the red soils of Brixworth, 1. barley; 2. wheat; 3. turnips; 4. barley and seeds, and at grass for two or three years; or, 1. oats, or barley, or wheat; 2. turnips; 3. barley; 4. wheat, with seeds, sown in the spring, and left at grass for two or three years; are not uncommon courses.

Notwithstanding the objection that has been made to two crops of white corn in succession, that objection fails where the land, as here, is of sufficient richness and staple to bear it, and though wheat, immediately after barley, has, in many cases, been condemned, and very justly, yet, I am assured no inconvenience is experienced from it here, and that the crop is equally productive as after any other preparation. Even the red light soils have a specific gravity and firmness of texture which is not destroyed or rendered too light and oozy by this system, which would be the case on many inferior soils, insomuch that the wheat would be thrown out of the ground after the winter frosts. The red soils are often dry enough to be thrown quite flat for wheat, and yet have

have loam enough in their staple to support this system.

The system of sowing wheat after barley, though exploded in many countries and justly considered in general as a proof of barbarism and ignorance, is practiced here by sensible and intelligent farmers with success. Lime is used upon this land freely.

But, the course of crops most universally approved upon the red land is, 1. a crop at one ploughing of the turf, wheat, rye, oats, barley, or pease; 2. turnips; 3. barley, with seeds, and then at grass for two or three years; but, though this is the theory, the practice is often as before stated, and two crops are taken either before or after the turnips, which course is practiced and defended by some good farmers, who use lime and other manure freely, and say the system is productive and profitable, but condemned by others, who say, taking two white crops, after turnips, will exhaust the land too much to make it graze profitably after; on which account, it may be preferable to take the two crops before turnips, and one after.

Barley is the favourite crop of the best farmers upon the red land, and seems more attended to by them than any other: it is supposed to exhaust the land less than wheat. The barley I have seen upon this kind of land this season, 1806, are from three to five quarters per acre; but the general opinion is, that barley, this season, is not more than two-thirds, or, at most, three-fourths, of a crop.

Upon the strong dark loam, or black soil, Mr. Wright, of Kettering, proposes, and means to practice, the following course: 1. oats; 2. wheat; 3. coleseed; 4. barley, with seeds, and then at grass during pleasure. Another of his courses will be, 1. vetches,

or

or beans, or pease, at one ploughing; 2. wheat; 3. coleseed; 4. barley, with seeds, and then at grass during pleasure. Mr. Wright believes this soil will, in Kettering, form a good feeding pasture, fit to carry the largest oxen or sheep.

Mr. Donaldson names the following course of cropping upon strong land: 1. fallow or turnips; 2. wheat; 3. beans or pease; 4. barley and seeds; 5 and 6. pasture; 7. beans or oats, and then fallow again and round as before.

The red soil near Kettering is sometimes put under a harder course than above named, and made much freer with to advantage, being, in that neighbourhood, of excellent staple and fertility, and seed clover being grown upon it, followed immediately by wheat. The course thus: 1. oats or pease; 2. wheat; 3. turnips; 4. barley; 5. clover, pastured to Midsummer or mown for hay, and then shut up for seed; 6. wheat; 7. turnips; 8. barley, with seeds, and then at grass for two or three years; and, though this may seem hard tillage, this excellent soil, with spirited management, will well bear it.

South of Northampton, towards Stony Stratford, are several parishes in which the soil is generally a strong grey loam on limestone; in some places lighter, inclining to a gravelly loam. In this district, Mr. Roper, steward to his Grace the Duke of Grafton, shewed me the neighbourhood of Potterpury and his own occupation. His course of crops has been generally, 1. wheat; 2. beans, pease, or oats; 3. turnips; 4. barley, with seeds; then at grass one or two years. As he has found reason to believe he should grow more wheat per acre on fallow, he means to vary thus in future: 1. fallow; 2. wheat; 3. beans or pease;

4.

4. barley ; 5 and 6. grass; 7. perhaps, oats; 8. turnips; 9. barley, with seeds; and then two years at grass, and thus to vary it alternately. He is of opinion that the upland here will not, in general, graze profitably for more than two years.

Upon a very capital grazing farm in this county, and where the growth of wheat is no object, three pieces only, of about twenty acres each, are kept in tillage, under the course, 1. turnips, part common, part Swedish; 2. barley; 3. oats; and then turnips again, no other ground ever ploughed. The turnips are hoed and cleaned in a garden-like style and eaten on the spot by lambs. Barley, a clean crop, four to five quarters per acre. Oats, clean, but not strong; about the same produce with the barley. No clover sown. I think the occupier would find it his interest to add a fourth piece, and the course to be, 1. turnips; 2. barley; 3. clover; 4. oats or wheat; and believe the land would thus sustain greater crops.

SECT. IV. — CROPS COMMONLY CULTIVATED, THEIR SEED, CULTURE, PRODUCE, &c.

THE crops, in common cultivation, in this county, are as follow:

1. Wheat, which is cultivated in large quantities both in open fields and in enclosures, upon the red and friable soils. In common fields, it is universally sown on fallow, about three statute bushels per acre, in October: the general produce about three quarters, but sometimes rising to four quarters, per acre.

On the red and friable enclosed land, or on the more tenacious heavy loams, wheat is often sown on fallow, for the particular management of which see Fallowing. The quantity of seed sown here is more than I have heard of in any other country. I am assured, by Messrs. Wright, of Kettering, that it is common to sow from three to four statute bushels per acre, ploughed in in October; and that, on the best soils, there is no economy in sparing the seeds; and that, on a well managed and well manured fallow, five quarters per acre may be expected in return.

The manure used on wheat fallows in this country are farm-yard dung and the folding of sheep. Of the former, about twelve cart-loads per acre; and, of the latter, a hundred and twenty sheep will fold about ten acres through the summer. And this is practiced pretty generally, not only in common fields, but on the fallows in enclosed land.

Wheat is also sown upon one ploughing, of a clover ley or of pasture land, that has lain more than one year, or after vetches, or oats, or barley, at one or more ploughings, according to time and circumstance. When sown upon one of these stubbles, ploughed up lime is sometimes freely used, about ten quarters per acre. Wheat is, also, sometimes sown after potatoes.

The varieties cultivated are the red lammas, or red straw: this is the most common: also, the Hertfordshire white and Essex dun; also, some instances of spring wheat, a bearded wheat. This, in the few instances I saw, seemed to be well filled, and likely to ripen about a fortnight after the lammas wheat. Mr. Wright, of Kettering, had, 1806, a large field of the red lammas wheat, which, being injured by the worm,

worm, in patches, appeared too thin. These vacancies he filled up, by sowing spring wheat in April; at the same time, clover was sown all over the field. The original lammas wheat was reaping August 12; the spring wheat, promising to fill and ripen well, but not being ready for the sickle, was meant to be left in patches for about a fortnight. One circumstance, unaccountable to him and me, has attended this. The clover is universally and strikingly much better with the spring wheat than elsewhere, though sown by the same hand at the same time. It was slightly harrowed and rolled in this crop, on strong dark loam, was not level, but various, apparently from three to five quarters per acre.

Wheat is here very generally sown broad cast, and I am informed, that, in the few experiments that have been made in drilling wheat, the result has, pretty uniformly, been unfavourable to the practice. Near Charwelton, I observed wheat in rows at fifteen inches asunder, but too thin on the ground and inferior to broad cast. Mr. Roper's opinion is, that drilling, in wheat or other grain, will not, by any means, answer on a heavy soil, which mixes to dirt with every shower, so as to impede the operation of any machine. This county produces wheat much more than sufficient for its own consumption. I estimate, from data, that will be farther explained, the growth of wheat at 60,000 acres, and the produce, over and above the seed, at three quarters per acre; and that, with the assistance of the rye grown, it supplies bread for 300,000 persons, or 168,243 more than its own population. The wheat harvest is in August, and the corn reaped by hand with a sickle, bound and set

up in shocks; and, when sufficiently seasoned and dry, is carried to the barn or put up in stacks.

As wheat is so necessary an article of European subsistence, and particularly in England, where a scarcity of it cannot occur without occasioning not only great inconvenience but absolute distress to the lower and more numerous orders of the community, who have not other resources and the command of substitutes, and is even a severe privation to the middle orders of society, every thing that can tend to promote an increase in quantity or improvement in quality must be an object of public utility, I shall, therefore, in hopes of rousing a more general attention to the subject, enter into the following discussion on the

DISORDERS OF WHEAT.

THE disorders to which wheat is principally subject are the three following: 1. stricken or blighted ears; 2. the mildew; and, 3. the smut. These disorders are perfectly distinct and independent of each other, and, the writer of this believes, without the least natural connection, and he writes from considerable experience, having cultivated and grown on his own account, and not without considerable attention to the subject, in the space of twenty-five years, about 1000 acres of wheat.

1. Stricken, or blighted, or black, ears, are a total putrefaction and decay of the grain in the ear, the whole becoming a sooty powder, owing, I suppose, to a defect in the usual impregnation at the time of flowering. These decayed ears do no injury to the other

other grain, the sooty dust being washed off or wafted away by the wind and rain before harvest; the damage is, therefore, simply the loss of so much grain as is thus affected, which I suppose never amounts to one-hundredth part of the crop. But few crops are without a small number of these ears; but, when they are more abundant than usual, I am of opinion, from observation and experience, that such wheat ought to be rejected as seed, as being more liable to produce blighted ears than the produce of a sound crop.

2. The mildew. This disorder attacks the whole plant, and renders it feeble and flimsy, incapable of forcing a full and plump grain, generally leaving it shrivelled and lean, deficient in specific gravity, and less productive of flour. The straw is discoloured in streaks, and the crop sometimes greatly injured.

This disorder I fear has its source in the atmosphere, and that it is above human power to prevent. I think it most prevalent in wet and humid seasons, and when there is a scarcity of sunshine during the summer months, the solar heat being so necessary to the perfection of vegetable seeds. I am, however, of opinion, that land, in the best cultivation, is least liable to this disorder, though it sometimes attacks strong crops. Fallow or clover ley I believe to be less liable than stubble crops or than those upon the ploughing up of an old turf, and strong or loamy soils to be less affected than weak or loose ones; the preventative, therefore, must be, to sow, in due time, upon a good preparation. Lime I also believe to be a good preventative, particularly on land not used to it. Sir Joseph Banks, in an essay on this subject, has attributed this disorder to microscopic funguses; I have no doubt of the accuracy of this eminent and indefatigable

indefatigable naturalist in discovering such upon the diseased plant, but believe them to be the effect and not the cause of the disorder, and that the putrescence of the decaying plant predisposes it to such productions. I fear no remedy remains but good preparation and seasonable sowing.

Mr. Marshall states, in his Rural Economy of Yorkshire, that meslin, or a mixture of wheat and rye, is never affected by the mildew, and that the nature of rye is such, that a very small quantity of it, sown among wheat, prevents this destructive effect. This, he says, is there a popular opinion among professional men: see vol. ii. of that work, p. 13.

3. The smut. The disease often does great mischief in a wheat crop, destroying part of the produce and injuring the rest. It consists of the grain being filled with a black fetid powder, instead of a sweet white flour, is very disagreeable to the smell, but loses such offensive smell in the heat of the oven in baking, but blackens the corn and the bread produced from it, and is very unpleasant; but I have not heard of its being unwholesome. The loss of produce by this disorder is considerable, amounting to the whole affected, and lowering the value of the rest, sometimes one-fifth of the whole.

When corn is unfortunately affected by this disorder, the following methods are proposed to restore its quality, but the bad grains are lost. Wash it clean in water and dry it upon a kiln gently and carefully, the grain thus becomes of a good colour and quality, but the operation requires care and attention, and to be nicely performed. Or, when the prevention has been neglected and the crop is smutty, to make the best of it, keep it in a stack till the ensuing sum-

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mer till perfectly dry, when the bladders, or smutty grains, will many of them remain whole and may be dressed or blown out, or the dust of the broken ones will fly away, so as not to taint the sound corn; or, whip out the principal wheat against a board instead of threshing, which will thus be little if any tainted, and thresh the remainder out with a flail. Upon this discoloured or tainted part the following methods of cure have been attempted: sift a little powdered loam and quick lime upon the threshing floor, to absorb the smut, which will blow or dress out in cleaning; or, 2. rather clean off the wheat at the threshing of every flooring, and, upon the black dust remaining, sift a little quick lime to absorb it, and brush both together out of doors; this will prevent the smutty powder accumulating or tainting the next flooring. A friend of mine, who has erected a threshing machine, assures me, that smutty wheat so threshed is cleansed from the smut by that operation; as, being beaten out in suspension, instead of laying solid on a floor, it receives no taint or discolouring, and the bladders, or unsound corns, may be dressed or blown out, thus losing only the smutty part, without tainting or discolouring the quantity: this I think important.

The prevalence of this disorder in wheat makes it necessary thoroughly to discuss the subject, and it is admitted by every good farmer to be owing to the want of attention in the choice of seed or preparation. There are very few farmers but what have at times grown it, but always by neglecting the proper precautions. The subject is the more important, as I understand smutty wheat is very prevalent both in this county and elsewhere the present year, 1806; and, as

remedies

remedies and preventatives are so very well known, it is certainly a disgrace to the person who grows it.

A relation of mine, who practiced farming with success for more than half a century without being troubled with the smut, and who is still living, gives the following recipe, by which he always escaped. "Sow clean sound seed, and, if you buy it, unless you can depend upon the grower, go yourself and examine the sort, in threshing or at dressing up, and, if foul or tainted, reject it." He attributes the smut to sowing a tainted seed, and believes that clean sound wheat needs no preparation.

Respecting my own experience, I never chose to hazard the sowing of any other than tolerably sound clean corn, and this usually immersed in brine, sufficient to swim the light seeds; these were skimmed off, and the seed dried with quick-lime. When this was done, the produce was always good marketable corn; but, if omitted, was sometimes, in a small degree, tainted with smut.

By the experiments of the Lamport Society, it appears, that washing wheat, ever so little infected with smut, repeatedly in the same brine, will soon foul such brine, so as to render it unfit for farther use, and more likely to do harm than good, as the contagious nature of the smut is soon communicated to the brine; and that a fresh liquid is necessary to each parcel, or operation upon the wheat.

Mr. Bull, of Pitsford, Northamptonshire, states an experiment of his own upon the smut in wheat, and in which smutty wheat was used for seed, and the produce perfectly sound, clean, and healthy; it was simply thus: the smutty wheat was washed in many waters,

waters, till perfectly clean, and was then dried by quick-lime, slacked in boiling water; the result was so perfectly successful, that he has no doubt of this being a complete cure for the smut in wheat.

A solution of arsenic, in water, has also been used to wash or sprinkle seed wheat, preparatory to sowing, as a preventative to smut; and I am assured, with success; the solution should be a weak one in boiling water, sprinkled on the wheat, which must be afterwards dried with lime.

Mr. Marshall states, in his Rural Economy of Yorkshire, vol. ii. page 10, that a person, to his knowledge, since he prepared seed wheat with arsenic water, had not experienced a sensible injury from smut; his method was to boil one ounce of white arsenic, finely powdered, in a gallon of water, from one to two hours, and then to add as much water, or stale urine, as will increase the quantity to two gallons: this is sufficient for two bushels of wheat, which it will thoroughly saturate. It may be afterwards sown with or without drying with quick-lime.

Mr. Bull, of Daventry, to prevent the smut, advises to immerse the seed wheat in boiling water, for not exceeding three minutes, and then to dry it with lime-water, or with quick-lime; no smut is then to be apprehended or feared. Five minutes immersion, he admits, would destroy vegetation, which three minutes, he assures me, will not; if the immersion be over night, spread it on a floor, with a sprinkling of lime-water, and it will be dry enough by next morning to sow.

The following experiments for the Lamport Society, on this subject, were made, by their desire, by Mr. Thomas

Thomas Bosworth, of Highgate-House, in the autumn of 1798, and the succeeding summer.

Ten beds of land, of one perch each, separated by spaces of three feet wide, upon which wheat was never known to have been sown before, were each sown with one pint of wheat, selected and prepared as follows:

No. 1, sown with a pint of wheat, as clean as could be procured, without any preparation.

Result, the crop less smutty than crops in general are, though not without smut, nor quite so clean as the seed.

No. 2, sown with a pint of wheat the same as No. 1, steeped in strong brine, made with salt and water only, and dried with lime, as was all the rest that was wetted.

Result, the crop cleaner than No. 1, it being difficult to find a smutty ear.

No. 3, sown with a pint of the same wheat as before, but steeped in brine, in which smutty wheat had been steeped.

Result, the produce considerably infected, insomuch that a handful could not be taken without several smutty ears.

No. 4, sown with a pint of wheat, the same as before, to which was put a small quantity of smut dust, and mixed together.

Result, the crop one-sixth part smut.

No. 5, sown with a pint of the same wheat, as before, but mixed with a greater quantity of smut dust.

Result, the crop nine-tenths smut.

No. 6, and all the following, sown with wheat, taken from a very smutty crop, this without any preparation.

Result, the crop full nine-tenths smut.

No.

No. 7, sown with very smutty wheat, steeped in soap-boilers ley.

Result, the crop one-fortieth smut.

No. 8, sown with very smutty wheat, but carefully washed in clean water.

Result, this crop was not so clean as No. 7.

No. 9, sown with very smutty wheat, steeped in strong brine of salt and water.

Result, a greater proportion of smut in this crop than in No. 8.

No. 10, sown with seed taken from the cleanest ears, that could be selected from a very smutty crop.

Result, the crop one-fifteenth smut.

General remarks. The crop, No. 1, being more smutty than the seed, is a strong presumptive proof, that, should growers of wheat generally omit preparing their seed, the proportion of smut would rapidly increase.

And the produce of No. 2 being cleaner than No. 1, is an unequivocal proof of the utility of thus preparing seed.

Also the foul produce of No. 3, is a sufficient proof, that, when the brine has been fouled by smutty wheat, it is unfit for farther use, and more likely to do harm than good.

The experiments, No. 4 and 5, clearly prove the infectious nature of the smut dust, and the tendency of corn to smut, by having been in contact with such dust, and shews that the utmost attention should be paid to the state of such sacks in which seed wheat is put; and that the cleanest and soundest wheat may be fouled, and disposed to produce smut, by imbibing such dust.

No. 6, proves the tendency of smut corn to grow worse,

worse, unless preventatives are used. No. 7, 8, and 9, sufficiently prove the utility of washing the seed in leys, clean water, or brine; and that the expense of salt is unnecessary, as being inferior to pure water. The society very justly observe, that a machine to wash seed wheat in water or leys, effectually and with despatch, would be of very great value. No. 10, proves that wheat may be considerably infected with smut, without shewing it to the nicest observer; and confirms a former observation, that, if growers of wheat neglect preparing their seed, the proportion of smut will soon be very much increased.

The general result from the whole is, that, as the prevention and cure of this disease is certainly within every one's reach, it is a disgrace, as well as loss, to every farmer who produces it, and therefore ought to be avoided and done away, the first step towards which is the choice of sound, clean, and healthy, seed. It would be as absurd to sow smutty wheat upon well-prepared land as to put a scabby ram to a choice flock of ewes, although the disorder in each may be easily curable: the next step is, if there be the least suspicion of taint in the seed, or, indeed, if there be not, to wash it clean in a proper fluid, as common water, cold or hot, arsenic water, brine, or, above all, in leys of pot ash, or other ashes and water, and dry it with quick-lime, or lime-water, to make it fit for use; no smut is then to be apprehended or feared; this is similar to giving a ram a dressing to prevent infection, and, as a preventative in either case, if judiciously applied, can do no harm, and will, if wanted, have the effect desired.

As salt is become so dear an article, I think the washing in warm leys is to be preferred, particularly

as

as the experiment, No. 7, gives a preference in its favour. To finish this subject, as the growth of smut in wheat is so very common, and the evil arising therefrom very great, I think it quite worthy the attention of the Board, to offer a premium for the best machine for washing seed wheat, in water, brine, or leys, effectually and with despatch.

2. Rye is pretty much cultivated here as a crop, particularly in the vicinity of Northampton, and upon light lands elsewhere; the cultivation and quantity of seed sown the same as wheat, but the produce one quarter per acre more, rising from four to five quarters per acre; but it is less sown now than formerly, as, by the use of lime freely, light soils are rendered much fitter for wheat. I estimate the growth of the county at one-twentieth that of wheat, or 3000 acres, and the produce four quarters per acre more than the seed.

Rye is also frequently sown on stubbles, ploughed immediately after harvest, as spring food for sheep, which are folded on in April; this is a good practice, as sheep food is then scarce, and the land may be cultivated for turnips after the rye is eaten off, for which the land will be in good order.

3. Barley is cultivated in a large proportion, either after turnips or coleseed, in which case it should have at least two ploughings; is sometimes sown on a clean mellow turf, once ploughed, and sometimes after grain or pulse, in which case the land is winter fallowed; also upon strong land, both in common fields and enclosures; it is sometimes sown upon a complete fallow, with good success, and a heavy crop: the kind cultivated is almost always the long ear, (hordeum distichion,) but sometimes the battledoor, or sprat barley, (hordeum zeocrithon,) which is supposed less liable

liable to lodge in a strong crop. The quantity of seed sown is four bushels and a half per acre, and the produce from four to five quarters.

Barley is the favourite crop of the red and light land soils, and seems more attended to than any other, being supposed to exhaust the land less than wheat; drilling in the seed has been tried by Mr. Pearce, of Brampton, and others, but who are of opinion with me, that the manner of laying in the seed is but a matter of small importance in a farmer's business; and that much more depends upon the preparation of the soil, and the state of the land respecting manure. Mr. Weston, of Brixworth, also drills in barley, on a light red land, with Cook's drill. I called upon him for inquiries, but was not lucky enough to find him at home; a few others do the same on light land, but no likelihood of drill-sowing making much progress in this county, the soil being generally loamy, and a slight shower puddles it to dirt, so as to clog up any machine: a great allowance of seed is always used here.

From data, that will be farther explained, I calculate the growth of barley, in this county, at 33,000 acres, and the produce at four quarters per acre more than the seed: total produce 132,000 quarters. The county contains about 30,000 families, consuming in beer the produce of half an acre each family, or . . . . . 15,000 acres.

One-third of the growth, supposed used for other purposes, as hogs, cattle, sheep, and horses, the growth of . 11,000

Remaining for travellers, or the general brewery, the growth of 7,000

33,000

So

So that this country produces barley considerably more than for its own consumption.

4. Oats are sown upon one ploughing of turf or stubble, and sometimes upon heavy land, after turnips or coleseed, at the rate of five or six bushels per acre; and the average produce 36 bushels per acre in open fields, and from 40 to 48 bushels upon good enclosed land. I am assured, that 13 quarters per acre have been grown more than once upon the red loams; but, to command this great produce, the land must be in high condition, and the seed must be laid on at the rate of eight bushels per acre. Notwithstanding Mr. Donaldson has observed that a small quantity only is grown, I am well informed, that they are grown in such plenty as to supply not only their own consumption, bnt that large quantities are annually sold into the counties of Leicester, Warwick, Bucks, Hertford, and Bedford.

From similar data to the above, I calculate the growth of oats, within the county, at 24,000 acres, and the produce at five quarters per acre more than the seed, making 120,000 quarters as the annual produce of the county.

5. Beans are sometimes sown upon one ploughing of a turf, but more generally, and almost always, in open fields, upon a barley or wheat stubble, and ploughed under furrow; they are sown at the rate of 5 bushels per acre, and the average produce from 3 to 4 quarters per acre, and sometimes more: the average may be taken at three quarters and a half per acre more than the seed.

The quantity of beans grown in this county is very considerable, being a regular article of common field culture; but the consumption in the county, by horses employed

employed in carriage and posting, in the immense thoroughfares to London, is very great; besides which a considerable surplus remains to be sold to other districts. From similar data to the above, I suppose the growth of beans to be, upon 30,000 acres, at 3½ quarters per acre more than the seed, produce 105,000 quarters. The number of working horses kept in the county may be about 21,000, besides young colts, under working age, of which two-thirds may be farm horses, and one-third road, harness, post, or pleasure, horses; the former may consume 2 acres and the latter 4 acres of corn each, making in all the produce of 42,000 acres, and leaving, as a surplus, the produce of 12,000 acres, for the supply of horses not belonging to this county, and to be sold to other districts. I consider the above allowance is so liberal as to be sufficient for the working horses and young stock attached to them; and that the produce of 12,000 acres can be spared from the county.

6. Peas grown in a much less quantity than beans, and generally alone, though in some instances mixed with beans, where they furnish bindings for tying up the latter. I also saw a very few instances of field peas in rows; they are sown in the same rotation with beans, at the rate of 4 bushels per acre, and the produce on good land about 4 quarters.

7. Vetches, cultivated considerably in most parts of the county, both in common fields and inclosures; they are employed in various ways: carted to the stables as green food for horses, they are said to be much more nutritive than green clover. Mr. Wright, of Kettering, shewed me a crop, August, 1806, that had been once mown, and were then eating by tying horses: they are thus a good preparation for wheat, if the

the land be clean, and, if not, the land may be fallowed after the first mowing of winter vetches; they are certainly an excellent succedaneum, when clover fails, to sow upon the stubble in autumn, after once ploughing. I saw an instance of several acres making into hay, and considerable quantities are saved for seed, both in the common fields and enclosures, in the present season, 1806. Many good-sized flats were reserving for this purpose, in the common field of Rothwell, and in many other places.

8. Turnips are cultivated, in considerable quantities, upon all the red and light soils; but a large proportion of the county is too strong and harsh for the growth of this plant to advantage. The land has generally four ploughings, with harrowings between; the first in autumn, the second the succeeding spring, the third in May, after which the manure is laid on, which is either lime, 10 quarters per acre, or farm-yard dung, about 12 cart loads per acre, after which the last ploughing is given, and the seed sown broad cast, from Midsummer to the end of July; they have now generally more attention paid to them than formerly, and are well hoed, and afterwards well cleaned by hand weeding. Mr. Wright, of Kettering, shewed me a 20-acre piece of his turnips, upon the late enclosed land of Kettering field, upon red land; they were manured for with horse stable manure, of which they make a large quantity, being engaged in the London stage-wagon business; they were the common white turnip, the crop uncommonly promising, had been once hoed, at 6s. per acre, without beer, and were intended to be immediately hoed again at 3s. per acre more, or by the day, by harvest men, at leisure times. The weeds most abounding in turnips are chadlock, or

chorlock, of sorts; the corn poppy, and the golden or corn marigold: these, being harvest natives, should never be suffered to shed their seeds.

The turnips throughout the country were this year, 1806, generally good, and well attended to; they are generally eaten off by sheep and lambs, being hurdled off in small plots. The hurdles, which are made of coppice underwood, are two yards long, and cost about 1*s.* each.

But few cattle are fatted on turnips here; when they are, the largest turnips are drawn from the field, and given to the cattle upon a turf, or in a stall. A good crop of turnips sells from 3*l.* to 5*l.* per acre; but the price depends much on the season, and other circumstances.

9. The Swedish turnip has been tried and approved, and is grown in most parts of the county; the ground is prepared as for the common turnip, but somewhat earlier in the spring, as the seed should be sown sooner. Mr. Wright, of Kettering, shewed me a very promising crop, sown in succession, broad cast, from the first week in June to the middle of July, having been manured for with horse stable manure: this plant is of slower growth, and supposed more precarious, uncertain for a crop, and more liable to be destroyed by the fly, than the common turnip; at the same time it is more hardy, and preserves its juices and nutritious qualities longer in the spring, and bids fair to supply the void betwixt turnips and grass; it is approved by cattle and sheep, and is, at all times, very nutritive for them. Those who knew the value of this plant, by experience, assured me, that they mean to cultivate it annually. In weight of produce, per acre,

acre, it comes very near to the common turnip, and in nutritive qualities much exceeds it.

10. Rape, or coleseed, is cultivated, but not generally, the land for which must have the same preparation and manure as for turnips, and the seed should be sown before Midsummer, at the rate of a gallon per acre; it makes excellent sheep food, and is vastly more nutritive than turnips, insomuch, that I am assured the ley of sheep, in coleseed, is worth double the price to what it is in turnips; and that the fact is so well known to butchers, that, if they give 4*d.* per week for the keep of sheep in turnips, they will give8 *d.* per week to have them kept in coleseed. It is liable to be injured by severe frost, on which account it is generally eaten off the beginning of winter, in the same way with turnip; it is sometimes allowed to stand for seed, and may produce about 30 bushels per acre, the price of which varies as much as from 5*s.* to 10*s.* per bushel.

Mr. Martin, of Tansor Lodge, had, in 1797, a piece of some acres, reserved for seed, which he proposed cutting the day after I saw it, which was July the 8th.

I find the idea prevails, that coleseed may be grown, to advantage, on much stronger land than is adapted to the growth of turnips, insomuch, as the eatable produce is above ground, and can be mown and carried off to turf for consumption, if necessary. Coleseed is also sometimes sown on light land, upon early stubbles, for spring food for sheep, but will only answer in this way upon early land, of which there is but a small proportion in this county.

11. Cabbages are grown in the field, in several parts of the county; some I observed not far from Daven-

try, and several acres between Blisworth and Northampton; and, upon a later tour through the county, saw a good piece of cabbages, well managed, at Chapel Brampton; also, at Lady Carberry's at Laxton, and at the Hon. John Monckton's, at Fineshade, three acres, in rows, cleaned by horse and hand hoeing, and a very promising crop. I also saw cabbages in field culture in many other places; but am of opinion, their culture might still be much more extended to advantage, particularly on strong enclosed lands, which, though improper for turnips, would, with dung and good management, answer well for cabbages, which would be a great resource both for dairy and feeding stock; and therefore I think the cultivation of this plant should be more attended to.

12. Potatoes are pretty much grown, in various ways, and the culture well understood. I saw patches of them, both in enclosures and common fields, in various parts of the county, and am well informed, that it is no uncommon thing for an individual to have from five to ten acres of them: what are not wanted for the table are principally used for the feeding of hogs.

Near Daventry I observed, in a field, a plot of potatoes, in rows, which had been horse-hoed, and cabbages were planted between them early in July, with promise of success.

I was informed by William Smith, an industrious gardener, of Northampton, that he has often grown potatoes in the field, upon land rented from the farmers, with manure, at from 4*l.* to 6*l.* per acre. He prefers sowing, or rather setting them, if upon loose or broken ground, in the furrow, after a plough; the muck or compost being first laid on the land in

rows,

rows, the sets are deposited in every other furrow after the plough, and forced a little under the last furrow, to prevent the horses treading them. The manure is put above the sets, which are thus in rows 18 inches asunder. Women and children may deposit the sets, and men shake in the manure. The business is thus so expeditious, that it is worth the master's attention. The crop may be ploughed up in autumn, by a plough without coulter. Men to fork the furrows, and women and children to pick, under the master's inspection, as before, at setting, and he says as clean as in any other way; but on turf or unbroken ground potatoes must be cultivated by hand.

At Laxton, (Lady Carberry's) under the direction of Mr. Knight, potatoes are planted by trenching in hand, at 4*d.* per perch, cutting the sets included. The operation is thus: the ground having been once ploughed, a trench is dug across the furrows, in which the sets are deposited, and covered with the manure. Another trench is then dug parallel to the former, the soil of which fills up, and covers the sets therein; and thus proceeding, the crop is left in rows, from eighteen inches to two feet distant: this method is approved and practised in other parts of the country. The land should be mellow and tender for this operation, in which case it answers well. Potatoes require about 15 hundred weight of sets per acre; and the produce of a good crop will be from 10 tons upwards.

13. Amongst the commonly cultivated crops, clover may be reckoned, as it is not only very generally sown on cultivated land for hay and pasture, but also saved for seed in considerable quantities; in this case it is sometimes mown early, and the aftermath saved for seed,

seed, or grazed to Midsummer, and then shut up for that purpose. In other countries north of this, it is common to shut it up the first week in June; but here the excellence of the red or black loams will perfect the seeds, though mown for hay, or grazed so late as Midsummer.

SECT. V. — CROPS LESS COMMONLY CULTIVATED.

1. Sainfoin is cultivated upon the stony under strata, in different places, in the parishes of Wakerly and Duddington; it had been mown, and I saw several stacks of the hay, the aftermath, August 13, going into blossom. Upon the estate of Lady Carberry, at Laxton, (the Lady of G. F. Evans, Esq.) is a 20-acre piece of it, of seven years growth. Mr. Jones, the gardener, who has been personally acquainted with its progress, informed me, that, for the first two years, it was rather weak; but the third year came to a crop, and is now mown annually: Mr. Knight, the steward, thinks it equal to 30 acres of ordinary meadow. I saw and examined the hay-stack from it this year, which I estimate at 30 tons, and am assured, that it produced last year four or five tons more. Mr. Knight says, horses, with this hay, require no corn; but it is said to be less superior for milking cows: on the contrary, cows are the most proper stock to depasture on it, as it will be injured if closely fed by horses and sheep. The soil is light loam on a loose strong under stratum, which is the land naturally adapted for it.

Upon

Upon thin soils, with a hard, congealed, substratum, it will not succeed at all, as it requires depth, or fissures, for its wots to penetrate; in this instance it grows upon rather a poor weak soil. It was sown with barley, after turnips, about four bushels per acre, and will last, in the whole, 14 or 15 years.

Mr. Roper, steward to his Grace the Duke of Grafton, has a piece of sainfoin at Potterspury, about seven years old, which has mown well, but, being now getting foul, he intends ploughing it up. He says it has answered well in other places in the neighbourhood; the loose stony bottom is suitable to it; but I think the surface soil here rather too harsh and loamy.

2. *Lucern.* The following experiment has been made upon this plant, by Mr. Roper; he finds the land to tire of clover, and approves of vetches as a substitute, but wishes to introduce lucern, on account of its perennial duration. After a very clean turnip or barley fallow, part of a field was sown with the barley, with 20 lb. per acre of lucern, and 4 lb. only of red clover, mixed with the lucern; it was, August, 1806, of the first year, and free from weeds, the clover to the lucern as four to one. He thinks the lucern not worth preserving, and will, therefore plough it under in autumn, for wheat: he means to repeat the experiment, by sowing a larger quantity of the seed of lucern alone, which, he says, he has known to succeed in this way, broad cast, but not in this country, being anxious to procure a crop of this perennial plant, in aid of his grass land.

As far as my observation upon this plant goes, I am of opinion it should be in rows, and cleaned from the intrusion of other plants, by hoeing, for the first two years,

years, after which it will maintain itself for many years; it will also very well bear transplanting, from a seed bed, into land properly prepared to receive it, and might, I think, be raised sooner, and with greater certainty, in this way, than in any other. W. P.

3. Chicory. A whole field, of two acres or more, was laid down with this plant, sown amongst barley, in the spring of 1795, by Mr. Martin, of Tansor Lodge, near Oundle; in 1796, it was grazed with sheep; the stock it would carry throughout the summer, Mr. Martin informed me, was about six sheep per acre, and they did well upon it. In the spring of 1797, it was ploughed up, and again sown with barley, the crop by no means equal to what might have been expected, had the intermediate crop been clover. The chicory, a hardy biennial, or perennial, was by no means destroyed by the tillage given for the barley, but shot up among it in great abundance; and when I saw it, July 8th, it was grown through the barley, and going to seed amongst it. I reckon that the damage done by the chicory could not be less than 20*s.* per acre, and that it could not have been drawn out for that sum. Mr. Martin admits the impropriety of sowing barley so soon upon it; and it is a sufficient proof that this is an improper plant in an arable system, as it can only be extirpated by fallow. In permanent pasture it may be more proper; but even here it should be kept eaten off, to prevent the seed stalk becoming hard and tough, for, in that state, cattle will not eat it, and it has a weed-like appearance. Mr. Martin proposes trying it upon fen land; the plant is bitter, but well liked by sheep and cattle, and is, doubtless, wholesome for them: I found the plant growing naturally, in great abundance and luxuriance,

in

in various parts of the county, particularly in King's Cliff Field, and in the road between Northampton and Welford, about the 75 and 76 mile stone; also, in Leicestershire and Staffordshire, where it is disregarded by the farmers.

In a farther tour through the county, in 1806, I did not find the culture of this plant increased, nor, indeed, is it known but by very few persons; I pointed it out to a gardener, who admitted it to be wild endive, and endeavoured to show it to a grazier, at Daventry, but could not find it near that place. It is, nevertheless, common in most parts of the county, on the road sides and the margins of common fields, particularly those of Geddington, Weekly, Warkstone, and within the fence of the new enclosure of Kettering Field: on the road to Weldon, where the fence had preserved it from the bite of cattle, were as fine plants in blossom, and going to seed, August 13, 1806, as any I have ever seen in cultivation.

4. Hemp is cultivated on the fen-land, on the edge of Lincolnshire and Cambridgeshire, in considerable quantity, and the crop generally luxuriant and good. The great fen of Peterborough, if well drained, seems well adapted to the growth of this plant; most of what I observed growing being upon a soil of a similar nature.

5. Flax is very little grown in this county.

6. Buckwheat, about two acres, sown on the demesne at Laxton Hall, (Lady Carberry's) was all I saw in the county; it was intended for pheasants and poultry, or hogs, and may be followed by barley and seeds.

7. Lentils, (ervum lens of Linnæus.) This plant is cultivated on the poor common fields of Easton and Collyweston,

Collyweston, near Stamford, it is less luxuriant and bulky than the vetch, but succeeds better on poorer land, from which quality I am informed it is here sown; its appearance is much inferior to some of our native legumens, but any kind of live stock will eat either the plant or the seeds.

The following information respecting this plant was collected by Sir John Sinclair, Bart. in a journey to the North, in the summer of 1804, in a conversation with a farmer, who was a grower of lentils. See Annals of Agriculture, vol. 42, *p.* 504.

Q. What is the best soil for the growth of lentils?

A. A dry light soil.

Q. Is a crop of lentils, in that kind of soil, more valuable than vetches?

A. They are of a milder nature, the straw finer, and pleasanter food for all kinds of stock.

Q. In what course of crops are lentils best sown?

A. After a crop of any kind of grain that has left the land clean.

Q. What tillage is necessary for them?

A. Once ploughing, then sown and harrowed in.

Q. When are they sown to the best advantage?

A. In April.

Q. What quantity of seed is required per acre?

A. Two bushels.

Q. How is the produce best applied, whether mown for hay, feeding by what stock, or in raising seed?

A. To be grown to perfection, and applied in small quantities, either cut or in their natural state, to sheep, milking cows, feeding beasts or horses.

Q. Do they ameliorate the soil?

A. They do.

Q. What is the value of an acre?

A. From

A. From seven to eleven pounds sterling.

Q. What is the produce in seed?

A. From three to four quarters per acre.

Q. What is the price of seed per bushel?

A. Seven shillings.

8. Woad, provincially here wad, (isatis tinctoria of Linnæus.) This plant is cultivated in this county, and prepared for the dyers, not by farmers, but by professional men, who make it their business, on the following system, about 50 acres of which I viewed growing upon the Catesby estate, near Daventry, August, 1806. Two wad growers live in the county, and one of them grows about 70 acres; it requires rich old pasture land, for which the wad grower pays the landlord from 5*l.* to 7*l.* per acre, per annum, for two or three years, the farmer being compelled to give it up for that term, and to take to it again afterwards, at the old rent. The land is ploughed early in spring, well harrowed, and sown broadcast, as thick as grain, by handfuls; a great deal of harrowing and dressing is necessary to bring it to a fine tilth. When the plants appear, they are hoed, and kept perfectly clean, in a garden style of culture, and the crop appears somewhat like a broad-cast crop of spinach; the leaves are gathered by hand, in baskets, three times in a season, (except a plot sometimes saved for seed) and carted to a mill, where they are ground to a pounce, or jelly, by vertical wheels, crossed with iron plates, and moved round by horses: This pounce, or jelly, is then formed into balls, by hand, and dried on hurdles, in a shed; these balls are afterwards broken up, and fermented, and finally dried in small lumps, somewhat resembling horse dung in colour and appearance; it is then packed up in casks for use.

A great number of women, children, and other hands, are necessary in this business, to clean the crop, and perform the other operations and processes respecting effects on the land; it is not thought otherwise injurious (as the land must necessarily be kept clean from weeds) than by destroying the nutritious qualities of the turf, which requires many years to restore; the land will generally produce two or three good crops after, without manure. An approved course is to take, 1. oats; 2. wheat; 3. coleseed or turnips; 4. barley, with seeds; and afterwards to manure on the seeds, so as to produce a turf. Some spirited managers have paid the wad-rent themselves, and continued grazing the land, rather than have it ploughed up.

9. Siberian turnip, differing little from the Swedish turnip, but rather of a deeper green cast, and the wots in a more carrot-like form; it is cultivated at Laxton, both in the garden and in the field, but, being a late introduction, it remains to be proved, whether it be equal or superior to the Swedish turnip. The globe turnip is also cultivated there, upon trial, a white Scotch turnip, well formed and hardy, and bids fair to be equal or superior to any of the species now in use.

10. Parsnips tried also at Laxton, in the field, and intended for trial, with live stock; the crop rather thin on the ground, but promising.

11. Carrots cultivated at the same place with the last, in the field; but, after a considerable expense in cleaning, have been nearly destroyed by the hares and rabbits, which are here very abundant: the gardens about Northampton are also famous for carrots.

12. Onions are cultivated in great perfection about Northampton,

Northampton, of a sort and flavour approved and preferred by all travellers. I am informed, by William Smith, gardener, of that place, that 22 wagon loads, of 10 quarters each, have been sent in one year from thence, to Daventry fair, October 2, famous for onions: that he has himself this year, 1806, about half an acre, the crop in general by no means great; he expected from this plot 120 bushels, and to sell them at 4*s.* per bushel, which is 48*l.* per acre, or rather 50*l.* per acre. As his plot is less than half an acre last year, 1805, owing to a good crop, and great competition in the market, they were sold at 2*s.* 6*d.* per bushel; but, he says, every grower was a loser, as they require great care and labour in hoeing and weeding; he never waters them, or manures for them, but sows them after some other manured crop as potatoes, or any where upon rich ground; has sold them, without the least trouble, in scarce seasons, wholesale, at 21*s.* per bushel. Sows, in March, a white onion, and has had them from 17 to 18 inches in circumference.

13. Tobacco, a considerable patch, cultivated in Rothwell, for the purpose of dressing sheep for the scab, 1806.

14. Furze, or Gorse, (ulex Europæus) a few acres, often preserved in this county, for which there are two inducements: 1. preservation of game, for sportsmen, at the wish of the landlord; 2. being cut off, in rotation, at stated periods, and sold to the baker, it gives some recompense to the occupier, besides the picking of pasture in vacancies.

Wheat is principally sown in October, and rye, for a crop, a little later, but, for eating off, sooner; barley

and

and oats are sown in April; beans, in March; pease, March and April; vetches, November; turnips, June and July; Swedish ditto, June; coleseed, June; and potatoes planted April and May, but not without some deviations.

The corn harvest is generally in August, and the bean harvest in September. The following are the days of commencing harvest, for seven years together, upon a farm near the centre of the county, from Mr. Donaldson:

In	1787	August 13
	1788	—— 4
	1789	—— 18
	1790	—— 16
	1791	—— 8
	1792	—— 13
	1793	—— 1

And, in 1806, the harvest commenced in many places, near the middle of the county, Monday, August 12th.

The wheat, as mentioned before, is reaped with a sickle, and sometimes oats are reaped also, all other crops are mown with a scythe; even beans and pease, contrary to the custom of many other countries, are generally mown with a scythe: the beans are afterwards gathered and set in shocks. Other mown crops are turned in the swathe till they are dry, and then made into cocks, and, when ready, are carried home to the barn or stack-yard; and the ground is raked with long-headed rakes, made for that purpose.

Extent of Arable and Pasture Land.

The data before referred to, and from which the extent

extent of the different crops have been estimated, as follows:

The county is supposed to contain, in gross,	Acres.
1000 square miles, or	640,000
Deduct forest land, woods, and wastes . .	40,000
Remains agricultural and grass land . .	600,000

Suppose this divided into four classes, as follows:

1. About 70 common fields remain, suppose	150,000
2. Modern enclosures, in alternate grass and tillage	150,000
3. Antient enclosures, much less tillage . .	150,000
4. Natural grass land, parks, paddocks, and plantations	150,000
	600,000

The common field land supposed thus occupied.

	Grass or Turnips, &c. Enclosure or Fallow.		Wheat.	Other Crops
	Acres.	Acres.	Acres.	Acres.
	45,000	30,000	30,000	45,000
Modern enclosures, thus	Grass. 70,000	20,000	20,000	40,000
Antient enclosures	110,000	10,000	10,000	20,000
Class 4. Pleasure grounds included,	150,000			
Total . .	375,000	60,000	60,000	105,000

* The grass land is supposed to include not only all pleasure grounds, but clover and seeds; the fallow ground is supposed equally divided between wheat fallow

fallow and green crops, 30,000 acres of each; the other crops are supposed thus divided.

	Acres.
Wheat	60,000
Rye	3,000
Barley	33,000
Beans	30,000
Oats	24,000
Peas and vetches	15,000
Green crops	30,000
Fallow	30,000
Grass land, including as above	375,000
Total . .	600,000

It is very clear, at first sight, how uncertain any calculation of this kind must be founded, as it is on general observation only; but, having no other data to go upon, the writer has adopted this, which he hopes may be found to exhibit a pretty accurate general feature of the county.

CHAP. VIII.

GRASS.

SECT. I.—NATURAL MEADOWS AND PASTURES.

THE county of Northampton contains a large breadth of land of this description; the natural meadows on the banks of the rivulets, brooks, and rivers, are very considerable; and when to them is added the great breadth of upland, laid down, in antient and modern lines, to permanent pasture, we shall have a very considerable proportion of the county at grass.

Mr. Donaldson has estimated the extent of meadow-land at not less than 40,000 acres; he observes the most considerable tract is that on either side of the river Nen, which beginning, in various directions, many miles above Northampton, extends down to Peterborough, and which, from its circuitous directions and various windings is more than 60 miles in length: when to this is added the large quantities of similar land upon the other brooks and rivers, I believe it may be pronounced, that Mr. Donaldson is rather under than over in his estimation.

The upland pasture occupies a still much greater extent, the strong deep loams having been found naturally disposed to turf, and affording a staple of herb-

age, highly nutritive to cattle and sheep, and upon which they fatten with great rapidity.

I was shewn upland pasture, of spontaneous growth, the land having been in tillage within these three years, and no grass seeds or clover sown, which, I believe, no art or sowing of artificial grasses could excel; it was admitted, that some loss of herbage was sustained the first and second year, but not after: I mention this not to commend it, but to show the wonderful propensity of the land to produce the best pasture-herbage. The natural staple here was the perennial red clover or cow-grass, (trifolium flexuosum); the white clover, (trifolium repens,) and the best grasses, few of which having the seed stem, the species could not be ascertained, the land being in pasture.

I observe the antient upland pastures abound but little in clovers, trefoils, or any of the Diadelphia plants, the principal staple being the grasses; but, on the red loam pastures of Walgrave and Brixworth, which have been enclosed about 20 years, the following pasture-plants grow spontaneously.

1. Perennial red clover, or cow-grass, marl-grass of Hudson, (trifolium flexuosum).

2. White clover, (trifolium repens.) The seed of this plant collecting, by hand, for Mr. Chapman, of Harringworth, by a dozen or more women and children, August, 1806; the crop being too short for the scythe, they select, by hand, the ripest heads only. I did not learn whether this be a common practice, or whether it was a local and single instance of thus collecting the seed of white clover.

3. Common trefoil (medicago lupulina). This is the plant cultivated as trefoil, and the seed of which

is

is sold under that name, though actually a medick. It is, I believe, strictly an annual plant.

4. Hop-trefoil, (trifolium agrarium), equal, if not superior, to the last, in every respect, but has never, to my knowledge, been cultivated. 1797.—An annual. I have since seen this plant in cultivation, 1806.

5. Soft knotted trefoil, (trifolium striatum,) flowers small, pale red or purple: not having seen this plant before, I troubled Dr. Withering with its investigation: these plants spontaneously shew fertility of soil.

The meadow-land, near the rivers, is generally of a rich fertile nature, owing to the frequent overflowing of the waters; but from this advantage a great drawback is made by the damage frequently done by floods, particularly upon mowing grass. A very great improvement might be made upon this land, by a proper system of draining and embanking, the floods being frequently occasioned by the want of removing obstructions below, and might often, I believe, be easily prevented, if the business were taken up in a general way.

The meadow-herbage consists of all the best grasses. I examined those below Northampton, July 6, 1797, they were very full grown, but not yet mown: I found the following, and, very possibly, overlooked many.

1. Meadow grasses, of sorts, (poa's annua, trivialis, and pratensis).

2. Fescues, of sorts, (festuca's).

3. Rye-grass, (lolium perenne).

4. Cock's-foot grass, (dactylus glomeratus).

5. Foxtail-grass, (alopecurus pratensis and bulbosus).

6. Oat-grasses (avena's flavescens and pratensis).

7. Hair-grasses, (aira's aquatica and cæspitora).
8. Dogstail grass, (cynosuras cristatus).
9. Meadow soft grass, (holcus lanatus).
10. Meadow barley-grass, (hordeum pratensis). This last very common, though scarcely if at all found in the meadows of Staffordshire. The anthoxanthum, or vernal grass, I did not observe, but suppose it to be smothered by the luxuriance of the others. Here are also the perennial clovers, white and red; the yellow vetchling, (lathyrus pratensis); the cow-chervil, (chærophyllum sylvestre); the upright crowfoot, (ranunculus bulbosus); the meadow sorrell, (rumex acetosa); broad-leaved plantain, (plantago major); hogweed, (heracleum sphondyllium); by the water-side, the wild teasel, (dipsacus sylvestrius): the large blue-flowered geranium, (geranium pratense): weeds; knapweed, hawkweed, and thistles.

In the upland pastures, the herbage was not precisely ascertained, but, in many places, I observed the crested dogstail (cynosurus cristatus) predominate. I believe the richness of pasture does not altogether depend upon the species of grasses, or other herbage, but in a great measure upon the qualities of the soil; the same herbage upon a rich soil being much more succulent, juicy, palatable, and nutritious, than upon a poor soil; and, on cold thin wet soil, the vegetation is late in commencing, slow in its progress, and soon checked, as the sun withdraws its genial influence; whilst, on a deep rich soil, it continues nearly the whole year, almost constantly possessing those qualities, and in a superior degree, which, on a poor soil, are only found a small portion of the year. There is no doubt, however, but the nature and species of herbage has some share in the effect; and that it is highly

highly proper, in laying land to grass, to select such herbage as abounds in the richest feeding pastures. The following plants are also common in meadows and pastures: narrow leaved plantain, or rib-grass, (plantago lanceolata); this is often cultivated, but not that I heard, in this county.

Yellow rattle, or penny-grass, (rhinanthus crista galli); reed Canary-grass, (phalaris arundinacea); water meadow-grass, (poa aquatica); flote grass, (festuca fluitans): these three last in moist ground. Also, most of the plants, recommended in the next chapter for cultivation, are to be found in the meadows and pastures of this county.

The wild thyme, (thymus serpyllum) often abounds in the old ant-hill pastures, particularly those of Charwelton, on the road from Daventry towards Banbury.

Mr. Bull, of Daventry, says, the following is a great improvement on all mowing-meadows, incapable of being watered: graze, once in two or three years, as bare as possible, and finish with store sheep; shut it up at Christmas for mowing; this is as good as a top dressing.

SECT. II. — ARTIFICIAL GRASSES.

THE kinds of artificial grasses, at present cultivated in this county, are, the broad red clover, sown with barley, or on wheat in the spring, at the rate of from 10 to 15 lb. per acre. When the lands are intended to be broken up after one or two years, this quantity of

of red clover is sometimes diminished, and four or five lb. per acre of the trefoil added.

When the lands are intended to lay in grass for a number of years, the seeds sown are, generally, six lb. or more of red clover, six lb. of white clover, and about as much trefoil and ray-grass from a peck to half a bushel; this allowance to each acre.

I shall just observe, that the cultivated trefoil, as it is called, (though well known to botanists to be no trefoil at all, but a medick, the hop-medick, (medicago lupulina,) though an annual plant, has the faculty of reproducing itself from seed so as to continue many years in the ground.

Instead of common red clover, the cow-grass, or cow-clover, has, in some few instances, been substituted with success.

Sainfoin is known in the county, and has been cultivated, and is still upon the stony lands, particularly in the neighbourhood of King's Cliff. I observed it growing, spontaneously, upon the grass-plots and road-sides in Brackley common field, which I suppose a proof of its having been sown there formerly, though none is cultivated there at present. See chap. vii. sect. 5.

Chicory has been sown by Mr. Martin, of Tansor Lodge, as remarked in a former chapter.

Some small experiments have been made on Timothy-grass, by Mr. Bosworth, of Highgate-house, which he has now discontinued; this grass is too coarse to be worthy of cultivation.

Some few experiments have also been made on lucern, as I was informed, by Mr. Knight, of Walgrave; but I had not an opportunity of getting the result, or the particulars. See chap. vii. sect. 5.

As

As the county produces, spontaneously, a great variety of valuable agricultural plants, adapted to hay and pasture, I cannot but loudly and pressingly call upon public-spirited individuals, and, more particularly, upon agricultural societies, of which several are established in the county, to try the effect of cultivation upon several which I shall enumerate, or upon such a selection from them as shall be deemed, on examination, most worthy of trial. The plants may be easily known or identified; or, if any difficulty should arise on that head, the writer of this would engage to point them out, in their place of growth, to any proper person or persons, appointed by any such society, about Midsummer, in any season.

The cultivation might be encouraged by a premium to such person as should grow and cultivate the proposed plant, to the extent of a certain breadth of land; and a subscription for that purpose would be well compensated, by putting it in the power of the subscribers to procure such seeds; and such subscribers should be entitled to the first preference. The plants I should propose are as follow:

1. Of the grasses, annual meadow-grass, (poa annua,) called also Suffolk grass, and said to have been there cultivated. This is a fine and sweet herbage, and, though an annual, is so very tenacious of growth by its seeds, as to maintain itself in the ground. I think it would be an excellent mixture with trefoil.

2. The taller meadow-grasses (poa's pratensis and trivialis); these are excellent grasses, fine, and productive; common in most meadows; adapted to upland, and not liable to perish from drought, being even found upon walls. They are certainly worthy of trial in cultivation.

3. The

3. The foxtail-grass (alopecurus pratensis) has already been cultivated with success, and worthy of more extensive trial, being early and productive, and excellent in hay or pasture.

4. Fescue grasses, (festuca elatior and pratensis) excellent meadow and pasture grasses; the effect of cultivation on which should certainly be tried.

5. Crested dogstail-grass, (cynosurus cristatus) very common in the old pastures, both of this county and Leicestershire, and forming the principal staple of the best pastures.

6. Vernal grass, (anthoxanthum odoratum) fine herbage and early, but not very productive; said to occasion the sweet odour of new mown hay; very common early in the spring.

7. Rough cock's-foot-grass, (dactylus glomeratus); coarse, but affording a plentiful production of blades of grass. Cultivated on good land, this grass would probably mow three times in one season, for hay or green food.

8. Meadow oat-grass, (avena pratensis); a much better plant than the oat-grass that has been cultivated (bromus mollis): it abounds in many good meadows.

These grasses are all hardy perennials, abounding naturally in the best meadows and pastures; but their abundance must certainly be promoted by cultivation. I believe a selection from them would be much superior to ray-grass on all kinds of land.

9. To these I shall add some of the annual bromus's, which would, probably, form a very early spring-pasture. Dr. Withering has brought a grass of this species from Portugal, which he remarks to be a full month earlier than our native grass: having cultivated

ted it for some time, he has made me a present of a small bag of the seed, which I mean to give a fair trial. It very much resembles one of our native grasses, the barren brome-grass, (bromus sterilis). Being an annual, it may be sown with clover, on land intended to lay one year only. This grass was sown, and was nearly as early as rye.

10. The cow-grass, or cow-clover, (trifolium flexuosum,) has been sown, and approved, upon a small scale, being lasting in the ground; encouragement should be given to save the seed in a larger quantity than has yet been done.

As it has been remarked, that the land tires of clover by frequent repetition, some other plants should be tried that may be introduced occasionally as a substitute, or to prolong the term of rotation: many offer themselves whose merit is yet unknown by experience: I shall farther name

11. Melilot, (trifolium melilotus officinalis); this plant is common in most parts of the county; it is very luxuriant and vigorous of growth. I have tried different horses with it, who are always fond of it. Dr. Withering says, all kinds of stock eat it; I have, therefore, often thought it deserves trial, in cultivation, as a pasture-plant; but, being a very bad corn-weed in many open fields, care should be taken to prevent its growth in tillage. I think it might be sown with advantage on land intended for pasture three or four years. I saw it, plentifully, in land intended to be mown for hay, in King's Cliff, and thought it an advantage to the hay-crop.

12. Kidney vetch, or lady's finger, (anthyllus vulneraria,) common in many parts of the county, particularly on the grass-plats of Brackley Field, plentiful.

plentiful. In grass-land, between Kettering and Rockingham, and in many other places, this is no contemptible pasture-plant, being productive and of vigorous growth. I have many times observed my horse eat it greedily: it is said, in Withering's Botany, to make an excellent sheep-pasture. I have observed it to grow, with great rapidity and luxuriance, on poor barren gravel, fresh dug from a canal, so as quickly to establish itself. It is a hardy perennial, and grows well in poor land; the flowery heads have the habit of clover; and, being of a pale yellow cast, might properly enough be termed yellow clover.

13. Hop-trefoil, (trifolium agrarium,) common in corn-stubbles and meadows: has never, to my knowledge, been cultivated in 1797; though I believe it quite equal to the plant cultivated as trefoil, against which it might be tried. An annual plant; the seed has since been sold in the markets. 1806.

14. Bird's-foot trefoil (lotus corniculatus) abounds in many parts of the county; and I have observed it to grow on all kinds of soil, from the driest gravel to the rottenest bog, strongly recommended for cultivation by Anderson. Mr. Woodward says, "there is no doubt "but it might be cultivated to great advantage: in "moist meadows it grows to a great height, much "higher than any of the trefoils, or medicago lupu-"lina, and makes extremely good hay;" it is spontaneous almost every where, but has never, to my knowledge, been cultivated.

15. Tufted vetch, (vicia cracca); all kinds of cattle are fond of this plant; and it is very nutritive either green or in hay. It is a perennial plant, not uncommon

mon in meadows and hedges. The cultivation of this lasting plant is a desideratum in agriculture.

16. Yellow vetchling, (lathyrus pratensis): for the cultivation of this plant a premium has been offered, some years ago, by the Bath Agriculture Society; but I know not with what effect. It is not uncommon in meadows, pastures, and hedges. I believe cattle are not fond of it green, but they eat it well in hay.

17. Upland burnet, (poterium sanguisorba): this plant is very different and distinct from the meadow burnet. I found a few specimens of it in the north part of Rockingham Forest, and between King's Cliff and Wandsford. It is a native of calcareous soils; has been a good deal cultivated in Staffordshire, on gravelly loams, where it is in some repute with a few persons. I suspect it would answer much better on limestone land, to which it is natural, or on chalk: it makes excellent cow-pasture; and sheep-pasture also, if kept well stocked; but, if suffered to grow long, it becomes tough and stalky, and sheep then leave it if they have other food. This plant is the staple herbage on the best sheep-land of Salisbury Plain, where it is bitten over daily, and supports immense numbers of sheep. I cannot but strongly recommend its culture on calcareous soil. The seed is to be bought in London, which may, perhaps, facilitate its culture, rather than the slow process of raising seed from straggling plants.

18. Meadow burnet, (sanguisorba officinalis); esteemed, in hay, by some attentive persons; common in moist meadows, but never, to my knowledge, cultivated.

19. Cow-

19. Cow-grass, or cow-wheat, (melampyram pratense). This plant I did not see in the county, but, doubtless, overlooked it, as it is by no means uncommon in woods and shady places. Dr. Withering says, cows are very fond of it, and, where it abounds, the butter is yellow, and uncommonly good. I believe this plant deserves attention.

20. Lucern, (medicago sativa). This plant should have more general trials, being very productive and grateful to stock. It will very well bear transplanting, as I have experienced, and should, therefore, recommend raising it on a seed-bed, and transplanting it into very clean ground after turnips.

I cannot but strongly recommend to, and request of, the different agricultural societies, that they would make trial of the above plants, or of such of them as they shall judge most deserving of trial. The introduction of a new and valuable plant is a considerable point gained in agriculture; and it will be easily recollected, how short a time has elapsed since the introduction of even turnips and clover, whose value and importance are now so well established, that it would hardly be conceived possible to carry on the business of a farm without them; and I have no doubt but other plants may still be introduced to great advantage, to the improvement of our pastures, and to the increasing of our resources for maintaining live stock.

The Lamport Society are of opinion, that strong clay loam, intended for pasture, should have a dressing of lime, immediately previous to sowing the grass-seeds with a spring corn-crop, as the beneficial effects of lime are more evident when land is laid to grass, than when in tillage. If the land be intended to lay two, three, or more, years, the proper seeds,

as

as yet known, are six lb. of red clover, six lb. of white ditto, and four lb. of trefoil, to each acre, with from a peck to a bushel of ray-grass, to be varied according to the nature of the soil: if much risk of a crop of clover, the more ray-grass should be sown. If designed to lay but one year, and to be mown, 10 lb. of red clover are sufficient; but, if to be grazed, 14 lb. per acre should be sown. Clover, amongst wheat, should be sown as early in the spring as the land will work properly: in spring-crops, at the time of sowing the corn, if the crop be likely to be a heavy one; but, if the corn-crop be likely to be light, the seeds should be sown some time after the corn, otherwise, in a growing season, the young clover may be very injurious to the corn. The best way of covering seeds is to roll the land before sowing them, and again after harrowing.

The Society are also of opinion, that grasses going to seed, on pasture-land, is an injury to the land, as exhausting the soil of its fertile quality; though, if the land be but thinly planted with grasses, it may be beneficial by shedding its seed to improve a future crop.

On the black soil of Kettering Field, lately enclosed, Mr. Wright shewed me a striking and successful instance of an excellent pasture, raised by one of his neighbours, upon a large field, without ploughing or growing any crop, and which he deemed capital management, at least so far as the turning of tillage-land into pasture is concerned. This field, allotted and fenced from the common field, was, principally, wheat-stubble: having been well fallowed in the common field, the occupier, desirous of bringing it to immediate pasture, sowed, the succeeding spring, a plentiful allowance of red and white clover, particularly

larly the latter, upon the wheat-stubble, without ploughing, tillage, or any crop, and harrowed it well in; it is now, Aug. 1806, well stocked with sheep, and an excellent pasture: the seeds were sown in the spring of 1805.

Mr. Wright, who keeps a number of horses employed in road-waggons to London, is aiming at extending his breadth of grass-land; he lays down, with every sort of crop, wheat, barley, oats, or beans, but approves least of laying to grass with beans.

From the success of the above experiment, by his neighbour, he wishes he too had sown grass-seeds on wheat-stubble, as his own seeds, sown with a crop, do not, by any means, appear equally promising.

The Lamport Society are of opinion, that if two white crops be taken in succession, before laying land to grass (as, for instance, barley after wheat,) such land ought to have a dressing of rotten dung or lime, previous to sowing the barley and seeds; such dressing to be given a short time before ploughing, and to plough it near the time of sowing.

SECT. III. — HAY-HARVEST.

THE time of hay-harvest is, in this county, chiefly in July; at least, the present year, 1797, little was mown in June. The management of hay seems nearly alike throughout the kingdom; after mowing, the swathes are spread all over the ground, which is called tedding; the tedded hay is then raked into rows,

rows, called winrows, and the winrows formed into small cocks; the next day, when the sun shines, the cocks are cast into square beds, and, these beds being afterwards turned over, the hay will generally be fit for forming into large cocks and carrying to the stack. In cloudy weather, some of the middle operations will want repeating; and, in very fine sunshine weather, some of them may be omitted. In showery weather, it has been thought better not to break the swathes, but to rake them over, and afterwards to form into small cocks, taking the opportunity of spreading the cocks when the weather is dry, and forming them again in the evening, or upon the approach of rain. The hay of clover or vetches should never be spread open, but the swathes turned till it is dry, and then got together into cocks and carried to the stack. The theory of hay-making is founded on this principle, that the grass mown shall be exposed as much as possible to the sun, to evaporate its watery particles, and as little as possible to rain, which would have the effect of carrying off, in decoction, its intrinsic juices and most nutritive particles. There is reason to believe, that hay is often suffered to grow too long, for the sake of increase in quantity, by which, becoming stalky, it loses in quality as it gains in quantity, besides drawing from and exhausting the ground, and lessening the growth of aftermath.

Much damage is done in the hay-ground of this county by floods. I observed meadows, on the Charwell, after mowing, under water, and considerable tracts of meadow-land, ready for mowing, on the Nen, in the same predicament.

Near Isham, I observed clover for hay in small cocks,

cocks, made from the swathes, which cocks they were then turning and lightening up to dry.

In the stacking of hay, I did not hear of *salting* being used, nor even that tunnels or hollows are applied, to draw off the vapourous matter generated in the fermentation of the hay-stack: though a good deal has been said and written in commendation of this latter practice, I believe the grazier finds it much better smothered in the stack, and that he cannot discharge it without injuring the hay, and lessening its valuable qualities.

On making grass-seed hay, the Lamport Society direct, to turn it with a rake, as often as needful, until made into cocks; this will forward it as fast as spreading it, and much of the leaf is thereby saved, which is the most valuable part of the fodder, if not quite dry when carried. Some layers of sweet wheat straw should be laid amongst it.

SECT. IV. — FEEDING.

A VERY great number of sheep and cattle are fattened in the pastures of this county; of the sheep, a great part are bred in the county, but some are bought in from elsewhere. Wiltshires are bought at Weyhill fair, and a great number of the Cotteswold breed are bought at the fairs at Banbury; they are fattened through the summer in clover or old turf pastures, and great numbers are sold at the autumnal fairs to the London and other markets.

When

When the winter comes on, the green crops are resorted to, principally turnips and coleseed, which are divided by hurdles, and small portions only given to the sheep at a time; they are, in part, sold off during the winter months, and, in part, fatted up on the spring-grass and then sold.

Of the cattle fatted in this county, a small portion only are bred therein, which are generally of the improved long-horned kind, but some short horns are also bred here; great numbers of Scots and Welch are bought in, as also Herefords and long horns from Staffordshire and Shropshire, and short horns from Lincolnshire and Yorkshire, both oxen and heifers; these are principally fatted at grass, and great numbers sold from the pastures; but some are kept on through the winter, and furnished with oil-cake and hay, or turnips, and sometimes with ground barley or other grain, but not very commonly. I am informed, the best hay of this county, with a few turnips, will bring on the largest oxen sufficiently, without any assistance from more expensive food.

Mr. Donaldson observes, that about one half of the enclosed land is old enclosure, and principally occupied as grazing farms; on this very little grain is grown, the land being principally employed in the fatting of cattle, or the breeding and fatting of sheep, or occupied as dairy-farms.

When cattle have had the summer's grass, on the approach of winter they are often continued in the pasture, and hay given twice a day, on which they will do well. The cattle for sale are generally consigned to a salesman in London. It is a maxim, with a Northamptonshire grazier, to winter only the best

and most thriving beasts, which are sure to pay the most. The beast that does not thrive well they are always most anxious to part with first.

A great many half fat cattle are bought from Staffordshire and elsewhere, soon in the spring, to finish in the early feeding pastures of this county.

The modern enclosed parishes are generally divided into farms, consisting of part permanent pasture, part clover and artificial grasses, and part cultivated for grain and green crops, and have often a proportion of meadow-land; on such farms the dairy is sometimes an object, but more generally feeding. Sheep are fed on the clover and artificial grasses, cattle in the permanent pastures, and both have occasional assistance from the green crops. This system, I think, much more to be commended than that of pasture only, as yielding a greater gross produce, employing more hands in cultivation, and tending to support a larger population.

It seems difficult to ascertain the quantity of stock that can be fatted or fed on a given number of acres, on account of the land being generally occupied by a mixt stock. Mr. Martin informed me, his chicory would have summered six sheep per acre; and I was told of instances, in the county, of a good crop of the first year's clover summering ten sheep per acre. But this can be only through the most plentiful time, in a plentiful summer. Mr. Young observes, Annals, No. xxxvi. "The grazing-"lands here are stocked in the proportion of one ox "and one sheep to two acres, besides which, one "sheep is kept in winter: there is much winter fat-"tening, and all upon hay, which is given in the "barbarous way of scattering it about the fields, the

"stacks

" stacks being made where it grows: a very great " improvement might be made, in this part of their " economy, by stacking their hay near to small farm- " yards, which might be made with furze, faggots, &c. " at a small expense; these would collect dung, and " that would enable them to have cabbages for winter " food, which would yield a much greater profit than " hay."

Notwithstanding this theory, I find a very strong idea, amongst the occupiers of grazing-farms, that stock will do much better, ranging at liberty, on old pasture-land, (where they meet with occasional picking,) and hay occasionally given them, than they will do confined in a stall or yard; particularly unless, in the latter situation, they have better and more expensive food; also, in the present system, they require but little care and attention; and I believe the graziers will not be readily prevailed on to change it for stall-feeding and cabbage-cultivation. I find, however, that both corn and oil-cake are in use, but only on a small scale.

In a farther tour through this county, in the summer of 1806, I had an opportunity of examining several grazing occupations, some of which I am at liberty to detail, without concealing any particulars, and others not. Mr. Bull, of Daventry, very kindly sent a very intelligent friend to show me his grazing occupation, at Fawsley, of about 300 acres, and would have gone himself, but for the effects of an accident. The parish of Fawsley belongs to the Knightley family, who reside in it: it contains about 3,000 acres, without a single blade of corn, being wholly at grass and applied to feeding, and mostly to the fatting of oxen and breeding and fatting of sheep. Mr. Bull

has here a rich grazing close of 210 acres, stocked, besides sheep, with oxen of various breeds; the number in this pasture, Aug. 1806, was 90 head of different breeds, Hereford, Longhorn, Scotch, and Welch: with some of mongrel breeds: some of the prime Herefords cost in 28*l.* each; and he admits, may come to 14 or 15 score the quarter; but does not in general prefer heavy oxen: has a great many more in other pastures; some of the Welch not expected to make more than eight score the quarter: says, that many oxen, bought in last year, are now selling, at Smithfield, so as not to make more than prime cost, at 6*d.* per lb. which is the present price of hard growers, or inferior beasts; but the prime oxen are worth to 7½*d.* per lb. In general, one-third of the value of an ox, in Smithfield, is more than the grazier gets for a year's keeping, united with expense, trouble, risk, and interest of capital. Many bullocks, of the Pontypool breed, (Monmouthshire,) are grazed in this neighbourhood, some so small as not to come to more than six score per quarter when fat: spay heifers also grazed in this neighbourhood, as well as bullocks.

Leicester sheep are bred here, and grazed with the bullocks. Prime lots of two shear weathers, average 30 lb. the quarter each, all round, and shear four to the tod. Flocks, in general, four to five to the tod of 28 lb. Pasture, at present, Aug. 1806, plentiful, from the late frequent showers, but had been bare and scarce in May and June last from the effects of drought.

Mr. Daniel Bosworth, of Holmby-Lodge, grazes a good many bullocks and spay-heifers; had, when I saw them, Aug. 28, 1806, about 50 in hand, and as many had been sent this season to Smithfield, but no great or heavy ones. The sorts, Longhorn, Hereford, Devon,

Devon, Scotch, and Welch, bought from jobbers, at neighbouring fairs, at from 13*l.* to 20*l.* each, weight, when fat, 9 to 12 score per quarter. Mr. Bosworth sells his own cattle in Smithfield, and goes up for that purpose: has a drove now on the road, which he will follow. Mr. Bull, of Daventry, does the same. The present Smithfield prices, 6*d.* to 7½*d.* per lb. sinking the offal. Mr. Bosworth never stall-feeds, having no sheds; nor can have any without building them himself, yet keeps a lot of oxen for January, which he supports by spreading thin on the best feeding land, and with a little hay; buys in store-stock, progressively, the whole year round, as the fat ones are sold; and showed me a lot of Welch bullocks, bought lately at 13*l.* 10*s.* each, which he hopes will make nine score the quarter within twelve months. They remain upon hand, on the average, from nine to twelve months.

As some compensation for the manure lost by the bullocks grazing at large, I found, on Mr. Bull's occupation, the dung collected together, in heaps, by a labourer with a horse and cart, which, after due fermentation, is again carried away and spread on the land.

Mr. Bosworth breeds a good many sheep, but buys in some: he showed me his two shear-wethers, which I estimate will average 30 lb. per quarter; which he supposes right. He sold them last year, to a country butcher, at three guineas and a half each.

I went over a very capital grazing farm, the occupier of which, not wishing to have his name brought forward, I am not at liberty to mention; but was attended by the bailiff, who has the care of the team and cultivation, but is not connected intimately with the

the sheep and cattle stock. The shepherd is a labourer with a family, and the cattle are attended to in a similar way: size of the farm my guide was uncertain of, but supposed 6 or 700 acres. The tillage on this farm is noticed under "Rotation of Crops." No wheat grown in the parish, which may be 3,000 acres; and this farm he thinks about one-fourth of the whole: the grain grown in the parish does not exceed 50 acres; and the population ten or twelve families, and about sixty persons, including the clergyman's family. The parish is antient enclosure, and the soil a deep rich loam.

The occupier of this farm has sometimes had, as I have been informed, 300 oxen, but not wholly confined to this farm, he having other grazing occupations. No cattle are bred here, but the oxen wholly bought in. The bailiff showed me, in different pastures, 105 oxen; they were all prime cattle, of the largest and most valuable breeds, Hereford, Longhorn, Devon, and a few of other sorts. He thinks about 60 have been sent to Smithfield this season, but knows not how many more were upon the farm, it not being his department, and I did not see the whole of the premises. About 100 acres of land are mown for hay, and stacked in different parts of the farm for the convenience of foddering on the turf in severe winter weather; a part being drawn home for the horses and home-stock.

The bailiff knew nothing of the prices at which oxen were bought in or sold out, or of their weight per quarter; but some of them were of great size, and must feed to 18 or 20 score the quarter, and from these weights for the largest, down to 15, 12, or 10, score the quarter the smallest. I think the average

of

of the 105 oxen I viewed must be between 12 and 15 score the quarter, 240 to 300 lb. with many above the largest weight. A lot of 30 or 40 are sometimes stall-fed in winter, with oil-cake and hay. The sheds are old, of no particular contrivance, (timber and thatch,) and the oxen simply tied to a post.

Mr. Bull, of Daventry, observed to me, that few fat oxen are stall-fed in this county; they can generally be kept in pastures to the end of January on picking, with the assistance of hay, and by that time, himself, and most graziers of the county, finish their fat oxen; a few, however, are occasionally stalled on oil-cake and hay: but the general supply of London, for the end of winter, and beginning of spring, is from Norfolk and the western counties.

On the capital farm, above referred to, the sheep-stock is regularly bred on the farm, and none ever bought in. About 500 breeding ewes are kept, of the most useful Leicestershire kind, and some rams annually procured from that county: about 1,400 are annually shorn: if the 500 ewes rear 600 lambs, the shearing will consist of 500 breeding ewes, 600 hoggits, or yearlings, ewe and wether, and 300 two-shear wethers; 100 culling ewes, and 200 hoggits, or theaves, being annually sold at the neighbouring fairs, or at home to butchers, jobbers, or farmers, and 300 two-shear wethers sent to Smithfield; the fleeces are four to five to the tod of 28 lb.

The turnips on this farm are eaten entirely by lambs, the first winter after weaning from the ewe; they have no turnips afterwards: the culling ewes and hoggits, or theaves, that are not wanted for stock, are sold off in autumn, or before the approach of winter: the shear hogs, and two-shear weathers,

as

as well as store ewes, are kept in condition through the winter, without turnips or other artificial green food, by being spread thin on the grass-land: the fat stock, of course, on the best feeding land, reserved in a proper state for their support, with the addition of a little hay in deep snows and severe frost.

A large tract of country, in the neighbourhood of this farm, and in some other districts of the county, is kept almost wholly at grass, and employed in feeding cattle, principally oxen and spay-heifers, and in breeding and fatting of sheep. These districts having been long enclosed, and, consisting of deep rich loam, have (by the grass having long lain, and had time to strike deep roots) acquired a rich productive herbage of a highly nutricious quality, capable of forcing fat the largest oxen and sheep,; and the occupiers having, by degrees, increased their capital, have the means of procuring and improving the most valuable live stock. Much of this rich old pasture-land will scarce admit of farther improvement, other than extirpating and keeping it clear of weeds; but a large proportion is certainly capable of great improvement by drainage, removing ant-hills, extirpating bushes, furze, and weeds; and I have no doubt, but a considerable portion may be highly improved, and in the most profitable way, by breaking up for crops, and, after clean fallowing, laying down in a better form, with due attention to drainage where wanted.

But these districts, where void of manufactures, are naturally thin of inhabitants, as feeding-land, in this state of improvement, affords little employment; and the increasing families, if such there be, must in part emigrate

emigrate to towns or manufactures; but it is from such districts that the immense consumption of animal food in London, and other great cities and towns, can alone be supplied.

I give the following estimate of the beef and mutton produced in Northamptonshire. It is very clear, from the nature of the subject, that every estimate of this kind, founded as this is, only on conjecture and general observation, must be uncertain; it is, however, the best I can at present produce, and may stand for future correction.

	Acres.
The grass-land and green crops of the county I estimate at, about	400,000
Which land, I supposed stocked and occupied as follows:	
By horses	100,000
By daily and store-cattle	100,000
By sheep and feeding cattle	200,000

The beef and mutton produced in this county is supposed to be nearly equal in weight. The feeding cattle are very generally bought from other counties, at about two-thirds of their value when fat. The sheep are bred and reared in the county. I estimate that an acre of Northamptonshire land will produce 180 lb. per annum of beef or mutton bred on the land; but, of beef, from cattle bought in as they are, from elsewhere, 540 lb. per acre.

	Acres.
I suppose, applied to the rearing and fatting of sheep, ...	150,000
And to the feeding of oxen and other cattle	50,000
as above account,	200,000

150,000 acres,

	lb.
150,000 acres, applied to the rearing and fatting of sheep, produces, at 180 lb. per acre, of mutton, ...	27,000,000
50,000 acres, applied to the feeding of cattle, such cattle being bought in, in good store condition, produce, at 540 lb. per acre, of beef, ...	27,000,000

If we suppose the sheep to average 27 lb. per quarter, then the number of sheep, annually fatted, to produce the above, will be 250,000.

And reckoning the cattle to average 10 score the quarter each, the number, fatted annually, to produce as above, is 33,750.

Feeding land.—M. Daniel Bosworth, of Holmby-Lodge, informed me, that he has leave from his landlord to break up some old ant-hill pastures, upon condition of taking but two crops, then fallow; or turnips, or coleseed, and lay down the fourth year with barley and seeds; but thinks it would not answer so well as grazing upon a seven years lease, which is his present tenure; as he says, it ought to have in the tillage 20 quarters of lime per acre.

The Lamport Society are of opinion, that grazing land should be cleared of ant-hills; for, although there may appear a greater surface where they abound than upon level ground, the quantity of herbage produced upon them is so small, and the quality so inferior, as to be of much less value than level land. The cheapest and most effectual method is to cut them entirely off with a spade, observing not to leave the middle hollow but rather convex, laying it in in large heaps, and mixing it with lime when the turf is decayed,

as

as a dressing for grass-land; unless it be on strong clays, then they are better performed by the old mode of paring, taking out the inside of the hill and replacing the turf.

This remedy is wanted, and ought to be applied to a large proportion of the old grazing-land of this county, in some of which the ant-hills are so abundant, that it is possible to walk over many acres, step by step, from one ant-hill to another, without ever coming upon the level ground: it must, however, be admitted, that the most industrious occupiers, and best managers, have generally cleared their premises of these nuisances.

CHAP.

CHAP. IX.

GARDENS AND ORCHARDS.

THIS county contains nothing particular in this way; the farm-houses and labourers cottages have gardens, for raising the usual vegetables, such as pease, beans, cabbages, potatoes, &c. Perhaps it would be well, if labourers' tenements had in general more garden-ground, as such land, well managed, is more productive than under the usual farm cultivation; and, I think, every industrious labourer should have so much ground as he can well manage, in garden culture. Respecting orchards, the county is not wholly without them, although not famous for them. I saw instances of productive orchards at Walgrave, Weston Favel, and several other places about the centre of the county; the sorts of fruit, apples, pears, cherries, and walnuts. If orchards were at all an object, there are, doubtless, situations and soils adapted for fruit trees: the most proper scite is, a deep friable loam, on a marl bottom, and a sheltered situation, covered from the north and east winds; but fruit is a production not much attended to in this county.

In my tour through the county, in 1806, I had an opportunity of observing the excellence of the garden-

ground

ground around Northampton, where onions and carrots are cultivated in great plenty and perfection, as well as every other kind of kitchen garden stuff. William Smith, gardener, of that place, had just sown half an acre of cabbage plants, after early pease, and the land well limed; this land was in the following course: 1. early pease, the land limed, and cabbage plants the same year; 2. potatoes; 3. wheat, the land not digged, but ploughed for the plants.

There are also very good fruit orchards, for domestic use, around this town. Smith informed me, that he had, this year, bought an apple orchard here, of two acres and 40 trees, for 25 guineas, from which he expects 400 bushels of fruit: some single trees, he thinks, have on them 30 bushels; cherries, and other fruit, are also in plenty in the neighbourhood; the Orleans plumb is here fine and well flavoured, price in the market 6*d.* per quart, or six for a penny. Smith, the gardener, drives a market cart regularly, twice a week, to Daventry, 12 miles, with garden stuff, passengers, and parcels; says he has reared 12 children by his industry, without any original capital; keeps a stout grey horse, of 16 hands high, for his market cart, of whose exploits he boasted to me, and I dare say with truth; says he can draw a ton the said 12 miles and back the same day, or plough with his one horse as much as some farmers teams of three horses; lately ploughed his half acre, for cabbage plants, well, and fetched 10 quarters of lime to manure it, at four times, several miles, with his one horse; but he gives him two bushels and a half of corn per week, besides hay and grass. He goes to London at times for melons, which he can buy there cheaper than he can raise them.

CHAP.

CHAP. X.

WOODS AND PLANTATIONS.

THE woodlands of this county are very extensive, and, from the breadth and quality of the soil they occupy, are a matter of considerable national importance: the writer of this, therefore, proposes to occupy a few pages, in extracts from Mr. Donaldson and others, and in making his own observations on a subject so interesting to the public in general.

The woodlands of Northamptonshire may be arranged in four distinct classes: 1. forests; 2. chases; 3. purlieu woods; and, 4. woods and plantations, being freehold property.

The forests are, I suppose, of the same tenure with the other crown lands, and may, in some degree, be considered as public property: the most considerable is that of Rockingham, situated in the north-west part of the county, which extends from near Wandsford, on the great northern road, towards Weldon and Rockingham, and still farther south-west: as Mr. Donaldson observes, forming an almost continued chain of woodland country for near 20 miles, though I believe the length to be hardly

so

so much. This forest is certainly very extensive, I penetrated it on horseback from Rockingham to Weldon, and again made an excursion from near King's Cliff, with frequent interruptions from mounds and fences, insomuch, that it is not possible, without a guide, to know the boundaries, but it very probably contains 8 or 10 thousand acres. The next, in point of extent, is Whittlebury, or Whittlewood forest, extending on the south border of the county, according to Mr. Young, above 11 miles in length, and containing, by his estimate, 7000 acres. I crossed this forest from Brackley to Towcester, and made several pretty long excursions from the road; and again, in a circuitous direction from Pottersbury to Wakefield-Lodge, and thence into the London road, near Towcester: If to these two we add the third, viz. Salcey-Forest, between Northampton and Newport Pagnell, to the south of the road, we shall have an extent of forest land of about 20 thousand acres.

The chaces of Geddington and Yardly are of considerable extent; the purlieu woods are both numerous and extensive, and cover large breadths of land. If to these be added the extensive woods and plantations that abound on private freehold property, I believe we shall have at least 20 thousand acres more woodland, making, with the forests, an extent of woodland, to the amount of 40 thousand acres. I believe this estimate not overcharged, the breadth of woodland, on many private estates, being very great; witness those belonging to the families of Exeter and Pomfret, as well as on many other estates in the county, very advantageously and ornamentally situated.

Mr. Donaldson has made and procured many pertinent

nent and judicious remarks on the management and abuses of the forest and purlieu woods: he has also made other remarks, tending to raise an alarm respecting a probable scarcity of oak, for navy uses, in which I can, by no means, agree with him, and therefore shall give my reasons why there is no danger of such scarcity of navy-timber ever occurring; and, if there was, that it would not be prevented by forest management, the land of which should be for the greatest part applied to the more valuable purposes of corn and pasture.

The whole of what are now considered to be forest-woods are subject to the depasturage of the deer, and, at a stated time of the year, to the depasturage also of the cattle belonging to those who reside in the adjoining townships, and who claim to be possessed of a right of commonage; on these accounts, the profit arising to the proprietors of these woods, from the cutting of the timber and underwood, is small, compared with that arising from regular well-managed purlieu woods, which are not subject to the annoyance of the deer and cattle.

The underwood in the forests and chaces principally consists of black and white thorn, ash, sallow, maple, and a small proportion of hazle. They are generally cut at from 12 to 18 years growth; the different woods are divided into so many parts or sales, as the number of years growth at which the underwood that is cut may amount to, so that a regular rotation in cutting takes place every year.

The proprietors of the underwood, in the forest-woods, are empowered, by the antient laws and customs of the forest, to fence in each part or sale, so soon as it is cut, and to keep it in band, as it is here termed,

termed, for seven years, except against the deer, which are let in at the expiration of four years; but the cattle belonging to the commoners are not let in till the end of seven years from the time of cutting; so that there are always seven parts, or sales, constantly in band, and in which the cattle of the commoners are not permitted at any time to depasture. But from the depredations to which the young underwood is subject, by so early an invasion of the deer and cattle, even at the regular and stated times before mentioned, besides the great damages frequently sustained from inattention to the repairs of the fences, during the time it should be kept in band, the heavy expenses attending the making a new fence in the first instance, and the continual expense incurred in keeping it in repair during the time it should stand, make the profit arising from the underwood very inconsiderable to the proprietor, compared with any moderate rent that might be expected from the land. The forest-underwood, through the whole sale, or part which is cut, does not in general bring above 4*l.* the statute-acre, though sometimes it is sold as high as 6*l.* the acre upon an average of the whole sale; but this depends entirely on good management in keeping the fences in proper repair, so as to prevent the deer and cattle from breaking in before the limited periods, as well as in suffering the underwood to stand to a greater age than usual.

At the time the underwood is to be cut, it is parcelled out into small regular-sized lots, generally consisting of about a statute-rood of ground; the divisions of the lots are made by cutting a number of small passages or openings, called trenches, which intersect

each other at regular distances, and these trenches are just cut wide enough to admit of a passage between each lot; the underwood is valued and sold standing, and the purchasers cut it and carry it away at their own expense. A considerable part of it is made into hurdles, for folding sheep on turnip; the remainder is applied to other purposes, and used as fire-wood. There were no coals in the county but what were brought up the rivers Nen and Welland; but plenty of pit-coal is now (1806) brought by the Grand Junction Canal to Blisworth, within a few miles of Northampton and Stony Stratford, from the collieries of Staffordshire and Warwickshire, and sold at different places on its banks; fire-wood must, therefore, be less wanted, and must decline in price.

A fall of oak-timber * is generally made at the proper season in that part, or sale, in which the underwood has been cut; and this fall consists of the most unthrifty and unimproving trees, but the quantity and description of timber must depend, of course, upon the state of the wood, as to the stock of timber.

It is a general custom in the forest-woods to value and sell the trees standing. Distinct and separate valuations are generally put upon the timber, the top,

* There is a very small quantity of the oak-timber taken out of the forest-woods consumed in the country. It principally consists of timber of a large size, and more fit for the use of the navy than for country purposes. It is therefore generally bought in large bargains, by contractors for the navy, who come into the county regularly every year, during the season for felling the oak-timber.

Large timber is not unfit for country-purposes, as it can be sawed or clefted down to any size; being worth more for navy-uses is the reason it is not used in the country.

and

and the bark, respectively. And it sometimes happens, that these three articles are sold to three different purchasers; but it is more usual to sell the tree and the top together, reserving the bark, which is sold to one purchaser, previous to the fall of timber being made. The conditions and prices vary in different parts of the county; they run, generally, however, at from 7*s.* to 9*s.* in the pound of the value of the tree.

The prices of timber in this district are as follow:

1797.—Oak,	from	1*s.* 4*d.*	to	2*s.* 6*d.*	per foot.
Ash,	from	10*d.*	to	1*s.* 6*d.*	per ditto.
Elm,	from	9*d.*	to	1*s.* 4*d.*	per ditto.
Poplar,	from	6*d.*	to	1*s.*	per ditto.
1806.—Oak,	from	2*s.* 6*d.*	to	3*s.* 0*d.*	per ditto.
Ash,	from	1*s.* 6*d.*	to	2*s.* 6*d.*	per ditto.
Elm,	from	1*s.* 0*d.*	to	1*s.* 6*d.*	per ditto.
Poplar,	from	1*s.* 0*d.*	to	1*s.* 6*d.*	per ditto.

Every other kind of white wood, such as beech, chesnut, lime, &c. sells at something more than the price of fire-wood. These kinds of wood will advance in value when the Grand Junction Canal is completed: they are now, 1806, worth from 1*s.* to 1*s.* 6*d.* per foot.

It is a certain truth, and well worthy of the serious consideration of government, that the depredations committed in the extensive forests and chases in this county, by the deer and cattle destroying the young trees at a very early period, prevent the possibility of obtaining any considerable succession of oak-timber, as scarcely any saplings or young oaks are to be seen; although there are, undoubtedly, great numbers of seedlings produced by the falling of

the acorns; yet, when the number of destructive enemies, to which the seedlings are exposed in their infancy, is considered, it is a wonder how any of them escape their devouring jaws.

The forest-lands of this county are certainly managed under a most defective system; that of Whittlebury, whose soil is a good grey hazel loam, adapted to produce good oak or other timber, or which, under cultivation, would produce corn or grass equally well as the average of the county, is in some places, for a large tract together, a mere thicket of blackthorns, and would be impenetrable were it not for the rides cut by art. In many places there is not an oak upon a dozen acres, or any other timber-tree; but the land is wholly occupied by bushes of hazel, blackthorn, underwood, and pollards, with here and there a beech sapling: in other places, a few ash-trees and pollards, sometimes a few oaks, scattered, perhaps ten or a dozen upon an acre, yet often promising and kindly in growth; there are but few bare spots, the vacancies being filled up with the underwoods, hazel, maple, hawthorn, blackthorn, dogwood, and willow.

I know no land in England, of equal staple, worse misapplied than a great part of this forest, which, in many parts of it, would not support a human being the whole year, from the produce of 50 acres. Some parts are more open, with large decaying oaks, and bushes of underwood scattered, but a good turf, where unencumbered. In some places sallow and elder are the underwoods: a few good oaks near the rides.

No stock in this forest but deer, horned cattle, and horses, and these thinly scattered, and the quantity of timber produced on an average, annually, per acre, so very small, that this tract may be said to be almost

almost lost to the community, except for producing fire-wood.

One-tenth part of the whole forest, properly selected, fenced from trespass, and the vacancies planted, would yield more timber, for centuries to come, than the whole forest will under its present system of management.

To render this forest-land useful and productive to the community, I should propose for it to be disafforested, and thrown into a threefold system of woodland, cultivation, and pasturage.

The improvement of the forest-lands, from worse than a state of nature, to that of being productive and useful land, might clash with the interests of some, and, on that account, may be opposed by them; but surely, in the present state of society and population, every private interest ought to give way to the general good of the people and the state. The general cultivation of these lands would find employment for the industrious, would produce corn and cattle for the markets, wool and hides for the manufacturer, and would materially increase the revenue and the general resources.

The state of the property in Whittlebury forest is as follows, as copied from Mr. Young: The underwood belongs, by a grant of the crown, in the time of Charles II. to the Duke of Grafton and his heirs male for ever, with the right of fencing out the deer and all commonable cattle, during nine years after cutting. The timber is reserved to the crown; and 14 parishes have a right of commonage for such cattle and horses (none for sheep and pigs) as they can support in winter. It would be natural to suppose such a right of more consequence than it really is. In 1789, there were

were found, by driving the forest, no more than 470 head of cattle and horses; this, at 12*s.* per head for summering, is only 282*l.* or less than 1*s.* per acre.

The value of underwood is much more considerable, but the right of commonage is equally mischievous to it and the timber; the latter in particular suffers greatly: the young oaks, of only nine years growth, are eaten up, barked, or trampled upon, so that none could escape, were it not for the thickets of black-thorn that here and there protect one; and much damage is done by carting, which might be prevented by better management. The depredations of the cattle and deer are not so easily guarded against; the growth of nine years is little protection against them; and, indeed, it might as reasonably be expected to raise a crop of corn without guarding against trespass, as a full growth of timber and underwood, the latter being to the full as liable to injury as the former.

Instead of the present system, I would propose, firstly, that one-tenth of the whole breadth of land, or some other proportion more proper, should be selected for timber, by proper and trusty judges, who should fix upon such spots where the timber was kind and promising, and which contained a sufficient number of growing oak-trees, or promising plants, without regarding altogether contiguity or compactness of situation; and that this proportion, so selected, should be well fenced in, and secured from trespass, as a nursery for timber, and that this should be a part of the allotment to the crown, and the vacant places, if any there be, filled up by planting.

2. That all other timber, in any part of the forest, fit for ship-building, should be marked out by a purveyor, and cut down within a fixed time, and the timber

timber conveyed to the navy-arsenals, and the appendages sold for defraying expenses, and accounted for.

3. That an allotment of land be given to his Grace the Duke of Grafton, in lieu of underwood; and other allotments to the land-owners and freeholders having right of common, to be ascertained by commissioners appointed for the purpose, and as convenient and contiguous to their respective properties as may be; and that the timber, over and above navy timber, growing on the respective allotments, be offered with the land, at a valuation, and, upon their refusing it, to be sold by auction.

4. That the remaining land, being the property of the crown, over and above the woodlands first mentioned, be divided into lots of from 100 to 300 acres each, and, with the timber growing thereon, (except navy-timber,) be sold by auction to the best bidder; and that, to encourage bidders, the commissioners appointed to this business should be empowered to take securities, or mortgages of such land, from the purchasers, at interest, such interest to be paid to trustees appointed, or into a proper office; and the said securities to be redeemable by the purchasers, when they should find it convenient.

5. That, to encourage a growth of grain thereon, an annual land-tax should be laid (suppose) in the following proportion, viz.: 1*s.* per acre upon all land left in its natural state; 6*d.* per acre upon all land in a course of cultivation; and 1*s.* per acre upon all land laying at pasture more than seven years, such tax to commence at seven years from the time of sale, purchase, or allotment; or, if thought more equitable, such

such land-tax to be by a pound rate in some such proportion.

By the above plan, 18,000 acres of the forest-land of this county might be brought into cultivation, and 2000 acres of the best woodland reserved for timber, which (when fenced in, secure from trespass, and ready to begin cutting) might, under good management, furnish 2000 loads of timber per annum, for ever, and the clearing of the other parts of the forests might furnish the same quantity, until the selected woodlands should be ready to begin cutting; and that this quantity of timber, for navy and country uses conjointly, might be produced on this system, I have not the least doubt; and in the allotments made in lieu of rights, or in those sold, I see no objection to reserving any select trees, not fully grown, for the public use, marking and registering them, even though they should not be cut down for 20 or 30 years to come.

It is very possible, that the annual produce above named, as probable during and after disafforesting, is more than the forests now produce, or will produce, by the present management; yet I see no reason to doubt but that produce may be obtained, and, consequently, nine-tenths of the forest-lands are lost to the public, under the present system.

Salcey forest is of considerable extent, and contains some large grown oaks, but thin on the ground, with very little succession of young trees or plants. A considerable quantity of large oak has been lately felled, and the felling done with the saw, which I cannot commend, as it is much inferior to axe-work; and as, by grubbing, 12 inches additional length to each tree

will

will be obtained, and with little, if any, more labour or expense. If any gentleman should doubt this, I only wish the opportunity of trying a couple of axe-felloes against a pair with the saw, which would sufficiently prove the superiority of the former. The timber in this forest is now so thin on the ground, and so void of young plants for succession, that no considerable supply of ship-timber must be expected from hence, after what is now on the ground shall be exhausted. All the young plants have *long* been ruined by the depredations of cattle, and no one acquainted with this forest can doubt, but more timber might have been produced from one-tenth of the compass of land, well fenced and secured from trespass, than has been from the whole in the established system. The open parts of the forest are stocked with deer, horses, and horned cattle.

I estimate that the produce of navy and other timber, from the forest-lands of this county, on their present system, for the whole of the next century, may be rated upon an average of 10 loads from an acre, valued, with its appendages, at 5*l.* per load; this would be 50*l.* per acre, in 100 years, or 10*s.* per acre per annum, rating the pasturage at 2*s.* and the underwood at 6*s.* per acre per annum. The whole produce of the forest-land, to the public, is 18*s.* per acre; but this land, in a system of cultivation, might produce 5*l.* per acre per annum, being, I believe, nearly equal in quality to the average of the land of the county. If the whole extent of the forest-land in the county be therefore 20,000 acres, then the gain to the public, by disafforesting these lands, would be 82,000*l.* per annum, and the increase of national capital, in stocking them, about 100,000*l.*

If

If an acre of wood-land can be made to yield the value of 5*l.* per annum in timber, bark, underwood, &c. for ever, I consider it as of equal value to the public with cultivated land.

If the produce of these forest-lands, for the next century, be rightly estimated at 50*l.* per acre, the whole might be anticipated, by disafforesting and sale, thus:

	£
Value of the soil, per acre	20
Of timber for navy-uses	20
Of other timber and underwood .	10
In all . . .	50

Respecting the subject of the possibility of a scarcity of navy-timber, what reason can be advanced for harbouring any such idea? Has any want of it been experienced during the present long and extensive naval war? No such thing has been heard of; our commerce and spirit of enterprize are such, that we import the greater part of what is used for building and domestic uses: and the communications between the sea-ports and the interior of the kingdom are now so easy, by the canal-system, that it may be drawn from any quarter. So long as we exist as a maritime nation, and timber exists in any part of the globe, we cannot want the means of procuring it; and, the fact is, there is nothing like a scarcity of it, or the symptoms of approach, or probability of scarcity in our island.

Mr.

Mr. Donaldson observes: I am indebted to Mr. Edmonds, of Boughton-House, for the following very interesting observations, and for many others scattered in various parts of the report.

Purlieu-woods are those woods which are situate immediately in the vicinity of the forest, and which, at one time, formed a part of it; but the respective owners having, at some former periods, obtained grants and permission from the crown to disforest them, and to consider them as their own private property, they are not now subject to any of the laws and regulations to which forest-woods are subject.

Management of Purlieu-Woods.

The management of what are called purlieu-woods, in this district, differs materially from those of the chase and forest woods. These woods being entire property, of course there is no obstacle to prevent the proprietors of them from pursuing the best mode of cultivation and management in their power; but this advantage has been in very few instances taken; and little improvement towards rendering them more productive and profitable to the respective owners has been made. The underwood in these woods principally consists of hazle, ash, sallow, white and black thorn, and some maple; it is generally cut from 11 to 14 years growth, when the season for cutting arrives, which is so soon as the leaves are completely off. That operation is performed under the direction of the owner of the woods or his agent. The part intended to be cut is parcelled out, for the convenience of the purchasers, into regularly sized lots, consisting of 20 statute square poles each. The whole

of

of the underwood growing upon each lot is indiscriminately cut, and laid in one direction, on the ground from which it is produced; and, in some instances, care is taken to select such ash-poles as are of a larger size and properer to be converted to more valuable purposes than those which are indiscriminately sold with the underwood. So soon as the operation of cutting is completed, and the wood parcelled out as above described, a valuation is put upon each lot or parcel, according to its quality, and what it may consist of; and the whole is then sold to such persons as may be inclined to purchase the respective lots or parcels, who, over and above the price of the underwood, repay the expense of cutting it, which is proportioned at so much per pole upon each lot, according to its quantity. Such as the present mode of management is in these woods, their produce is much more considerable to the proprietor than forest or chase woods; but, it is believed, it is by no means equal to the produce of well-cultivated woods in other parts of the kingdom. The average-price of underwood, cut from 11 to 14 years growth, is about 6*l.* per statute-acre; but it is sometimes sold so high as 8*l.* per acre.

The underwood of the purlieu-woods, as well as of the other woods in this district, (the management of which is exactly the same as that of the purlieu-woods,) is principally bought by bakers, who consume it as fuel. A considerable quantity of the smooth wood is manufactured into sheep-hurdles, which are used for temporary fencing: but, in all cases, a reservation is made by the purchasers of the ash and sallow poles, which are used for various useful purposes in husbandry. A fall of oak-timber is usually made in that

that part or quarter from whence the underwood is cut; the quantity of which, of course, depends upon the state of the wood, as to a stock of timber.

The oak-timber in the purlieu and private woods, on account of there being so good a succession, as well as on account of there being a great deal of underwood, seldom attains to so large a growth as that found in the forest and chase woods; it is, therefore, much more fit and convertible for country-uses, and for all purposes of building and husbandry, and is principally bought by carpenters, joiners, wheelwrights, and other artificers in the neighbourhood.

Chase-Woods.—There are two chases in the county, viz. Geddington and Yardly. The former was once a part of Rockingham forest; but permission was given by the crown, many years since, to the ancestors of the Montagu family, to disforest it, and to convert it into a chase; the latter, it is presumed, was once a part of Salcey forest, and has been disforested likewise.

Geddington Chase is supposed to contain about 1400 acres, of which, perhaps, 1200 acres are woodland, the remainder consists of lawns, plains, ridings, and vistas. The whole was the joint property of his Grace the Duke of Buccleugh and the Right Honourable Earl Beaulieu, subject to a commonage at a stated time of the year, viz. from May-day to about Martinmas, for the adjoining townships. Deer are kept in it; and it is in every respect managed like the forest-woods, as to fencing out the deer and commoners cattle from that part which is annually cut. The woodland is divided into 18 parts, or sales; in one of which the underwood is cut, and a fall of timber made every year. It is afterwards fenced in for seven years,

years, (viz. four years from the deer, and seven from the cattle); so that there are always 14 parts out of 18 open to the former, and 11 parts out of 18 open to the latter, besides the plains, ridings, and vistas, a small part of which only are at any time included within the fence of the parts which are cut. Although there is, at this time, a valuable stock of oak-timber in this chase, principally consisting of trees of a large size, and which have been the growth of ages; yet, perhaps, this extensive and valuable track of woodland exhibits, at this moment, the most striking and lamentable instance of the evil and pernicious consequences that must inevitably attend property circumstanced as the forest and chase woods are. The depredations and ravages committed by the deer and cattle upon the young springs and coppices, at so early an age, not only prevent even the smallest possibility of obtaining a regular succession of oak-timber, but cause a daily diminution in the growth of the underwood. The injury sustained, by the deer being admitted into the young spring wood, in the first instance, is very considerable; but that injury is small indeed, when compared to the destructive havock made by the devouring jaws of a herd of hungry cattle, admitted into the young coppice just as the leaves have begun to appear, and at a season of the year when it sometimes happens they have just survived a state of famine, the consequence of a want of sufficient fodder, in a hard and severe winter. All the townships using a commonage in these woods (except one) are in an open-field state, and no attention is paid by the occupiers to the description of cattle bred and reared, which are of the most inferior kind, and which, in consequence of the inability of the

the occupier of an open-field farm to procure a sufficiency of food for their support in the winter season, are reduced to an extreme state of leanness and poverty at the time they are turned into the woods, when whole herds of them rush forward like a torrent, and every thing that is vegetable and within their reach inevitably falls a sacrifice to their voracious and devouring appetite. Under these circumstances it is not at all surprising that contagious maladies are frequently the fatal consequence; to which cause a considerable number of cattle fall victims; and the loss sustained by the owners not only deprives them of any profit or emolument from those that are fortunate enough to survive the malady, but prevents their deriving any advantage from the commonage that year, and probably for many years to come. Such are the inconveniences which must ever attend property held under a mixture of interests, so extremely inimical to each other, as those of the commoner and the proprietor of the timber and underwood are, in woods of this nature.

Woods on Freehold Property.

The following particulars of this kind of property were collected by Mr. Young, when on a visit at Wakefield-Lodge; as I cannot possibly say any thing more proper on the subject, I take the liberty to transcribe it from his annals.

The great value of woods in this country will appear from a state of the sales of underwood and timber, for three years, in certain woods of the Duke of Grafton's private property, which his Grace favoured me with, and which I shall insert here, as the management of the timber is not common, and merits considerable

siderable attention. It is to be noted, that, in these woods, trees will not come to a great size, yet are very profitable to a certain growth, provided they are left with judgement, taking out all such as will not thrive well; these coppices are cut at 13 years growth, and the timber, according to its thriving, at two to five falls of the underwood, that is from the age of 26 to 65 years; beyond which age it does not pay for standing.

Sale of Underwood and Timber on the Duke of Grafton's Estates, in Northamptonshire, 1789, 1790, *and* 1791.

	A.	R.	P.		£	s.	d.
1789.—Seywell wood	5	2	16	Underwood cleared	30	0	2
				Timber ditto - -	70	13	6
					100	13	8
Grubb's coppice	4	3	2	Underwood cleared	21	18	3
				Timber ditto - -	82	18	0
					104	16	3
Plain woods .	12	1	34	Underwood cleared	45	17	3
				Timber ditto . . .	141	12	0
					187	9	3
Ashton wood .	6	2	0	Underwood cleared	34	6	8
				Timber ditto . . .	53	4	6
					87	11	2
1790. - Seywell wood	4	2	25	Underwood cleared	14	17	7
				Timber ditto . . .	40	17	7½
					55	15	2½

Grubb's

	A.	R.	P.		£	s.	d.
" Grubb's coppice	4	2	7	Underwood cleared	30	5	9
				Timber ditto . . .	52	6	10
					82	12	7
" Plain woods . .	12	3	5	Underwood cleared	37	0	7
				Timber ditto . . .	85	11	4½
					122	11	11½
" Ashton wood .	8	1	29	Underwood cleared	45	10	0
				Timber ditto . . .	81	1	8
					126	11	8
" 1791. Seywell wood	6	2	6	Underwood cleared	30	11	6
				Timber ditto . . .	32	17	1½
					63	8	7½
" Grubb's coppice	6	0	4	Underwood cleared	33	2	10
				Timber ditto . . .	80	16	0
					113	18	10
" Plain woods . .	12	1	0	Underwood cleared	38	3	6
				Timber ditto . . .	132	6	6
					170	10	0
" Ashton wood .	4	2	18	Underwood cleared	19	3	1
				Timber ditto . . .	66	1	2
					85	4	3"

" *N. B.* The tythe, which is paid in kind, and the expenses of new " fencing in the part sold, in the aforesaid sales of wood, are de- " ducted from the underwood account. The usual time of cut- " ting is at 13 years growth of the underwood."

"Average of the whole 14*l*. 14*s*. per acre, for 13 "years. This land pays, therefore, above 20*s*. per "acre per annum."

It does not by this account appear certain, that an equal value of timber can be cut in future falls, without which the profit will be much lower.

"A remarkable instance of the great produce of "wood occurred upon the Ascot enclosure; 14 acres, "a corner of the field over-run with rubbish, had so "bad an appearance that none of the proprietors "wished to have the allotment; the Duke of Grafton "did not object, and had it; it was carefully fenced, "and half of it cut in 11 years; the seven acres sold "for 63*l*. or 9*l*. per acre, or above 16*s*. per acre per "annum, the first cutting, with a certainty of a con- "siderable improvement as the copse thickens and is "preserved."

"These, and many other instances that might be "given of the great profit of woodland to the land- "lord, must not induce any one to think that the na- "tional interest is equally concerned. To him the "gross produce and the net profit are nearly the same "thing; and 20*s*. from wood is better to him than 20*s*. "from a farm; but the difference is immense to the "public. The farm that gives 20*s*. rent, gives from "12*s*. to 20*s*. more in profit to the farmer; from "20*s*. to 30*s*. and even 40*s*. to the poor in labour, be- "sides the support of artizans, &c. All woods, there- "fore, in the eye of the public, should be considered "as a species of waste; a productive waste, it is true, "but not by three-fourths so productive as corn and "grass."

" * How wood can answer so well as it does is abso-
" lutely unaccountable, for the quantity in this country
" is immense, and the consumption not accounted for
" by the number or size of the towns, or by the po-
" pulation of the country. The prices are——

" Cordwood billets, 8*d.* to 1*s.* per cwt.

" Underwood faggots, 12*s.* to 15*s.* and 20*s.* per 120.

" Brick-kiln faggots,† 10*s.* to 12*s.* 6*d.*

" Timber top and underwood of the same price.

" Oak timber, 10*d.* to 2*s.* a foot; prime
" pieces, for coopers, 2*s.* 6*d.*
" Browse trees, 8*d.* to 9*d.*
" Ash timber, 1*s.* to 1*s.* 6*d.*
" Elm, 10*d.* to 1*s.* 2*d.*
} in 1792.

" Poplar, 8*d.* to 10*d.*

" Bark, 5*s.* to 5*s.* 6*d.* in the pound on the value
" of the timber; thus, tree 20*s.* bark 5*s.*"

* It is to be accounted for by the dearness and scarcity of coals, and the consequent demand for wood as fuel; in consequence of the Grand Junction Canal, the demand for fire-wood will be much lessened.

† They have an economical practice of burning lime on the kiln at the same time with bricks; to a kiln of 15,000 bricks, 40 quarters of lime are burnt.

CHAP. XI.

WASTES.

THE waste land in this county is trifling, but there is some little that seems to have undergone no kind of cultivation. Some of the hill-land, near Daventry, is only sheep-walk, and of this description; to this may be added the common of Stoke Bruern, and some few others of a similar kind. Harleston-Heath is enclosed, but only in part cultivated: I suppose the whole, except Peterborough-fen and the common-field pastures, fall short of 1000 acres; the proportion of this to the county is so small, that little can be said concerning it. The following are Mr. Donaldson's observations on this subject:

"There are many thousand acres of land in the "open-field lordships, in a state of common pasturage, "which, under proper management, might be made "to produce abundant crops, both of corn and grass, "while at present they do not yield pasturage, which "can, at the highest computation, be estimated at 5*s*. "the acre. Indeed, if the calculation was fairly made, "the occupiers are not benefited to the extent of half "that sum, as the stock which they send to depasture "upon these commons is liable to so many diseases "and accidents as, one year with another, nearly

"counterbalance

" counterbalance any advantages which can be de-
" rived from possessing this right; while, on the other
" hand, the keeping such extensive tracts of land in
" a state of commonage is attended with one very
" great disadvantage to the farmers in the neighbour-
" hood, because, while these rights of commonage
" are continued, no attention whatever will be paid
" to the improvement of the breed of stock; for it is
" not to be supposed, that a farmer, who depends on
" the scanty food, which these commons afford, for
" the maintenance of his cattle, horses, and sheep,
" will ever be at much expense or trouble for the im-
" provement of the different breeds. Without enu-
" merating all the various commons of small extent,
" situated in different parts of the county, or the na-
" ture or extent of the common rights of pasturage,
" possessed by those who reside in the neighbourhood
" of the forests and chases, it may only be necessary
" here to mention particularly that of

"THE GREAT PETERBOROUGH FEN."

" A tract of fine level land, containing between six
" and seven thousand acres, of a soil equal to any,
" perhaps, in the kingdom of Great Britain, and
" susceptible of the highest cultivation. It is si-
" tuated between Peterborough and Crowland, to-
" wards the north-east bounds of the county, and is
" subject to the depasturage of the cattle, horses,
" and sheep, of 32 parishes or townships in the neigh-
" bourhood, which comprise what is commonly called
" the Soke of Peterborough. The farmers, who live
" in the townships immediately adjoining, consider
" their right of commonage as of no value to them;
" and it may therefore be supposed, that those who
" live

" live at the distance of eight or ten miles, cannot be " much benefited thereby. Indeed, considering the " present mode of management, it is impossible that " any advantage can arise to the persons having right " therein. That it is a valuable tract of land, how- " ever, if under proper cultivation, is fully ascer- " tained from the following circumstance: The an- " nual expense of keeping the drains, bridges, &c. in " proper repair is considerable; and the means adop- " ted by those concerned, for raising a fund for this " purpose, is to let a certain number of acres to some " tenant in the neighbourhood, for a course of corn- " cropping, for three or four years, when it ge- " nerally rents at from 3*l.* to 5*l.* per acre. From " this account, it may be safely stated, that if these " six or seven thousand acres were converted into " private property, and divided into farms of a pro- " per size, the whole might be rented on leases of " moderate endurance, at from 20*s.* to 30*s.* per acre; " and it may farther be observed, that the produce " of these lands, under that system, would exceed " what they now yield, to the extent of many thou- " sand pounds a year, while the additional number of " hands, which would be requisite for the cultivation " of these farms, could not be short of 1300 or 1400. " The advantages, therefore, both of a public and " private nature, which must necessarily result from " a division of this common, are so obvious, as to re- " quire no illustration."

" The person who is most materially interested, is " Earl Fitzwilliam, though a great many others are, " to a certain extent, concerned. From the truly re- " spectable character of that noble lord, there can be " no doubt, that a proper application made to him,

" from

" from all those having interest in the division, would " be attended with the best consequences, as, from his " disposition to be serviceable to those who reside in " his neighbourhood, he would chearfully embrace so " favourable an opportunity of materially promoting " their interest. But as the whole inhabitants of these " 32 parishes may be said to be in some degree con- " cerned, and as it would answer no good purpose to " call together so numerous a body of people, it might, " therefore, be proper, that a meeting should be held " in each parish, and powers granted to one of the " most respectable of the inhabitants, to meet a per- " son deputed by each of the other parishes, in order " to make the application, and procure his lordship's " consent to the measure; and, if obtained, of which " there is no reason to be apprehensive, application " might then be made to parliament, who would, no " doubt, agree as to the propriety of the division, " and pass a bill, appointing commissioners to ne- " gociate the business in common form."

" Among the various important objects, which na- " turally fall under the consideration of the Board " of Agriculture, there are none which, in their con- " sequences, will prove more extensively beneficial " in a national point of view than their giving every " possible aid to those spirited proprietors, who are " anxious to promote the improvement of the " country, by bringing the commons and waste lands " under cultivation, as nothing will so certainly pro- " mote or maintain an increased population."

" With respect to what are the best means to be " pursued in regard to the common in question, it " would be improper in this report to determine. It " appears only necessary to repeat, that the improve-

" ment

and increase so as to cover the whole surface; and, upon attracting the attention of the neighbouring inhabitants, in some kindly and favourable season, upon the recess of the waters, they would find that they had only to confine the rivers within less bounds, to render this land useful and subservient to the support of themselves and their cattle, and the under stratum, being of a loose though sound texture, was found to be easily drained, and rendered sound land; accordingly, this land produces none of the coarse aquatic plants, and can be depastured by cattle, even when the water in the drains is within a few inches of being level with the surface, and produces plentiful crops of grass, either for mowing or pasture, of the same species that are common in the uplands; and, where it has been well drained and cultivated, gives great crops of grain, beans, coleseed, hemp, or any other crop. That this tract of country had its origin as above conjectured is demonstrated by its accuracy of level, which continues for miles, as proved by water in drains, and which no operation in nature would have effected but by the agency of a fluid. Under an operose system of drainage and cultivation, this district might be termed the Nile of England, and, with the advantage over its rival abroad, of not depending minutely on seasons; for crops are here, this showery summer, very full; and, I understand, a dry season suits equally well. After this, who can doubt but more attention ought to be paid to this district; and who but must wonder, that so large a tract of it as Peterborough Fen should have remained, to this day, undivided and uncultivated.

CHAP.

both understood and approved, yet a vast deal of this kind of work still wants executing in this county.

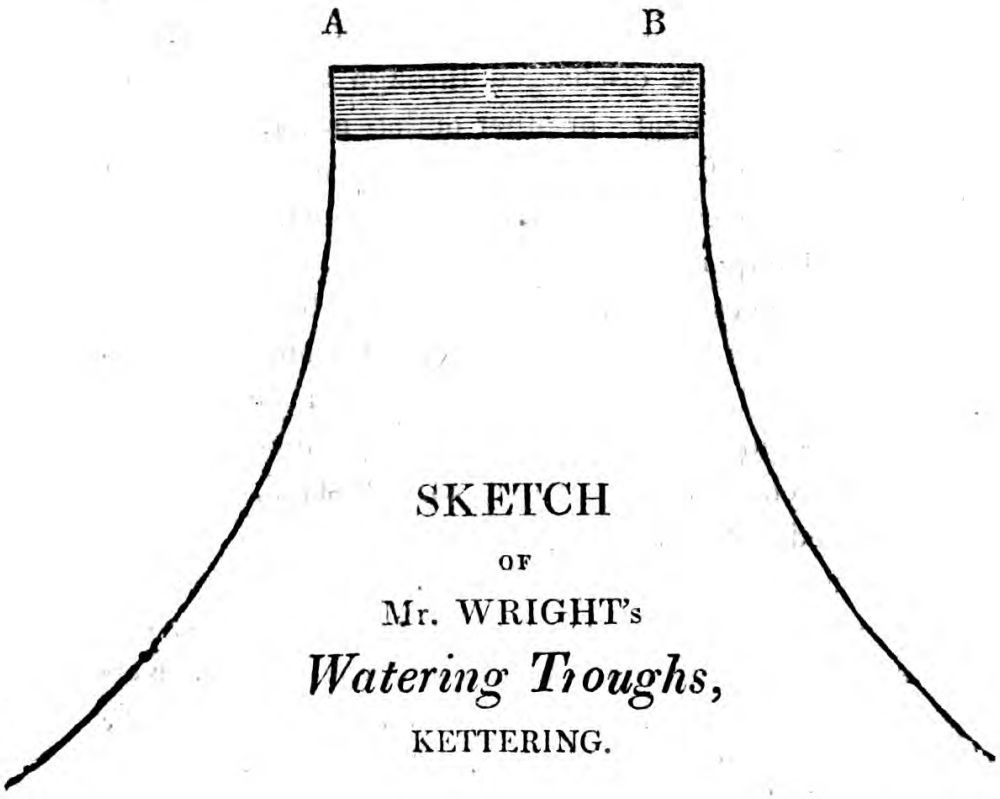
A considerable work, in the draining way, wants executing at Northampton, where the meadows above town are often overflowed by the backing of the river, merely occasioned by want of a vent for the water to discharge itself in floods, the present course of the river being artificial, without a sufficient opening left through the lowest ground. If the sewer under the alms-house were lowered and enlarged, the water might be discharged through it, in time of floods, over a wear; or other outlets might be cut, to prevent the frequency of floods above town, which are wholly occasioned by the want of such outlets.

The Lamport Society are of opinion, that there are circumstances under which land may be injured by draining; and that there are old grass-lands that produce good herbage, in which the water lies so deep as not to injure the roots of plants, which might be very much reduced in value, as grass-land, by being rendered too dry.

Messrs. Wright, of Kettering, who are great improvers of land, among other improvements, pay due attention to draining. In the late enclosure of Kettering field, they have made, and are making, considerable exertions in this way. Their main drains are open, hollow, covered, drains, formed of two side-stones and a covering stone: the intermediate drains are filled up with rubble-stones to a proper depth, and then covering such stones with a turf, the remainder is filled up with earth.

A part of the grass-land, upon the demesne of Laxton, (Lady Carberry's,) is at present of very small value, owing to stagnant water. The drainage

age is intended to be made general, under the direction of Mr. Knight, the steward, not only over the land in hand, but the tenanted farms also, at the owner's expense. Mr. Knight afterwards proposes top-dressing the grass-land with dung and compost. The drains are filled to a proper depth with rubble-stones, and the filling up finished by the turf and earth dug out of the drains.



SKETCH
OF
Mr. WRIGHT's
Watering Troughs,
KETTERING.

Mr. Wright, of Kettering, has conceived and executed the above idea in the common field of Kettering, by which the drainage-water is rendered subservient to the supply of cattle. A B is part of a main drain, suppose six feet long and one foot wide, composed of stone, with a gang-way, or path for cattle, sloped down to it, at three or four feet deep, and fenced

fenced on either side with a burr-stone wall. This opening is made just below the influx of secondary drains, which assist in the supply of water, and thus forms a perennial fountain, discharging itself over a wear-stone at the lower end. Two of these watering places I viewed in the driest part of the month of August; they had each a small flow passing through, and perfectly clear, sweet, and fresh, thus furnishing a supply for cattle from the drainage of the land, and with the least possible waste of surface; at the same time the land is highly improved by such drainage.

SECT. II. — PARING AND BURNING.

On this subject I have the following communication from Mr. Knight, of Walgrave, "Paring and "burning seems not to be on the decline, but rather "increasing: the beneficial effects thereof vary ac- "cording to the nature of the soil on which it is "practised. It certainly is the best mode of con- "verting old coarse grass-land into tillage, as it de- "stroys the different kind of grubs such lands are "generally infested with more effectually than could "be done by any other way. Those engaged in this "practice should employ a proper course of cropping "to improve, rather than an excessive one to ex- "haust, the land. After a crop of coleseed, a second "of oats, and a third of wheat, the clover-crop ought "to be introduced. and the land continued a few "years at grass."

Paring and burning seems a useful practice, in bringing old matty turf, or waste land, into cultivation,

tion, but not applicable to land in an improved state, or under a regular course of culture.

The Lamport Society are of opinion, that the following is the proper land for paring and burning, viz. Old grass-land, in which subterraneous water has been suffered to remain until sedges and other aquatics are become its principal produce, and which, when drained, is intended to be converted into tillage; such land should be burnt, it being the most likely method of obtaining valuable crops the first two or three years, and the land thus more effectually freed from the rubbish with which it is infested. This may be ploughed by a common swing or wheel, plough, to the depth of two or three inches: some cold land, likewise, should be burnt, which produces but little grass, and that of an inferior quality, the scite of which is favourable to the discharge of surface-water; this may be pared by a float, or breast-plough, to the depth of about an inch and a half. The best method of burning is in as small heaps as practicable.

SECT. III. — MANURING.

SEVERAL farmers complained to me of the injustice of Mr. Donaldson's observation, when he says, very little lime is used in this county as a means of improving the soil. On the contrary, I am assured that lime is conveyed, in very considerable quantities, from the lime-works at Kinsthorpe and Duston, near Northampton, from which works only 30,000 quarters are annually sold for manure, and conveyed by land-carriage

carriage to the very edge of Leicestershire, although the coals for burning it are very dear, being brought by land-carriage many miles, from Hillmorton, on the Oxford canal, or from the Union canal, in Leicestershire: there are also public lime-kilns at Moulton, Hardwick, Abingdon, and Blisworth, at which not less than an equal quantity with the above (viz. 30,000 quarters more) is burnt for manure, beside a great many private kilns kept on by farmers for their own use.

The above quantities, as sold for manure, were ascertained from inquiries made by the Lamport Agricultural Society; who farther informed me, that the above quantity of 60,000 quarters annually is used upon a district of less than 200 square miles; that it is laid on at the rate of 10 quarters per acre, the supposed average, and, consequently, that, within the above compass, 6,000 acres are annually dressed with lime, or near one acre in 20 upon the whole district: that some have tried as much as 15 quarter per acre; but the quantity recommended by Mr. Donaldson, of 300 or 400 bushels per acre, is thought very erroneous, both with respect to probable effect, and even expense, which could not be generally borne.

I observed, myself, several persons dressing the land with lime, October 1797, previous to sowing wheat, and was informed, that the improvement from it is much the greatest upon the red soils, of which a large portion of the district I have mentioned as using the above quantity is composed. It is possible this particular district might not have engaged Mr. Donaldson's attention, for lime is certainly here in great repute. On the grey soils it is less used, not having answered equally well; probably, they already contain

contain a large portion of calcareous earth; lime is, however, used in a greater or less degree in most parts of the county.

Farm-yard dung is laid on land, upon the average at about the rate of 12 cart-loads per acre; in the open fields generally on fallow, and, in the enclosed land, in various ways, for turnips, coleseed, or grass.

Mr. Donaldson has observed, "Marl is not used "here as a manure;" but, in a note upon this, by the Lamport Society, it is observed, instances of marl being used as a manure, with great success, might be found in this county before Mr. Donaldson's visit to it in 1794. I must observe, however, that it does not appear to have been much used. The marl-pits do not appear, as in some counties; and, possibly, it may not lay convenient, or near enough the surface. I saw an instance of the fertility of marl, in a patch of oats, sown upon the spoil of the Braunston tunnel, which consisted of marl: the crop was wonderfully luxuriant, but the marl had been dug from a considerable depth below the surface.

Woollen rags are also used, as manure, in this district, to some extent. Besides what are procured in the county, considerable quantities are purchased from Leicestershire, and the other neighbouring counties. They cost about 4*s.* the hundred weight, besides 2*s.* for chopping. Six hundred weight is generally applied to an acre. This kind of manure is generally used as a preparation for a crop of barley, and is found to answer well.

Soap-boilers' ashes are also used.

Folding sheep is still practised, though less now than when the land was more generally in an open-field state.

Compost

Compost heaps are now more attended to than formerly. When made, they generally consist of farm-yard dung, and the scourings of ditches, or soil collected on the sides of roads, together with a certain quantity of lime. The farmers who follow this practice consider the extraordinary expense and trouble as fully compensated, by the benefit which the lands receive from the addition of the rich earth and rotten vegetables which are thus procured, and which operate more powerfully in consequence of the lime with which they are mixed.

Since the above was compiled, in 1797 to 1806, the Grand Junction Canal has been completed, by means of which, fuel for burning lime is brought into the county with more facility, and lime, as a manure, has lost none of its former reputation.

Folding of sheep is also, in general, practised upon the fallow fields of all the open parishes; and, in the enclosed land where fallows are made, at Kettering, 150 sheep fold two acres per month, or 10 acres in the season; but a little fold-yard manure is strewed along the hollows where the sheep never lay: this is practised in all the open-field parishes. At Rothwell, 80 sheep fold an acre in three weeks, or about seven acres in a season. At Desborough the same. At Pottersbury, an enclosed country, the flock, although Leicester sheep, are folded upon the fallows all summer; and Mr. Roper says, that they could not be otherwise properly manured. The fold is on a fresh spot every night, made with hurdles, and its size proportioned to the number of sheep. Mr. Wright's fold, (Kettering,) for 150 sheep, contained 340 square yards; and, at Desborough, a fold for 80 sheep con-

tained 230 square yards; the average seems to be about two and a half square yards to each sheep.

The opinion and practice of this county seems to be in favour of rotten, or fermented, dung, in preference to its raw, or unfermented, state. The Lamport Society is of opinion, that dung, considerably reduced by putrefaction, should be laid on pasture-land, in April or May, and, on mowing-land, immediately after the hay is cleared. That the best manure for turnips is dung considerably reduced by putrefaction: that such manure loses little if any of its value by being exposed on land in a dry season; but that it loses much more of the power of promoting vegetation by exposure on land in winter: this may arise from being exposed to rain, snow, &c. which may carry away much of the fertilizing quality, or from the state of plants at that season being less favourable to receive food to promote their growth.

They are also of opinion, that lime should be laid on grass-land, when vegetation is in a vigorous state, mixed with soil before the lime has lost its active powers.

And that on tillage-land, as the beneficial effects of lime are more evident when the land is laid to grass than when in tillage, the lime should be laid on a short time before sowing the last crop in the tillage, and with which the grass-seeds are sown.

And that the best method of preparing dunghills is to take the clearing, daily, from the stable, cow-sheds, pigsties, &c. to a heap so guarded as to prevent horses and other cattle going upon it: this promotes and continues a regular and proper degree of heat and putrefaction. Every thing that by mixing

will

will heat and ferment should be carefully collected for that purpose.

Mr. Roper remarks, that road-scrapings, especially from the lime-stone roads, when mixed with lime and dung, form an excellent compost for top-dressing grass-land.

SECT. IV.—WEEDING, WEEDS, ETC.

THIS operation in husbandry is not conducted upon any particular system, and, as in most other parts of the kingdom, deserves more attention than is generally paid to it. The weeds, injurious in agriculture, may be divided into 1. those infesting grass-land; 2. arable weeds, and 3. those in hedges.

The upland pastures are often much infested with docks and thistles. The thistles are of the common sort, (serratula arvensis); these are generally mown with scythes in the course of the summer; but sometimes suffered to grow on through the season, when they have a most slovenly appearance; and, if the latter be suffered to ripen their seeds, they will fly over the whole country, and sow themselves on fallows, or heaps of compost, where they will thrive luxuriantly. These weeds are much better rooted up than mown, particularly docks; but the thistle is often in such abundance as to make that operation too tedious.

The black knapweed, (centaurea nigra,) and the larger thistles, (carduus's,) are common in moist pas-

tures, whence they should be rooted up; also the sheeps scabious, (scabiosa succisa).

Fern sometimes abounds on very dry banks, where it should be mown or rooted up. And rushes are to be found in most pastures, and are a sure indication of want of drainage.

Furze (ulex Europæus) is sometimes suffered on upland, on account of its value as fuel; but I hope the coals brought by the canals will occasion its extirpation. It may be burnt as it grows, in dry weather, and the ashes ploughed in for manure. Heath is found on Harlestone-Common, and on some other barren uncultivated spots, but might be destroyed by cultivation.

Arable weeds.—Squitch, or couch-grass, being the roots of the hardy perennial grasses, particularly of the triticum repens, the agrostis alba, or vulgaris, the avena elatior, and some others, is not so prevalent on the deep strong soils of this county as on thin gravelly soils. When it appears in arable land it is naturally destroyed by fallowing for wheat or turnips.

One of the most common and troublesome weeds is the goul, golding, or corn-marigold, (chrysanthemum segetum); these are suffered to flourish in great plenty and luxuriance in the turnip-crop, the cultivators not having the management to destroy them in the tillage, nor the perseverance to root them out of the crop. Dr. Withering observes, " In Denmark " there is a law to oblige the farmers to root it up " from their corn-fields. A large quantity, which " grew on arable land, was cut, when in flower, and " given to horses as a substitute for hay." Mr. Hollefear: " It is used by the Germans for dying yellow."

In

In Northamptonshire, the land subject to it is not plowed up early enough when in preparation for turnips, when it may certainly be destroyed by the following process: dung the ground in autumn and plough it up: cross plough in March and harrow down, and continue harrowing till the land is fine, when it may lay for some time; during which, part of the seed, forced by the dung and pulverization, will certainly vegetate. In May, plough again and harrow fine, and let the land lay, as before, for the remainder of the seeds to vegetate, which it will do in warm showery weather. After Midsummer, plough and sow turnips: a great portion of the plant will by this time be destroyed, and if any remains it should be hoed out, or drawn out by hand: for, if suffered to ripen and shed its seed, the plant is increased and perpetuated; for the seeds of this, and many other hardy annuals, will grow after laying in the ground a number of years upon breaking up and pulverizing the soil. Upon land in fallow, showery weather is most favourable to the destruction of annual seedlings, by promoting their vegetation, and dry hot weather to perennial root-weeds, by evaporating their juices and depriving them of the power of growth. The same process will destroy other annual weeds.

Charlock, or chadlock, is less prevalent here than in many other counties, but abounding in some places; there are three distinct plants confounded together, by farmers, under the name of chadlock: 1. wild mustard, (sinapis arvensis); 2. wild rape, (brassica napus); these two are found in the south and middle parts of the county; and 3. wild radish, (raphanus raphanistrum,) abounding in the open fields of Easton and Collyweston, near Stamford. They are to be destroyed

destroyed in the same manner as the preceding plant.

The wild carrot (daucus carota) sometimes abounds on dryish ground, and coltsfoot, (tussilago farfara,) on land too much cropped; both may be weakened or prevented by clean tillage and tender cropping; or, if any remain, they should be drawn up. The cockle (agrostemma gilhago) is a common and unpleasant weed, and care should be taken not to sow it with the seed.

The corn chamomile, (anthemis arvensis and cotula): the corn-poppy, (papaver rhæas); upright blite, (chenopodium polyspermum); groundsel, (senecis vulgaris); shepherd's purse, (thlaspi bursapastoris); shepherd's needle, (scandix pecten); bladder campion, (cucubalus behen); knapweeds, or blue buttons, (centaurea cyanus and scabiosa); rest harrow, (ononis arvensis): corn bindweed, (convolvulus arvensis); also the common thistle, (serratula arvensis); these are all found in the arable lands of this county, and may be in part prevented by clean fallowing, and in part extirpated by drawing out of the crop. And thistles, which cannot be handled, should be drawn out with weeding-tongs, which is much better than cutting.

A weed, called here, provincially, willow-weed, is very troublesome on springy land, or in wet seasons. It is of the lake-weed kind, and the polygonum persicaria, or pallidum, of Linnæus: it indicates the land wants draining, or laying in a rounder form, and hollow draining should be applied if wanting.

Upon the whole, to prevent arable weeds, care should be taken to give a clean tillage, and to sow clean seed; also to lay the ground in a proper form

for

for discharging surface-water, if moist land, and to apply hollow draining where necessary, and what weeds are not by these means prevented should be destroyed by rooting out.

Hedge-weeds and other remarkable plants of the county.

The great wild climber, (clematis vitalba,) provincially old man's beard, from the hoary appearance of the plant after flowering, is common in hedges in the north and east of the county. This plant is very injurious to fences, for its tendrils twine about any thing they can lay hold of, and thus support the plant, which is large, luxuriant, and heavy, without any strength to support itself, and by its weight hauling down and deforming the fences: where it abounds, the hedge should be plashed, and this plant cut out.

The large rough thistles, sow-thistles, knapweeds, and ragwort, are a great nuisance in hedges, if suffered to ripen their seeds; for the seeds, being furnished with feathers, or wings, will fly over a country with the wind, and establish themselves wherever they meet with cultivated land, or fresh soil: coltfoot has also the same quality, as well as the common thistle, (serratula arvensis).

In this place I shall add a list of a few more remarkable plants, which I observed indigenous in this county; from which the curious may know where to find them. The agricultural plants have been named before. The list is given promiscuously as they were observed, without any regular order.

1. Wild garlic, (allium oleraceum,) on fence-walls coped with earth, against Easton common field, near Stamford, almost a mile from any house, and doubtless indigenous:

indigenous: on the same kind of walls, at Longthorpe, near Peterborough, in both places plentiful. July, 1797.

2. Wild liquorice, or liquorice vetch, (astragalus glycyphyllos,) in hedges and ditch-banks, between King's cliff and Wandsford, plentiful and of luxuriant growth. I never saw this plant elsewhere.

3. Bear's foot, or setterwort, (helleborus fœtidus); very common in the north part of Rockingham-forest.

4. Wild parsnip, (pastinaca sativa). In Brackley common field, and other common fields in the county; the roots have an odoriferous sweet smell, even superior to the garden parsnip, but are less fleshy, and more stringy and fibrous.

5. Herb Robert, (geranium Robertianum); on thatched roofs and walls in Brackley and elsewhere. Said, by Dr. Withering, to be an astringent, and useful in stopping the fluxes of cattle.

6. Flixweed, (sisymbrium Sophia); on walls and rubbish. I name this plant from the circumstance of its being common here, though I have never found it in Staffordshire.

7. Stone-crops, (sedums); several sorts, on walls and roofs, in most of the antient villages.

8. Henbane, (hyoscyamus niger); on rubbish, at Blisworth, Oundlefield, Easton near Stamford, and elsewhere. A poisonous plant; its uses not well ascertained.

9. Wild teasel, (dipsacus sylvestris); in moist ditches in many parts of the county.

10. Meadow-rue, (thalictrum flavum); in meadows at Isham, and elsewhere.

11. Comfrey, (symphytum officinale); in meadows

at

at Isham Fen-Land, near Peterborough. A good pot-herb. Withering.

12. Viper-grass, (echium vulgaris); in Oundle field; also between Kettering and Rockingham in abundance, and drawn up as a weed; a showy flower.

13. Dyer's weed, (reseda luteola); in Oundle field, a valuable plant in dyeing.

14. White water-lily, (nymphæa alba,) in the Nen, at Oundle.

15. Pellitory of the wall, (parietaria officinalis); on the Bridge, North of Oundle; Walls, at Easton, near Stamford.

16. Wall-barley, (hordeum murinum); on wall-sides about Oundle, and in church-yards in this county.

17. Drop-wort, (spiræa filipendula); a beautiful coloured flower, worthy of a place in a flower-border, in Easton and Collyweston fields.

18. Bryony, or wild vine, (bryonia dioica); in hedges between Stamford and King's Cliff.

19. Lady's seal, (tamus communis); in the north part of Rockingham Forest.

20. Yellow willow herb, (lysimachia vulgaris); near King's Cliff.

21. Willow herb, (epilobium); in fen-land, near Peterborough.

22. Purple spiked willow herb, (lythrum salicaria): in the fen-land.

23. Little sun-flower, (cistus helianthemum); occupying the whole surface of the ground, to a considerable extent, in some situations between King's Cliff and Wandsford.

24. Deadly nightshade, (atropa belladonna); in greater plenty by the road-sides, near Wandsford, than I ever remember to have seen it elsewhere, both towards

towards King's Cliff and Peterborough: supposed the most poisonous vegetable production of the island.

25. Dog's mercury, (mercurialis perennis); hedge-sides between King's Cliff and Wandsford, said to be noxious to sheep, and deleterious to man if eaten by them; grows out very early in the spring.

26. Purging buckthorn, (rhamnus catharticas); in hedges in various parts of the county.

27. Flowering rush, (butomus umbellatus), in drains in the fen-lands near Peterborough.

28. Crimson grass-vetch, (lathyrus nissolia); between Peterborough and Eye, between the road and hedge-side; a very beautiful flower.

These are the most remarkable plants that struck my observation on a tour through the county the beginning of July, 1797, besides the agricultural plants and weeds noticed before.

SECT. V. — WATERING.

THE advantages of watering meadow-land are here well understood and acknowledged: yet it appears, that artificial means of making this improvement are only applied to a small proportion of the land capable of receiving it. This is in part owing to negligence; for a person well acquainted with the county observes: "Were the attention of the occupiers "of land more awake to the advantages of convert-"ing land into water-meadow, there would be but "a few lordships where a considerable quantity of "land might not be brought under that system;" and

and again, "this improvement ranks amongst the "foremost, in point of importance; and, when pro- "perly managed, is equally advantageous to grass- "land, in increasing the quantity and improving the "quality of its produce, insomuch, that no other "manure is of equal value; and, where water can be "applied, other manure is quite unnecessary; and, "increasing the quantity of hay, is highly advanta- "geous to other land by the manure it affords: it "is much to be wished, that something could be "devised to call the attention of farmers to an ob- "ject of so much importance."

The neglect complained of may in part be owing to untoward circumstances; for Mr. Donaldson observes, "In the few instances where artificial means "have been used in watering meadows, this mode of "improvement has exceeded the most sanguine ex- "pectation of the farmer, not only in producing a "quantity of grass greatly more abundant than in "former years, but also in improving the quality. "But, unfortunately for those occupying these mea- "dows, they are in general not only debarred from "using the river, as a means of ameliorating the "soil, but, when extraordinary floods take place, the "crops of hay are so much damaged as to be com- "paratively of little value. This happens, in a great "measure, in consequence of different persons having "separate and opposite interests in the rivers.

"The persons here meant are the proprietors of "the navigation and those having right to erect mills, "between whom, and those interested in the preser- "vation of the meadows at large many disputes "arise. If an arrangement could be effected, by "which a more uninterrupted course could be pro-

"cured

" cured for the rivers, the extensive meadows on " their banks might certainly be improved in value " to the extent of several thousand pounds a-year. " It must also be observed, that the mills are gene- " rally built in the worst possible situations; for, in " place of being erected on the sides of the mea- " dows, and supplied by a *lead* or *cut* from the main " body of the water, they are built on low ground, and " every miller has the command of the whole river, " by which means an obstinate man has it in his " power, in time of flood, to injure his neighbours " with impunity, and that too without in any degree " benefiting himself."

Mr. Young observes, Annals, No. xciv. p. 490. " The " greatest improvement, of which this county, perhaps, " is capable, is that of turning the innumerable and " beautiful springs, with which it abounds, to profit, by " watering their lands; and, by converting all the ara- " ble below the level of those springs to meadow, many " thousand acres are capable of this improvement."

There is no doubt but great improvements might be made by a proper system of watering, by draining the water of rivers along a level carrier, and letting it over the lands below at proper times; yet, to show the necessity of caution, and that it may be possible to be over sanguine, I insert the following experimental remark, which I have received from a very intelligent gentleman; at the same time observing, that the same idea is held by many others, of whose experience and judgement no doubt can be formed.

" Watering will not have a good effect on all soils. " A brook of clear soft water runs through my farm, " which makes great improvement on the warm loamy " soil; but on a strong cold clay, which it goes over with

"with equal rapidity, it causes much injury; this I "conceive to be from the clay retaining the most "water, which, when drained off, leaves the soil "heavy and cold, and too much bound for vegetation, "that of rushes and aquatic plants excepted. Per- "haps watering hath not generally the good effect, "or the profits arising from it, so great as has been "supposed, if we consider quality against quantity of "the produce."

Upon the whole it may be concluded, that all land, previous to watering, should be in a good state of drainage; that upon cold heavy land, on a wet bottom, watering should be used cautiously and sparingly; and that on dry sound land, the improvement is greatest, and most certain: but it will very generally happen, that all land, composing the surface-soil of valleys, will, after effectual draining, be improved and enriched by watering, and this is the land that nature has principally subjected to that operation.

And, notwithstanding the clashing of ideas and seeming difference of opinion upon this subject, I have no doubt but the improvements to be effected by irrigation, or the watering of land, class with the first and most important to be effected in the agriculture and rural economy of this kingdom; the fertility and productive quality of a good water-meadow is evident to the slightest observation; and, when we consider the profusion of water that now runs away in waste from every valley and in every county, we can no longer doubt but the improvement to be made by a good system of managing such waters must be very extensive and important. There may possibly be local spots of moist clay, too cold for this improvement; but all sandy and gravelly tracts that lay within reach

of

of water might be highly improved, as well as peat and black soil, of which the surface of most valleys consists, and this, generally, upon a gravel substratum, which affords a drainage for the peat-surface, which latter is generally composed of a decomposition of the parts of sedges and aquatic vegetables, and which, by drainage and watering, farther decomposes into a rich and productive soil. I have no doubt, but, if our valleys were thus improved to the utmost of which they are capable, sufficient hay for the whole live stock of the kingdom, and a considerable proportion of grass for pasture, might there be obtained, without having recourse to the upland; and a much larger proportion of the latter employed in corn-cultivation, and resources would thus be found, to support a much greater population than can be supported under the present system of management.

To effect this great national improvement, commissioners might be appointed, in every county, to direct surveys to be made of the different valleys and waters, and plans formed and digested for employing them to the best advantage. The great uses to which waters are applicable are principally the three following: 1. navigation, or carriage by water; 2. the turning of mills and working of machinery; and, 3. irrigation, or the watering and improvement of land. In the best application of water to these purposes, great difficulties might arise from the clashing of different interests, but not insurmountable, inasmuch as artificial canals have been formed, and similar difficulties settled, and, I believe, they would not be greater in the case of irrigation of land. It appears clear, that the surplus water of all floods that cannot be employed to other purposes, and now runs away in waste, might,

might, in whole or in part, be drawn into reservoirs; and floating water-courses, for the watering of land, that the surplus water of all navigable canals, after passing over the waste wears, may be applied to the same purpose, by constructing a proper reservoir to collect and retain such waste water, till it can be made use of.

The greatest difficulty would arise from the improper situation of many mills, which are placed in the middle of the valley, instead of being supplied by a side-feeder, drawn upon a level from a point higher up the stream, and which would give greater fall and force to the water; but it is to be hoped, the landed interest may be so well understood, that such mills, as they decay, may be removed for the general good. The proper situation of mills, in the present state of society, is on canals, or in the neighbourhood of great and populous towns, where the consumption of their produce takes place, and to be worked by steam-engines, by which a great saving in carriage would be made. When such change shall be effected, water may be more generally applied to the improvement of land. This subject is of so much importance, that whoever shall assist in bringing it about will deserve the thanks of his country.

Connected with this subject, of the improvement of land by irrigation and watering, is that of the improvements to be effected by embankments and drainage: many of our valleys, containing the richest meadow-land, have been brought to that degree of fertility, by the process of natural irrigation long continued; but this land is generally subject to the depredation of floods. A very large proportion of this land may be secured from the minor summer-floods, and

which

which generally do the greatest mischief amongst the grass and hay, by embankments formed nearly parallel to the course of the river, on either side, which embankments may be formed of earth, to be raised from drains cut on the outside of such embankments. The strips of land between the rivers and the embankments would be of the same value as at present, subject to the floods; the land, without the embankments, would be generally secured from floods, as all floods would pass off much quicker, and the land be drained much better, as the drains must communicate with the best points of fall below, either by natural falls, or hollows formed under the river; the water for irrigation should be let in occasionally, or at pleasure, through sluices, formed in the embankments for that purpose. Several works of this kind have been executed in different parts of the kingdom, but perhaps none upon the best system. Such works are capable of effecting great improvement, and are of very extensive application.

Farther on Irrigation. In a conversation with Mr. Pearce, of Chapel Brampton, on this subject, he approves of and practices winter irrigation, upon the catch-water system, but made the following objections to watering grass-land in summer; firstly, he says it will inevitably rot sheep; secondly, if the land be depastured with heavy stock, the turf, being tendered by watering, will receive twice as much damage by the treading and poaching of such stock as it gains benefit by the water: I proposed stocking, in such case, with culling ewes, or other sheep intended for fatting, of which he admitted the propriety.

Amongst the improvements going on upon Lady Carberry's estate, at Laxton, irrigation is not forgotten;

ten; a pond is now cleansing out for a reservoir for irrigating land below its level, by draining down the pond at times, when thought proper. Mr. Knight, who has the management here, approves highly of winter or spring irrigation, but not in summer: he thinks a redundancy of water, combined with solar heat, injurious to useful vegetation.

Notwithstanding these opinions, which may be called authorities, I cannot but think, that when pasture-land has been grazed very bare, in hot dry weather, the command of water at pleasure, and applied with judgment, must be a means of speedily restoring the pasture; and that a pasture, thus restored, may be applied to useful and valuable purposes.

CHAP. XIII.

LIVE STOCK.

SECT. 1.—CATTLE.

THE cattle of Northamptonshire may be divided into two classes: 1. those bred in the county, and 2. those purchased from distant parts; and may be considered as applied to two distinct uses: 1. fatting for beef, and 2. the dairy.

The cattle bred in the county, at least those bred with any attention, are of the long-horn breed. Mr. Bosworth, who farms near the centre of the county, observes, an improved variety of the long-horn breed is clearly the breed of the county; and, though the attention of but few has been directed to this object, yet there are, notwithstanding, instances of those who have pursued it with success. Mr. Donaldson names Mr. Pearce, of Chapel Brompton, and Mr. Robinson, of Wellingborough Lodge, as having been at considerable expense and trouble in this respect; to them I shall add Mr. Earl, of Dallington, Mr. Dickens, of Holcott, and Mr. Robert Knight, of Walgrave Hall, as successful breeders of cattle stock.

Respecting the sorts bought in from distant parts, in addition to the long horn, the Holderness are chiefly used

used for the dairy; but for fatting every sort is bought in at one time or other. Staffordshire, Shropshire, Herefords, Pembrokes, Devons, North Wales, Scots, and Irish, are occasionally met with at the different fairs; and the grazier, if he wants, refuses no sort that looks kindly, handles well, and can be had worth the money: And many instances occur of each of these kinds growing in a superior degree, though I believe the superiority is generally considered as being with the long-horned breed, or with the Herefords.

The following authentic instance was given me of the growth and improvement of a long-horn cow, bought May 4th, at 5*l.* 17*s.* 6*d.* kept 22 months, fed on grass in summer, and barley-meal and hay in winter; sold in Northamptonshire for 32*l.*—Weight, 267 lb. the quarter.

The colours preferred in cattle are the red and brindled, which are deemed the most hardy; I am informed, that sheds, for store-cattle in winter, are gaining ground.

The number of cattle annually fed or fatted in this county is considerable; it is computed that, besides what are consumed in the county or sold into the neighbouring counties, about 15,000 head are annually sent to London: this estimate is by the Lamport society.

Mr. Donaldson remarks, "That the expense of "sending cattle to London, including the salesman's "commission, amounts in summer to 6*s.* 6*d.* and in "winter to 7*s.* each." I think this expense very low. W. P.

As a proof that breeding of cattle has been here attended to with some success, I give the following instance of high prices of store-stock from Mr. Donaldson;

naldson; and the circumstance of purchasers giving such prices will prove, that such attention was meant to be continued.

Mr. Pearce bought a bull-calf of the late Mr. Fowler, of Rollright, in the year 1790, at one hundred guineas; and, having sold part of his stock in the year 1793, was abundantly compensated for this outlay of money, from the very high prices which he received for what he disposed of; as a proof of which, it may be mentioned, that he sold a bull-calf of this breed, only 10 days old, at forty guineas; and that a bull and four cows were sold for 331*l.* 5*s.* 6*d.*

Elegant paintings, of the improved long-horn cattle, as well as of the improved breed of sheep, are now making by Mr. Boultbee, of Loughborough, which, with other figures of live-stock, are intended for publication, and to which I must beg leave to refer the curious on these subjects.

Black Cattle. There are very few of this species of stock reared in this county, a few in the open-field lordships excepted; and these are so crossed and mixed with the breeds of other counties, which are often improperly chosen, and are so stinted in their food, as to render them comparatively of little value.

In the few instances where attention is paid to the breed of cattle on the enclosed farms, the long-horned are the kind generally preferred, and are far superior to the original breed of the county, both in size and shape, as well as in the other advantages which ought to be attended to by every farmer who occupies a breeding-farm, namely, their extraordinary disposition to fatten, and to lay the greatest quantity of flesh and fat on the rump, loins, and other parts of the body, which always sell highest at market.

The

The dairy-farmers in the south-west part of the county, however, prefer the short-horned Yorkshire cows, from which county they are principally supplied. And, as they never rear any calves, they sell them, when a few days old, to a set of men who make a trade of carrying them to the markets of Buckingham, and other places, where they are purchased, by dairy-farmers from Essex, to be fattened for veal for the London market.

I observed long-horn dairy-cows in many parts of the county; but many of both kinds are in use. Mr. Bosworth observes, that "the short-horn cows "are well known to be great eaters;" they are also said to give the most milk in quantity, but of inferior quality. From Northampton westward, a great deal of cheese is made; and, in that part of the county south of the Coventry and London road, much dairying, and butter the object. Mr. Young observes, in 1791, in the neighbourhood of Wakefield Lodge, and upon the Duke of Grafton's estates, "The principal "and staple live stock of the neighbourhood are "cows, the milk entirely applied to making butter, "which goes fresh to London, where it is sold by the "name of Epping: many of the dairies rise to 30, 40, "and some even to 50, cows; the butter sells, on an "average of summer and winter, at 9*d*. per lb. clear "at home. There is a circumstance, which is attri-"buted to the soil and quality of their food here, that "deserves noting: whatever may be the breed of "cows, and they have all breeds, none will milk till "they are old; all have disorders in the bag much "sooner than in many other countries; the most "common breed is the long-horn, which are mostly "bought in, but some are bred, and more at present

"than

" than formerly; and they remark, that the cows bred " here come kindlier to the soil than those bought in. " A capital milker, in the height of the season, has " been known to give 12 lb. of butter per week; but " the average of a whole dairy may be reckoned at " 5 lb. per week, so long as they are milked, which " is not the whole year; gross produce, 6*l.* a year " each cow, including the calf at 12*s.* 6*d.* at four or " five days old: the benefit to pigs, about 10*s.* each " cow; in winter, all that are milked are fed on hay, " but on straw when dry, *to within a month of calving.* " Mr. Young states, that the wood-lands have been " found, at Blisworth, to give cattle the red water " that feed in them."

I believe this may be easily cured by astringents, if taken in time. Dr. Darwin, in his Zoonomia, says, " 60 grains of opium, with or without as much rust " of iron, given twice a day, in a ball mixed with flour " and water, or in warm water, or warm ale, is, I " believe, an efficacious remedy in this complaint; to " which add two quarts of barley or oats, twice a day, " and a cover at night, if the weather be cold."

Hoving, or swelling in clover, is also known here; to prevent it, let the cattle fill their bellies with grass, immediately before putting in clover, and let them be first used to it in dry weather. If it happens, a certain cure, from great authority, is said to be, a knob of wood, well fastened to the end of a small pliable cane, and introduced down the æsophagus, a sufficient depth to remove the obstruction, or large pail-fulls of water thrown one after another upon the back give such a shock as to occasion a violent eructation, which often gives relief; or, lastly, a skilful operator sticking in the paunch may perform the cure.

The

The above observations on cattle were made or compiled in the year 1797, and were such as then struck the writer's mind as proper and just; they are partly his own, and partly copied from Mr. Young and Mr. Donaldson, who made their observations, in person, on the spot. The following is now added, from remarks made in the county the year 1806:

The oxen, fatted in the county, are principally bought in, and grazed only, to make them up, about 10 or 12 months. I observed on this occasion very few short-horn or Holderness oxen; those in the graziers hands being principally Hereford, long-horn, Devon, Scotch, and Welch, with a few of mongrel breeds, bred most probably in the county.

In the parishes of Grafton Regis, Yardley, Gobion, Potterbury, and a large district in that neighbourhood, considerable dairies are kept, chiefly of the short-horn or Holderness breed of cows, and butter for the London market the principal object, which meets with a ready sale and quick return; but the price is now about 50 per cent. higher than when Mr. Young's observations were made. A dairy, of 24 cows, which I met here, contained

16 Holderness.
4 Pollards.
4 Long-horn.

Mr. Roper's dairy-cows, all Holderness; they are preferred as giving the most milk, and are most generally kept in the neighbourhood.

In a tract of country, about Charwelton, and between Daventry and Banbury, considerable dairies are kept, of 20 to 40, and even to 60, cows each; butter and pork, for the London market, the principal object,

object, which have an easy conveyance, ready sale, and the returns from which quickly come round: in this latter district a great many long-horn cows are kept.

Dairies are also kept in several other districts of the county; some calves are fatted, but many sold, at a few days old, to be suckled nearer London: upon the whole, I suppose that this county barely supplies itself with cheese, but has a considerable surplus of butter, and of pork fed from dairy-produce.

In the article on feeding, I have supposed 100,000 acres of grass-land applied to dairying and store-stock. As the store-stock has other assistances, from straw and the produce of the arable land, we may suppose the 100,000 acres applied to dairying; and a dairy-cow upon every three acres of such land, or 30,000 and a fraction in the county. I have estimated, upon another occasion, that half an acre to each individual, on an average, is a good supply of dairy-produce, by which estimate this county will supply such produce for about 200,000 persons, or upwards of 60,000 more than its own population: this extra produce is principally veal, pork, and butter, for the supply of the London market.

The smallest breed of oxen I saw in the county are denominated Pontypools, from a fair in Monmouthshire, where they are bought; some of these, when fat, do not exceed six score the quarter; they are bred in Radnorshire, and other mountainous parts of Wales.

The following observations on cattle are by the Lamport Society, and may be considered as the result of observation and experience:

1. On

1. On the distinguishing marks of excellence, in an ox and cow in a lean state.

Those cattle possessing most of a disposition to fatten have generally some marks indicative of excellence; these are a sharp chap, lively prominent eye, neck rather short but fine underneath, close at the point of the shoulder but wide at the hinder part; the top of the chine thin, expanding immediately below, wide in the breast, and projecting forward; long ribs and near together, not much bowed; loin short and wide, rather sloping than quite flat; hips large and round, not pointed; the rumps short, tutts joining well to the tail, and wide extended; straight from breast to flank; the twist deep, or a prospect of being so when fat; feet rather large; bone small; the hide soft or pliable, not very thin, with a soft downy hair; a mellowness in touching, equally remote from looseness and hardness.

I know not whether it may be thought too ludicrous; but, for the benefit of the young grazier, I have thrown the above characteristics into rhyme, in which form they may much easier be remembered.

Let each steady grazier, to buy the right sort,
Fix on cattle sharp-chopped, but with neck rather short;
Neck fine underneath,—close-pointed the shoulder,
The chine thin at top,—hind parts wider and bolder;
Long ribs near together, not much bowed when standing;
Full wide in the breast, and the bosom expanding;
The loin short and wide, rather sloping than flat,
Hips large, and not pointed, with short rumps, mind that,
Twist deep, or a prospect of being so when fat;
The feet rather large, but the bone rather small,
The hide soft and mellow, not too thin, and that's all.

2. *On*

2. *On the comparative Merits of different Breeds of Cattle.*

The long-horned, which are natives of most of the midland counties, possess a disposition to fatten in less time, and on less food, than any other; they give less milk than others, but of a rich quality. The middle-horned are natives of the southern and western districts, are very useful for the dairy, and, after having been kept some years for that purpose, when fattened, come to great weights, and the flesh is of an excellent quality. The short-horned, which are natives of the north and eastern districts, produce great quantities of milk, of an inferior quality; to fatten, they require more time and more food than others, their flesh not of the best quality, but often attain great weights.

3. *On keeping cattle confined in a Yard.*

Cattle should be confined in a yard, to eat straw the first part of the foddering-season; towards the close of it, they should have liberty to go abroad.

4. *On rearing Calves.*

In winter, give skim milk, with oil-cake dissolved therein, or supply them with oats and hay, when cake cannot be procured. In summer, run two with a cow, or keep them in a good pasture, and let the cow to them twice a day.

5. *Disorders of Cattle.*

The sore bag is common in this county, and is a disease of considerable difficulty to cure, and attended with

with some danger; the following is recommended as the best method of treatment:

Give one pound of salts, (omit bleeding, lest the disorder be driven to the limbs, which sometimes proves fatal,) forbear drawing the bag till matter be formed, an incision should then be made to accelerate the discharge of such matter.

SECT. II.—SHEEP.

THE sheep-stock of this county may be classed in three different varieties: 1. the common-field sheep; 2. the antient-pasture sheep; and, 3. the improved-pasture sheep, by crossing with the new Leicester breed.

The common-field sheep, which Mr. Donaldson calls the original breed of the county, (though there is no doubt but good sheep have been common in the antient enclosures of this county for a great length of time,) are much inferior to the antient-pasture sheep, longer in the leg, and smaller and less compact in the carcass, and, in some instances, horned; these sheep were meant for the fold, and if they would endure that, and the necessary length of walk daily, to and from pasture in the fallow, or elsewhere, little attention was paid to other circumstances.

Mr. Donaldson remarks: "About 50 or 60 years "ago, when this district was more generally in the "open-field state, little attention was paid to the im-"provement of the breed of sheep. The points which "marked a good sheep, in the opinion of the people

"of

" of those days, were, the wool thick-set on the back, " an open rump, loin wide, legs open, and bones clean " from wool, opposed to what is now called gum, or " coarseness. They were generally sent to market " from 2½ to 4 years old, and weighed on an average " about 18 lb. the quarter. This breed, however, are " now more rare, being confined to those parts of the " county where commons or common fields abound."

" About 25 years ago* an improvement was attempt- " ed by crossing the antient breed with tups from War- " wickshire and Lincolnshire, the breed of Warwick- " shire being noted for great bone or size, and that of " Lincolnshire for the quantity of Wool." With the success of this experiment the farmers seemed perfectly satisfied, as a general opinion prevailed, that the animal would weigh in proportion to the size of bone, and that an additional quantity of wool might be produced, without injury to the carcass; this practice, therefore, went on for many years, the breed improved greatly in size, and became what I call the old-pasture sheep, and in that state were a very respectable breed, the rich old pastures of the county being sufficient to fatten them; and I have long admired them as a fine heavy animal, both in fairs and pasture, before the introduction of the new crosses.

It is the opinion of very intelligent farmers in the county, (and in which I concur,) that the pasture-sheep of this county, in their unimproved state, (i. e.) before the introduction of the late crosses, were excelled by very few districts; indeed, the new crosses have not universally spread, though very much extended; and, where they have not, numbers of flocks of sheep are

* There was a good breed of sheep in the old enclosures of the county long before that time.

to

to be found, composed of fine, strong, heavy, and valuable, sheep.

The antient-pasture sheep of the county, before the late crosses, were too good to be totally changed, nor indeed could they perhaps have been changed for the better at once; the chief thing that was wanting seems now doing, they were become too coarse, too large in the bone, and thick in the pelt, and often, withal, in consequence, somewhat coarse-grained in the flesh; these faults have been long since discovered, and the first application of the remedy long since made, insomuch that (as it is well observed by Mr. Knight) within the last 18 years, by attention, and particularly by crossing with the Dishley breed, they have received such general and great improvement, that perhaps no other district can boast of superior sheep-stock to what may be found in this; the additional number bred upon the land, the much earlier age at which sheep are now ripe, the improved quality of mutton exhibited, weekly, at Northampton and other markets, in the county, and the advance in price now given for the use of rams, are sufficient proofs of the great improvement that has been effected.

Mr. Donaldson seems to lay great stress on the institution of the society of ram-breeders, as the principal means of effecting these improvements; this perhaps will neither be claimed by those gentlemen, nor admitted by others: the society was never numerous, many first-rate breeders were never of the society, and a person, who has been a member, expressed to me his doubts, whether the society could at all be said to have been the means of introducing the new Leicester breed here, as many breeders were in possession

of

of them before the society had existence: this point, however, is of no importance, the breed is fully introduced, and its excellence acknowledged by every one acquainted with it.

Some of the points in which this breed excel are thus stated by Mr. Donaldson:

"1st. It is said, that this breed will, on a given quan-
"tity and quality of food, produce a greater profit to
"the farmer than that of any other."

"2d. That they are extremely handsome or well
"made, and therefore more disposed to fatten."

"3d. That they carry more flesh and fat on the
"same weight or size of bone."

"4th. That they will thrive on such pasture as other
"flocks would fall off upon."

"5th. That an acre of land will maintain or fatten a
"greater number of them than of any other breed,
"which bear the same proportion in size of carcass."

"6th. That, though the quantity of wool is about one-
"fifth less than that of the old Northamptonshire breed,
"yet the value by the pound is about one-tenth more;
"and that, for the reason last-mentioned, both the
"quantity and quality of the wool, if the return is cal-
"culated by the acre, must be in favour of this breed."

To this I shall add, time of ripening for the butcher, which is generally admitted to be one year sooner than the old breed. Thus, a shear-hog, or yearling, if well summered, will be fat at 18 months old, and may be kept so in turnips through the winter, though it is not pretended but they would thrive and increase in weight after; yet the fact is, if healthy and well kept, they are good mutton at any time after that age. The qualities above stated are described as belonging to such sheep, as, selected from the old Northamptonshire

stock,

stock, have been crossed with the new Leicester or Dishley breed; the breed in question, therefore, is most properly to be termed, the improved Northamptonshire breed of sheep.

The following particulars I have from the Lamport Society, a list of whose names may be seen, under the head Agricultural Societies.

That the breed of sheep in Northamptonshire is polled sheep, with combing-wool. The best cross that has been tried is the Dishley, decidedly; that the greatest improvement in sheep has been made in the middle and north of the county; that the present improved breed is not used to fold; weight of wool, four fleeces to the tod; price of shearlings, (i. e.) once shorn, lean, 25*s*. to 50*s*. each; of ditto, fat, 35*s*. to 63*s*. each; weight of ditto, 15 lb. to 27 lb. the quarter; older wethers, 25 lb. to 40 lb. the quarter; value, 3*l*. to 4*l*. 10*s*. each. That, on an enclosed sheep-farm, a sheep and a half per acre may be kept, taking in the whole farm; but that the average will be found nearer a sheep per acre.

Mr. Donaldson has observed, "That one objection "to the improved breed of sheep is their disposition "to fatten to an extraordinary degree, and that they "are not so delicate eating as those sheep which re- "quire longer time to be ready for the market. It is "believed, that the warmest advocates for this breed "of sheep will not hesitate to allow their disposition "to fatten, though they may dispute the other point, "which depends, in a great degree, on the taste of "the consumer; but, if it is certain that a quarter "of this mutton, weighing upwards of 30 lb. will "only have 2 lb. weight of bone, while a quarter of "the old improved Northamptonshire breed, of the

"same

" same weight, will have about 5 lb.; the improve-
" ment of the breed is at once determined, so far as
" the opinion of the great body of the consumers can
" go; as a mechanic, or labourer, who has a large
" family to support by his earnings, if sensible of the
" fact, will be ready to agree with the new Leicester
" Society, that an improvement has really been ef-
" fected, at least to the extent of the value of 3 lb.
" of meat in a quarter of mutton, compared with
" that of an equal weight of bone, which will be at
" least 1*s.* in every quarter of mutton;" and, accord-
ing to Mr. Donaldson's calculation, is an improve-
ment of 400,000*l.* a year.

The advocates for the breed in question admit their disposition to fatten in its fullest extent, and maintain it the greatest possible perfection sheep can possess. Mr. Bosworth: " I believe no objection was
" ever made to disposition to fatten, though some de-
" licate feeders object to fat mutton; and I have heard
" inn-keepers observe, that they cannot cut steaks for
" travellers from full-fed Leicestershire mutton."
Though this has little to do with the great mass of consumers, it is thus well answered by Mr. Smith, of Tichmarsh.

" Disposition to fatten quick can be no real objec-
" tion to the breed; any person, so disposed, may
" keep them to as great an age as any other breed of
" sheep, and their fatting may be easily counteracted,
" by keeping a greater number of sheep upon a given
" quantity of land, by which means the most delicate
" feeder may accommodate his palate:" and, respect-
ing delicacy of eating, I have heard the improved breed, from its fineness of grain, will take a halfpenny a pound more at market than a coarse sheep of the old breed, which resembles tup-mutton.

The

The pelts of the improved breed have (as I have been informed) been reduced to one-half of the weight of a coarse sheep of the old breed, though equal in weight of carcass.

Many of the Northamptonshire sheep-masters are now become very respectable ram-letters, and have taken up the Leicestershire custom of exhibiting their rams in public. Thus, in the year 1797, July 8th, was a show of rams at Oundle, which I attended; the owners, and their number of rams, were as follow:

	No. of rams.
Mr. Martin, Tansor-Lodge . . .	16
Mr. Smith, Tichmarsh	12
Mr. Smith, Stokedoyle, ...	10
Wm. Waller, Esq. Chesterton,	4, 2 wethers.
Mr. Knight, Walgrave	4
Mr. Pickering, Walgrave . . .	4
Total . . .	50

These rams were many of them very respectable, their owners having, for many years, been crossing with the most eminent breeders of Leicestershire; prices for the season from three guineas to twenty, for what they term a wether getter, (i. e.) a sheep little improved from the old breed, and pretty full of bone, but supposed fit to get heavy sheep; and from twenty guineas to one hundred and upwards, for a getter of prime stock, or one judged fit for that purpose.

Age of these rams from shearlings to four shear, (i. e.) four times shorn: weight by estimate, if butchered, to 45 lb. the quarter.

It is a general custom here to clothe valuable rams, after shearing, with a yard of flannel, laid over their backs and tied under their bellies, which prevents their fretting by taking cold; the expense 1s. and, with care, will last three or four seasons; it is continued for a month or six weeks, according to the weather. Linen caps are also tied upon their heads, to keep off the fly, and prevent galling on the frontal in hot weather.

Sheds of hurdles, supported by stakes and covered with straw, or of hurdles set in the ground, with others laid across, and covered in like manner, are raised for valuable sheep in hot weather, and make them a comfortable and cool retreat, keeping off the heat of the sun, and the wind drawing and fanning them through the gullet thus formed.

Sheep are observed here (as every where else) to do best on sound land, the sounder the better, but particularly in winter. Lamb's tails are cut, the rams left longest, the ewes next, and wethers shortest: the reason assigned is, keeping the animal cleaner behind, with less trouble to the shepherd.

Cold arable land, heavily stocked with sheep, is in more danger of giving the rot than old pasture, though equally cold, in quality of soil, and equally stocked: this opinion from very respectable authority.

The following particulars of a fat wether sheep, slaughtered in this county, but bred by Mr. Burgess, of Hugglescote, Leicestershire, I took from Mr. Knight's minute-book, Walgrave, who weighed the particulars himself:

Carcass

Carcass	144 lb. or 36 lb. the quarter.
Pelt and wool . .	18
Head	4¼
Pluck	4¼
Rough Fat	16½
Blood	5
Paunch, when full	6¼
Guts, ditto	3
Gross weight . .	201¼

The paunch, when cleaned, weighed only 2¼ lb.
The guts, ditto 1¼

The bone of the haunch, 13½ oz.; the whole weight of bone about 5¼ lb. or about one-twenty-seventh of the mutton.

The wages of a shepherd here vary from 7 to 12 guineas per annum, with board and lodging, besides perquisites, which, in some places, are a few guineas a year more.

Disorders of Sheep.—The disorders of sheep, known here, are the rot; the red-water; foot-rot; scab; maggots from the fly; the flux; and the gall, yellows, or jaundice.

The rot is supposed to be occasioned by the sheep licking in the spawn of the worm, or insect, which occasions it, which, fixing on the sheep's liver, soon destroys the animal. Summer or autumnal floods are particularly fatal in sheep-pastures, when the sheep should always be removed to higher ground. Small doses of turpentine have sometimes been serviceable in this disorder.

Mr. John Needham, of Whetstone, Leicestershire, has a nostrum, well attested, which he offers to make

public for one guinea subscription; also, to include a remedy for the scour or flux.

For the red or foul water, small doses of opium, with rust of iron, is recommended; also, vinegar and salt, in equal quantities; likewise, bole armoniac, alum, and other astringents.

The foot-rot is cured by paring away the hoof, and putting the sheep on quick-lime, or applying the butter of antimony.

For the scab, many different topical applications have been used with success; the following, it is said, may be depended upon:

Take green-broom, two good hand-fulls; tobacco, stone-brimstone, salt-petre, and bay-salt, of each one pound; common salt, two pounds; balsam of sulphur, half-a-pound; boil all in five gallons of soft-water for one hour, and rub a little on the parts affected.

To prevent the maggots, good shepherding is necessary: when the sheep are affected, the maggots should be scraped out, pouring in a little sublimate-water, and dusting in a little ceruse-powder.

The flux, or scour, is common; when *mild*, it will generally go off without assistance.

The yellows I understand to be a formidable complaint, and sometimes particularly so to very valuable rams, in high condition. I am informed, they are more subject to it in clover than in old pasture, particularly towards the end of summer; it is often fatal, and no certain or very successful specific has yet been introduced.

I am lately informed, that much alarm has spread in this county the present winter, 1797, on account of rotten sheep, and that a great number of very valuable ones are likely to be carried off by it. Many breeding-

ewes

ewes have been sent to Smithfield-Market on this account; and Mr. Needham's remedy is likely to be more fully proved.

The above remarks on sheep are equally applicable to the present time, 1806, as to that in which they were made; nor is it within my power to correct or alter them for the better; I must, therefore, beg leave for them to remain as they are, with the following additional observations:

Mr. Bull, of Pitsford, approves of and keeps the improved breed of sheep, crossed with the new Leicester. He has had this spring, 1806, twenty sheep of this breed sold in Smithfield, bare shorn, for more than 100 *l.* They had been finished with turnips and cabbages. His wool sold, this season at from 32 *s.* to 33 *s.* the tod of 28 lb.

The application of sheep to folding on fallows is treated of under the article manuring. Mr. Roper, at Pottersbury, prefers the Leicester breed even for this purpose. He keeps about 100 breeding ewes of this sort: one half of the lambs are sent, at about three months old, to the London butchers, the other half kept for stock. See Manuring.

Mr. Daniel Bosworth, of Holmby-Lodge, shewed me his flock. He keeps about 140 breeding ewes; crosses with good Leicester rams, which, he says, every body approves of who has tried them. His lambs and young stock are well wooled. He shears four and five to the tod. Shears in all about 600; but some of them are bought in. No lambs are shorn in this county, at least not to my knowledge. Mr. Bosworth depends more on old pasture for wintering sheep than on hay or turnips, but lessens his flock pretty much in autumn, and sometimes sells culling ewes,

ewes, for store, at three guineas each. His two-shear wethers I estimate will average 30lb. per quarter, which agrees with his own opinion. He sold them, last year, at three guineas and a half each.

More particulars of the sheep-stock of this county may be found under the article Feeding: it is in general very respectable; and the two-shear wethers of the best flocks will average 30lb. per quarter; the ewes about 24 or 25. The Lamport Society think a good yearling sheep should produce on the average eight or nine pounds of wool. They complain, that the farmer seldom gets a fair price for his wool, and particularly not for the better sorts; and advise the wool-growers to endeavour to acquire a more exact knowledge of the uses and value of the different sorts to the manufacturer, and to have it sorted accordingly; that is to say, to select fleeces of the same quality, and place them in separate stacks; and to relinquish the custom of engaging it to the same customer from year to year, and endeavour to promote a competition amongst customers, so as to obtain a fair price; to effect which, it is presumed, the establishment of a market for the disposal of it would very much conduce.

The Lamport Society observe, that, when sheep have been a considerable time from water, in a dry season, they should not be allowed to run to water; as, when that has been the case, it has often been known that considerable losses have been the consequence.

Under the article Feeding, it is estimated that 250,000 sheep are annually fattened in this county, and which are mostly, if not wholly, bred therein; to produce this number, the standing stock of the county

county must be about 210,000 ewes, 250,000 yearlings, and 250,000 from one to two year old; one half of which latter may be disposed of before the second shearing, and the other half twice shorn; this brings the wool of the county, annually shorn, to 585,000 fleeces, which, at four and a half to the tod, would be 130,000 tod; and, at the present price, 32*s.* 6*d.* per tod, amounts to 211,250*l.* It must be very clear that this is a subject of uncertainty, but is given, as deduced by the writer, from general observation.

SECT. III.—HORSES, AND THEIR USE IN HUSBANDRY, COMPARED WITH OXEN.

HORSES are bred, in this county, chiefly for draught at the cart or plough, and mostly of the strong black breed: but the number bred being an insufficient supply, some are bought in from the counties of Derby, Lincoln, and York, generally at two or three years old.

"The object of the Northamptonshire farmer be-
"ing to purchase horses which are likely to answer
"either for the coach, the army, or large waggons,
"he keeps them two and sometimes three years, and
"generally disposes of them at a profit of from 7*l.*
"to 10*l.* A horse, proper for the coach, sells for
"about 40*l.** at five or six years old; a horse of the

* They are not now, 1797, worth near so much, having sunk in price one-third or more the last two or three years.

army,

"same age for the army, at about 25*l.* and a dray or "waggon horse, at about 30*l.*"

"Some years ago it was the practice here to rear "blood horses;* but experience has proved that these "animals, however valuable they may still be in the "estimation of the gentlemen, are unprofitable to the "farmers, because the least blemish renders them al-"together unsaleable; and, if they should not meet "with any accident, they must remain so many years "on the farm, before they can be sent to market "with advantage, as to render the profit precarious "and trifling. Such horses as are now bred are fit to "go into the team at two years old; and, after two "or three years service on the farm, they are gene-"rally sold for one or other of the purposes above-"mentioned. It is worthy of remark, that a few days "ago a horse of the last description, with only one "eye, was sold for forty guineas, while it is well "known that a blood horse, with such a blemish, "would scarcely have been worth notice."

"Some of Mr. Bakewell's best horses have covered "in this county some years, though at a very heavy "expense to the individuals who subscribed for pro-"curing them." *Mr. Donaldson.*

Mr. Young has observed, on the Duke of Grafton's estates, breeding horses is not an inconsiderable article in live stock. In a team of eight, for two ploughs, there are usually two mares kept; they are worked within a fortnight of foaling, but, after foaling, rest for six or eight weeks; wean at Michaelmas, and the colts are then worth from 7*l.* to 12*l.* each. It is common to sell, at five years old, from 20*l.* to

* Never generally, but only by some particular individuals.

35*l.*

35*l.* Generally put them to work at two years old, after which time they earn their living: in winter they are fed with straw, and a bushel of oats per week; in spring seed-time with hay. They do not cart winter-tares to the stables, which is a barbarous neglect.

I believe the Dishley horses, where they go, now generally cover at one guinea, and a shilling the man; at least I know they do so in some places.

The number of horses, kept for plough and draught on farms, is about four to 100 acres arable. *Lamport Society.*

Horses are very generally used for farming purposes. And Mr. Knight observes: "But few oxen are "used for draught; perhaps by far too few for the "general opinion to be fairly taken, as to their utility "compared with horses."

So far as I can collect the general opinion, it is, that oxen will not do for all purposes; that they cannot be used profitably for road-work, heavy weights, and long journeys; and particularly not upon rough roads in frost; but that they might answer for ploughing and carting on the turf about the farm; but as this is only a small portion of a farmer's business, a team of horses becomes necessary to draw out grain, fetch coals, lime, and other manure, from a distance; and as one man with a boy can take care of and work six horses, these are sufficient for the business of a medium-sized farm: where an extra team is required, it is universally the opinion, that oxen may be used to advantage in what is called home-work, and it is, therefore, the business of the large farmers to introduce and establish them, if it can be done with profit to themselves and the public.

A favourite idea with many people is, that the substituting of oxen for horses would be a public benefit, because the former would make beef, whereas the latter comes to the dogs, and the carcass is lost to mankind; but I am persuaded, that a horse, after working a moderate number of years, has earned so much more than an ox, that the loss of his carcass is a trifling object either to the farmer or the public; and, that slow-paced oxen cannot, in all cases, with advantage, be substituted in their stead.

After all, the farmer is the proper judge whether horses or oxen answer his purpose best; and it cannot reasonably be supposed they are all so stupid as to act contrary to their own interest: some one, more enlightened than the rest, would surely profit by adopting the alteration, and prove the advantage to his fellows, who, if it could be proved, would not be long in changing their present practice for something better and more profitable.

I shall conclude with giving it as my decided opinion, that horses are so necessary in much of the business of a farm, particularly on the loamy soils, adapted to the growth of wheat, that any obstacle thrown in the way of using them cannot fail proving a clog to agriculture, to the improvement of corn-land, the carrying of distant manures, and even to be a means to raise the price of grain at market.

The Lamport Society are of opinion, that, where situation and other circumstances concur to render it practicable, horses should be kept constantly in the stable or in the yard, and in winter fed with straw, hay, and corn, in proportion to the state they are in, and the work they have to perform. In summer they

should

should be fed with vetches, clover, and coarse grass, from grazing-ground.

By the Lamport Society's estimate, about four horses are kept, for plough and draught, to every 100 acres arable. I suppose three-fourths of the county may be reckoned arable, or therewith connected; this would give 18,000 as the number of farm-horses: to which add 2,000 for pleasure, or road-horses for saddle or harness, gives 20,000 as the number kept in the county, and which probably consume the produce of 100,000 acres of land.

SECT. IV. — HOGS.

THE breed of hogs, most approved in this county, is a cross between the Berkshire breed and the Tonquin; the former giving size and weight, and the latter having little offal. The essential points are fine bones, thin hide, thick carcass, short legs, and disposition to fatten, in which points several persons have carried their stock to considerable perfection: amongst persons named to me as possessing a superior breed are Messrs. Robinsons, Wellingborough; and I saw Mr. Martin's, of Tansor-Lodge, near Oundle, which are closely bred from Mr. Astley's excellent breed in Leicestershire.

Hogs, when confined in a sty, should lie clean and dry; and, where straw abounds, they should often have clean litter, and be frequently cleaned out, which will produce excellent manure. If straw be scarce,

scarce, they will do very well upon planks laid hollow under, with occasionally cleaning out their dung.

Store-hogs do very well with the small raw potatoes; and fatting ones come on well with boiled potatoes and a little barley-flour mixed; but pease are often given, and are grown in this county for that purpose.

SECT. V. — RABBITS

ARE but few in this county, and but little attended to as articles of profit. Sandy banks are the natural situation for rabbit-warrens, of which there are few or none in this county. As a domestic animal they are little regarded, sheep being considered as much better stock.

SECT. VI. — POULTRY

ARE kept, as in other places, for the table, and occasionally for sale at market; on which occasion they are in most places considered as a kind of female pin-money. In districts, where stealing them is not common, they are, doubtless, including geese and turkeys, a profitable article, but are generally regarded in no other light than as a secondary object.

SECT. VII. — PIGEONS

ARE mostly kept by owners of estates, and lords of manors, at their own residence, and seldom by farmers; unless in the case of a farmer occupying his own estate, or renting an antient mansion. They may be considered in the same light as poultry, only a secondary object, yet in some instances profitable; perhaps their increase beyond a certain bound, and that not a very extended one, is not to be desired.

SECT. VIII. — BEES

ARE little attended to, by the generality of farmers, as profitable stock, though there may be here and there a bee-fancier. By what I saw in the county, they seem to be principally considered as cottage-stock, for the greatest number of stocks of bees were in cottage-gardens. In the garden of the toll-gate-house, at Doddington, between Stamford and King's Cliff, were nineteen hives of bees, July 9th, 1797, straw-hives and no particular management. I questioned the man concerning them, who supposed the showery weather had been unfavourable to their produce. These were the greatest number I saw in one place: it is in the vicinity of Rockingham forest.

Some sanguine persons have supposed that large products might be obtained from the labours of these insects:

insects: this I have always doubted; our climate is too unsteady and too subject to storms and showers to enable these insects to collect a large stock, or to wander any great distance from home in pursuit of it; insomuch, that a large proportion of stocks of bees in this country would die of famine in the winter, were they not suffocated in autumn to prevent it. As their products are useful and valuable, every attempt to increase their numbers and improve the system of managing them is commendable and deserves encouragement.

CHAP.

CHAP. XIV.

RURAL ECONOMY.

SECT. I. — LABOUR.—SERVANTS.—LABOURERS.—HOURS OF LABOUR.

AS there are no large manufacturing towns situated in this district, the variations in the price of labour are not considerable; and it is, upon the whole, more moderate than could well be expected.

The wages of a ploughman, by the year, are from 8*l.* to 10*l.* with board and washing.

A young man or boy, from 4*l.* to 5*l.*

A female servant, about 4*l.* 10*s.* or from 3*l.* to 5*l.*

A labourer for the summer-quarter has 7*s.* per week and board; the other three quarters, 8*s.* to 9*s.* per week and beer.

In hay-harvest, a man earns from 9*s.* to 10*s.* per week, and a woman 4*s.* without board; though each is allowed a certain quantity of beer.

In corn-harvest, a man hired by the month receives about 2*l.* 10*s.* besides board; a woman is paid at the rate of 1*s.* the day, without board.

Wheat is thrashed at 2*s.* 6*d.* to 4*s.* oats 1*s.* 4*d.* barley,

ley, 1*s.* 9*d.* to 2*s.* and beans, 1*s.* 3*d.* to 2*s.* per quarter.

A carpenter, by the day, has 2*s.* 4*d.* in summer and 2*s.* in winter.

A mason 2*s.* 4*d.* without board.

A blacksmith charges 5*d.* for a horse-shoe.

Wrought iron, such as is used in mounting ploughs or carts, costs 4½ *d.* the lb.

Enclosing land, which is here always done* with ditch and hedge, costs 1*s.* 6*d.* the running yard, and includes the price of the quicks, casting the ditches, a double row of post and rail, and keeping the hedges clean, and the fences in repair for five years.

Labour commences in summer at six o'clock in the morning, and ceases at the same hour in the evening; during hay and corn harvest, labour begins at five o'clock in the morning, and ceases about seven o'clock in the evening; and, in winter, the operations of husbandry go on from daylight to dark.

A man and a boy, with three or four horses and a one-furrow plough, will plough one acre in the day. This is done in what is here called one journey: in summer they are at work by six o'clock in the morning, and go between seven and eight hours without interval; after which the men are principally employed during the remainder of the day in providing food for the horses.

In the maintenance of the servants, the breakfast consists of cold meat, with cheese, bread, and beer. For dinner, roast, sometimes cold, meat, or boiled meat, with sometimes pudding; and, for supper, the

* Enclosing land is sometimes done with stone; the price of which may be seen under the article Enclosing.

same

same as at breakfast; besides ale, allowed on extraordinary occasions, and small beer at command at all hours.

This, though pretty good living, is, I think, no more than industrious people ought to have, and is common in all the adjoining and midland counties.

The above observations were made in 1794 and 1797. The following information, on the same subject, I received in the year 1806.

In the neighbourhood of Kettering,

A labourer, per week, receives from 10*s.* to 12*s.* with one quart of beer per day.

For the harvest-month from 2*l.* to 3*l.* with meat and drink.

A leading man in harvest, and who can stack and thack, *i.e.* build and thatch the corn-stacks, receives more. Mr. Wright gives such an one 4*l.* for the month, and board.

Mr. Pearce, Chapel Brampton, not chusing to board his harvest-men, gives one guinea per week and beer only. At Brixworth, a reaper has 2*s.* 6*d.* per day, and meat and drink.

A waggoner has, per annum, from 8 to 12 guineas. A grown boy, or man-servant, five to eight guineas. A woman-servant, three to six guineas. A carpenter, wheelwright, bricklayer, or mason, 2*s.* 6*d.* per day.

SECT. II. — PROVISIONS.

In 1794, *the prices of provisions were as follows:*

Beef and mutton, 4½ *d.* per lb.	A goose, 3*s.*
Lamb, 5*d.* to 6*d.* per ditto.	A turkey, 3*s.* 6*d.*
Veal, 4*d.* ditto, ditto.	A duck, 1*s.*
Pork, 4½ *d.* ditto, ditto.	A hen, 1*s.* 3*d.*
Butter, 8*d.* to 10*d.* ditto.	A chicken, 6*d.*
Cheese, 4*d.* to 5*d.* ditto.	Eggs, 6*d.* per score
Bread, 1½ *d.* ditto.	

Prices in September, 1797.

	s.	*d.*
Beef	0	5½ per lb.
Mutton	0	6
Veal	0	6½
Pork	0	6
Butter	1	0
Cheese	0	5½

but have since lowered, to Nov. 1797, considerably.

* The quantity of wheat and flour annually exported from this county is very great; but it was not possible, by any means, to ascertain the amount, as the greatest proportion is transported by land-carriage. The wheat is sold by the farmers to the millers in their neighbourhood, who convert it into flour, and dispose of it in the neighbouring counties

* This is owing, in a great measure, to the tillage-system in common fields.

of

of Leicester, Nottingham, and Warwick; and great quantities are annually sent down the Nen to Wisbech. A great proportion of the barley-crop is made into malt,* and consumed in the county. The oats,† and a great part of the beans, are consumed by the horses; a small quantity of beans are, however, annually exported to Wisbech and other places.

Having been favoured with an account of the prices at which the bushel of wheat, barley, oats, and beans, was sold on a particular farm in this district for the last six years, it is here subjoined, and may be depended upon as correct.

Average price, per bushel, of wheat, barley, oats, and beans, from the year 1787 *to* 1792, *inclusive. Measure eight gallons.*

	1787.		1788.		1789.		1790.		1791.		1792.		General average.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
Wheat	5	5½	5	8¼	6	4½	6	6½	6	3½	5	10¾	6	0½
Barley	2	6½	2	6¼	2	7½	3	3	3	1½	3	4¼	2	11
Oats	2	0¼	1	10½	1	8¾	2	4	2	5½	2	6¼	2	2
Beans	3	7½	3	8¼	3	6	3	11	3	10½	4	1½	3	9

Prices at Northampton, September, 1797. *Eight gallons.*

	s.	*d.*		*s.*	*d.*
Wheat	7	0	to	7	6
Barley	4	0	to	4	6
Oats	2	0	to	2	6
Beans	4	6	to	5	0

* A good deal of malt sent out of the county.

† A very large export of oats and beans is made from this county.

In August, 1806, *the prices, at Kettering, were as follows:*

	L.	s.	d.
Wheat, per bushel, of eight gallons . .	0	10	0
Barley, per quarter, ditto	1	15	0
Beans and hog-pease, ditto	2	5	0

Malt, per bushel, 10*s.* to 10*s.* 6*d.*

Oats, per quarter	1	10	0

Beef, mutton, and veal, per lb. 6½*d.* to 7*d.*

Lamb . . . . . ditto 7*d.* to 8*d.*

Butter, per lb. 12*d.* to 13*d.* Cheese, ditto, 7*d.* to 8*d.*

At Northampton, measure eight gallons.

	L.	s.	d.		L.	s.	d.
Wheat, per quarter,	3	10	0	to	4	0	0
Rye . . . ditto . .	2	10	0	to	2	14	0
Barley . . ditto . .	1	16	0	to	1	18	0
Beans . . ditto . .	2	2	0	to	2	4	0
Oats . . . ditto . .	1	7	0	to	1	14	0

SECT. III. — FUEL.

THE fuel consists of wood and coal. The county produces plenty of the former; but the latter being, or having been, scarce and dear, wood has generally carried a pretty high price. Faggots are from 18*s.* to 20*s.* per hundred, of six score. Stackwood, for fuel, 16*s.* to 18*s.* the stack of 108 cubic feet, being a waggon-load, or from a ton and a half to two tons weight.

Pit-coal,

Pit-coal, from the Staffordshire collieries, is now brought plentifully to Blisworth, by the Grand Junction canal; the price, 1797, at Blisworth, near the centre of the county, 10½*d.* to 12½*d.* per hundred weight: at Weedon, four miles from Daventry, 10*d.* to 12*d.* ditto. The above in 1797.

In 1806, furze faggots, at Kettering, 14*s.* to 21*s.* per hundred, forming a waggon-load.

Wood, for fuel, 1*s.* per hundred weight.

Coal, per ton, 35*s.*

CHAP. XV.

POLITICAL ECONOMY, AS CONNETCED WITH, OR AFFECTING, AGRICULTURE.

SECT. I. — ROADS AND BRIDGES.

THERE are few districts which can boast of a greater number of handsome, well built stone-bridges: every brook and rivulet is made passable by means of a stone arch; and the bridges on the larger rivers do credit to the public spirit of the inhabitants.

It is to be regretted, that so much cannot be said in respect to the roads. These, it must be acknowledged, display no great ingenuity either in the engineer who planned or in the undertakers or overseers who executed the work. The great roads leading through the county are all turnpike, and are supported, partly by the money collected at the different toll-bars, and partly by the statute-labour imposed by act of parliament. Each tenant who occupies a farm of 50*l.* of rent being bound to perform three days labour of a cart with three horses and two men, yearly, on the turnpike-roads within the parish, and the same on the private or parochial roads; and, where there are no turnpike-roads within the parish, the whole

six

six days labour is applied to the repairs of the parish-roads.

From this account it might be supposed, that the roads in this district would be kept in a proper state of repair; but the contrary is the case, particularly in regard to the private, or parish, roads, which are in many places in a very ruinous situation, and, in general, so narrow as to admit of only one track. It is true, indeed, that the country is but indifferently supplied with materials proper for road-making, the stone being very soft, and apt to grind into powder; but it is equally true, that, in place of breaking the stone properly, and laying it on carefully to a proper depth, it is generally laid on the roads in the same state in which it is raised out of the quarry; and in place of being broken with hammers, that operation is only performed, in the course of time, by the cart-wheels.

The above are Mr. Donaldson's remarks, to which I have to add, that the system of bridges is not quite complete; for instance, between Daventry and Banbury are several unpleasant, if not dangerous, fords, on the Charwell, where I crossed in July. I was in water for 200 yards in one, and for a considerable distance in others, without knowing the bottom or the road.

That some of the public roads should be indifferent is no wonder, when we consider that the county is a strong clay loam generally: that good materials for repairing them are often scarce, and at a distance, and that the passing of cattle and carriages along these great thoroughfares is incessant, and their numbers prodigious. The numerous droves of cattle, in wet weather, are nearly as injurious to the roads as any kind of heavy carriage.

N.

Mr. Knight observes, " the statute-duty is very ir-
" regularly performed. In some parishes it is done
" to the whole extent, whilst in others, whose roads
" stand in equal need of repair, little or nothing is
" done. This is frequently the case in grazing-pa-
" rishes, where, if a horse or an ox can get along,
" they rest satisfied, having little occasion for good
" carriage-roads; this, however, is a great nuisance
" to others, and they ought not to be permitted to
" throw so great an obstacle in the way of the pub-
" lic."

SECT. II. — CANALS AND NAVIGATION.

THIS county was but, till lately, very indifferently accommodated with water-carriage. The only natural river that has been used for this purpose is the Nen, which has been rendered inperfectly navigable to Northampton; this has been in part effected by art, upon the antient system, which is so very incomplete, that, in general, a cargo, as I am informed, does not exceed four tons, notwithstanding the supply of water is sufficient for the conveyance of any burthen. The defective navigation of this river is sufficiently indicated by the trade and port of the town, which bears no proportion to its situation, opulence, or population: at the wharfs not a single vessel loading or unloading; a crane stands solitary, and not the least stir of business: a small deposit of coals and a few deals comprize all the visible articles of commerce. The system of the waters of this river, divided for the

the different purposes of turning mills, watering meadows, and for the navigation of the river, is so badly designed, and so ill applied, that no one purpose is well answered. A lock, given doubtless from the purest patriotic motives, in 1760, by John Spencer, Esq. of Althorp, is so ill placed, that it turns the navigation into a lower channel, where continuing the higher level would have been much preferable. The waters of this river run three-fourths to waste, when, by a proper system, a large proportion of it might be employed to the important purposes above-named.

The navigation of the Nen, (such as it is,) continues from Northampton, through the county, by Thrapstone, Oundle, and Peterborough, and, continuing north easterly, joins the Wisbech river, several miles below Wisbech.

The projecting spirit of modern times has, however, endeavoured to supply these defects by different bold and daring undertakings, which have for their object the forming of navigable canals, in different directions, through the county, for the conveyance of vessels of heavy burthen; in the execution of which, hills and valleys are equally disregarded; the one can be perforated and the other filled up: the execution of these projects has been hindered, and in some measure suspended, by the stagnation occasioned by the war, and by the great sums of money that have been diverted from these and other purposes, and swallowed up in the immense vortex thereby occasioned.

There are two undertakings of this kind now in hand, the one called the Grand Junction, the other the Union, Canal. These undertakings form a prominent feature in the modern political economy of the county.

county. The Grand Junction Canal, so called from its object being to join the tide-navigation of the river Thames with the principal inland canals of the kingdom by the most direct line possible, and upon a scale sufficiently large to navigate vessels of 60 tons burthen, commences at the Oxford canal, at Braunston, in this county, from whence it is carried on, eastward, about a mile, and in that length elevated 37 feet by lockage; it is then continued upon that level about four miles and a half, one mile of which is an excavation, or tunnel, through or under a hill; this is called the Braunston Tunnel: it is afterwards lowered by lockage 172 feet to the level of the Ouse; in its course passing by Weedon: after crossing the great London road, it is carried over a valley, by an embankment of earth, near half a mile in length, and about 30 feet high. This embankment passing close to Weedon church-yard, the top water level is above the height of the body of the church, and nearly upon a level with the bells. Two public highways for carriages and one small river pass under the canal bottom, through the base of this embankment; the course of the canal is then continued north-easterly, recrossing the London road, and, afterwards, taking an eastern direction, passes Lower Heyford, Bugbrook, and Gayton, to Blisworth; this is eighteen miles from Braunston, and so far is the canal now navigable at this end. At Brisworth are erected extensive wharfage and warehouses for goods, two new inns on the canal banks, and there are five or six thousand tons of coal in stacks on the wharfs; a large number of coal-boats and trading boats in the port, and two new ones on the stocks, building. A considerable

considerable hurry and bustle of business is created here by this canal.

A collateral cut is intended from Gayton, near Blisworth, to the river Nen, at Northampton, with a fall of 120 feet.

The trade of this canal makes a stop at Blisworth at present; very considerable difficulties having arisen in the execution of a tunnel, or excavation, of about two miles in length, under the high ground at Blisworth: the difficulties arise from the under stratum, on the line of the tunnel, which consists of a calcareous blue marl, extremely friable on exposure to air or moisture; and, the springs being powerful, the water, on coming in contact, converts this marl into a liquid mud, which has occasioned the blowing of the shafts and sheeting of the tunnel; and some time must yet elapse before it can be finished and rendered navigable.

The locks on this canal are about 14 feet wide within, and are adapted either for the passage of a barge of 60 tons, or of two inland canal-boats abreast, each carrying from 20 to 25 tons. The line of the canal, after passing Blisworth, is by Stoke Bruern, Grafton Regis, and Cosgrove, near which it crosses the Ouse, and leaves the county; and from hence a collateral branch is intended to Stony Stratford; the main line crossing the counties of Buckingham, Herts, and Middlesex, joins the Thames at Brentford.

The other canal in hand, called the Union Canal, from its object being to unite the navigation of the Trent and Soar with that of the Grand Junction and Nen, commences from the navigable part of the Soar, above Leicester, and is continued across the county of

of Leicester to Market Harborough, near which place it is meant to enter Northamptonshire and to be continued to Northampton, there to communicate with the Nen and the Grand Junction Canal. This canal is also upon a scale for barges of I believe about 40 tons.

The completion of these two grand designs will leave nothing wanting to complete the navigation of the county, but the improvement of the Nen below Northampton, so as to be upon the same scale of navigation with these canals, a project easy of execution, and attended with much less difficulties than those encountered in the canals above described. This would render Northampton a kind of central port, and would much tend to increase the commerce of the county. These remarks made in 1797.

In 1806, I find the Blisworth tunnel completed, and a very masterly and surprising work of art; the whole main line of this canal is also completed, and some of its collateral branches; but the communication with Northampton is by a rail-way: on this great concern, (the Grand Junction Canal,) 1,500,000*l.* have been expended; shares at present under prime cost, and dividends small, owing to improvements still making, and paid for from the tonnage; but hopes are entertained of its coming to pay a good interest upon the expenditure. Reservoirs of water and other improvements are in hand or in contemplation. The Union Canal, and some of the collateral branches originally proposed from this, still remain unfinished.

SECT. III. — FAIRS.

THE following are the fairs of this county, from Ogilby. I am not personally sure of their being exactly correct, having, in the multiplicity of other objects, sometimes forgot to make inquiries on the spot; but a person well acquainted with the county, and living near the centre of it, informs me, that, so far as he is acquainted, it is free from error.

Boughton-Green, June 24, 25, 26, for timber, goods, toys, and wearing-apparel.

Brackley, Wednesday, after Feb. 25, third Saturday in April; Wednesday, after June 22, for live stock; Wednesday, before Oct. 10, for ditto and hiring servants; Dec. 11, for live stock.

Brigstock, May 6, for live stock; Sept. 5, for ditto, brass, and pewter; Nov. 22, for hats, boots, shoes, and pedlary.

Brixworth, Whit-Monday, for cloth, hardware, and toys.

Daventry, Easter-Tuesday, for live stock; June 6, for swine and goods; Aug. 3, for live stock; Oct. 2, ditto, cheese, onions, &c.; Oct. 27, called Ram Fair, for sheep chiefly.

Fotheringhay, 3d Monday after July 5, for horses.

Higham-Ferrers, Tuesday before Feb. 5, March 7, May 3, June 28; Thursday before Aug. 5, Oct. 10, Dec. 17, for live stock.

Kettering, Thursday before Easter; Thursday before Oct. 10; Thursday before Dec. 21, for live stock and pedlary.

King's

King's Cliff, Oct. 29, for cheese, linen, and turner's ware.

Northampton, Feb. 20, live stock and toys; April 5, May 4, Aug. 5, all great horsefairs; Aug. 26, for all sorts of merchandise; Sept. 19, cheese and sheep chiefly; Nov. 28, Dec. 19, live stock.

Oundle, Feb. 25, Whit-Monday, Aug. 21, live stock.

Peterborough, July 10, Oct. 2, live stock and timber wrought.

Rockingham, Sept. 25, live stock, goods, and cloths.

Rothwell, Trinity-Monday, and all the week, live stock, pedlary, and leather the last day.

Thrapstone, first Tuesday in May, Aug. 5, live stock, pedlary, shoes, merchandise, and hiring harvest-men.

Towcester, May 12, Oct. 29, live stock and merchandise.

Weldon, Feb. 19, May 21, Aug. 20, Sept. 17, for brass, pewter, hats, and cloths.

Wellingborough, Easter-Wednesday, Whit Wednesday, for live stock; Oct. 29, ditto and cheese.

West-Haddon, May 2, for hats, hardware, and cloth.

Yardley, Whit Tuesday, horned cattle, and horse-furniture.

SECT. IV.— WEEKLY MARKETS.

WEEKLY markets are held in all the principal towns, for the sale of butchers meat, and other articles of provisions, as follows. From Ogilby.

Brackley	Wednesday.
Daventry	Ditto.
Higham-Ferrers	Saturday.
Kettering	Ditto.
Northampton	Ditto.
Oundle	Ditto.
Peterborough	Ditto.
Rockingham	Thursday.
Rothwell	Monday.
Thrapston	Tuesday.
Towcester	Ditto.
Weldon	Wednesday.
Wellingborough	Ditto.

SECT. V.— COMMERCE.

THE landed produce exported from the county chiefly consists of wheat, wheat-flour, oats, beans, timber, oak-bark, fat cattle, fat sheep, wool, butter, and cheese. The manufactured exports are shoes, lace, and woollen stuffs; these are sent to London, Ireland, America, and the West-Indian islands; also to various parts of Great Britain. Part of the heavy articles are sent by the navigation of the Nen, or the canals,

canals, the rest by land-carriage. The articles imported into the county are lean cattle, store sheep, coals, iron, deals, leather; and, Mr. Donaldson observes, thread for lace-making from Flanders. The coals are brought from the north, and up the Nen; or from the inland collieries, by means of the Oxford, Grand Junction, and Union, canals. It is very probable, that the return of the blessings of peace, and the finishing of these canals, would very much increase the commerce of the county.

According to Mr. Donaldson, the woollen stuffs are sold to the London and Yorkshire markets, to persons who dress and dye them, and prepare them either for the supply of their home customers, or for exportation to foreign markets.

SECT. VI. — MANUFACTURES.

THE principal manufactures carried on in this district are shoes, bone-lace, and woollen stuffs, principally tammies, callimancoes, and everlastings.

In Northampton, and some of the neighbouring towns, upwards of 1,000 hands are employed in making shoes for the supply of the army and navy, and the shops in London, and also for exportation to different parts of the world. About 7,000 or 8,000 pairs are manufactured weekly in time of peace; but at present, (July 1794,) in consequence of the war, from 10,000 to 12,000 may be manufactured in the same period. The price runs from 3*s.* 6*d.* to 5*s.* and upwards

upwards the pair. The medium price may be reckoned at 4*s*. 3*d*. of which about 1*s*. 6*d*. is paid for labour.

The leather is purchased partly in this and the neighbouring counties, but chiefly from the London market. A journeyman earns from 7*s*. to 14*s*. the week; but from 9*s*. to 10*s*. may be considered as the general average.

In Wellingborough, and the neighbourhood, and towards the south-west corner of the county, from 9,000 to 10,000 persons, mostly young women and boys, are employed in lace-making. They earn from 2*d*. to 1*s*. 6*d*. the day; generally, however, about 6*d*. nearly one-seventh part of which must be deducted for materials, in the proportion as 3*s*. to 20*s*. and consequently 17*s*. in the pound of the value of the article are paid for labour. The price varies from three halfpence to 15*s*. the yard; and, what seems very extraordinary, rises regularly one halfpenny the yard. The greatest demand is for that quality which sells from 2*s*. to 3*s*. per yard.

The woollen-manufactory is principally confined to Kettering and its neighbourhood. This manufacture was in the highest perfection it has ever attained at the beginning of the present war. A very considerable number of persons were employed in the different branches of it at that time. It is difficult to form any probable guess at the number; but, perhaps, from 5,000 to 6,000 would not be an extravagant calculation. At present not more than one-half of the number of persons are employed in it. The wool, in the first instance, is bought by the manufacturers of the growers or farmers in the neighbourhood; it then undergoes a very minute assortment, and the different

kinds of wool which are found in every fleece are appropriated to supply the proper markets in the different parts of the kingdom, where they are respectively manufactured. Thus, for instance, the finest is sent into Yorkshire for clothing, or to Leicester for the hosiers; and some of the longest staple wool is worked at home into moreens, tammies, calimancoes, and everlastings. After the wool is sorted, and the different kinds are assigned to the respective purposes for which they are best adapted, that which is intended to be manufactured at home is combed, and then delivered out, in small quantities, to the lower class of people in the neighbourhood, to be spun and reeled, for which they are paid so much per pound, according to the fineness of the thread into which it is converted; it is then returned home to the manufacturer, who has it wove into such kind of stuff as the quality of the thread will best answer. The spinning and reeling are chiefly performed by the females, and boys from ten to fourteen years of age. The price allowed is from 10*d.* to 1*s.* 6*d.* per pound. A tolerable spinner, who is industrious, earns, upon an average, 6*d.* per day. Sorters are paid at the rate of 6*d.* per tod of 28lb. Combers receive 2*s.* for every 13lb. of wool. A good hand will make 9*s.* or 10*s.* per week. A weaver from 5*s.* 6*d.* to 6*s.* 6*d.* per piece for tammies, consisting of 32 yards in length by 22 inches in breadth; and, for everlastings, from 5*s.* to 17*s.* per piece of the same size, according to the fineness; and a good weaver will earn 1*s.* 6*d.* per day.

The above remarks were principally made by Mr. Donaldson, in 1794, to which I add the following:

Mr. Roper informs me, 1806, that, in his neighbourhood,

bourhood, Pottersbury, all the women and girls who choose it are employed in lace-making, at which an industrious woman can earn from 1*s.* to 1*s.* 6*d.* per day; and that lace-making is the employment of the females in many other parts of the county.

The woollen-manufacture of Kettering, Rothwell, Desborough, &c. is in a bad state, and the manufacturers are distressed; poor-rates, in these places, 10*s.* in the pound, or more, upon a full value, and they have been much higher.

There is a considerable whip-manufactory at Daventry, in which I am informed some good properties have been acquired. Two master-manufacturers each employ an out-rider and a number of workmen. There is also, at Daventry, a considerable manufactory of silk stockings.

SECT. VII. — POOR.

RESPECTING the state of the poor, it is very difficult for a temporary visitor to speak correctly: authentic information is not always, or easily, obtained, and to form a just idea of the subject requires a considerable degree of local knowledge of circumstances, which can only be acquired by a residence for some time on the spot. It appears that healthy labourers have constant employ and good wages, and that their family at home may earn something by employing themselves in the lace-manufacture. The distress, occasioned by the depression of the woollen-

manufacture of Kettering, is proved by the enormous height of poor-rates; and the ample funds raised for the poor through the county must, in some measure, alleviate their distress: there are no apparent symptoms of poverty more than elsewhere; and it is hoped their situation is as comfortable as is consistent with their class in society.

Mr. Young made some inquiries, in 1791, in this county, which tend to shew, that the state of the poor here in general is advantageous, owing very much to lace-making. In an account of the expenditure of a man, his wife, and five children, and their earnings, the latter exceeds the former in one year by a saving of 1 *l.* 5 *s.* 4 *d.* although a reasonable allowance is made for every necessary expenditure.

There can be no doubt but a manufacture which finds early and proper employ for children must, in any country, be advantageous to the poor.

Mr. Knight, (who has bestowed a good deal of attention to the subject,) observes, " that, generally, " where the poor-rates are lowest, the poor are most " comfortable:" this, which I believe may be admitted as a very general fact, sufficiently proves that the best system to adopt is that of encouraging them to provide for themselves, instead of depending upon the parish for relief, and putting the means of doing so within their reach. Mr. Knight says, the first step towards this is in the hands of noblemen and gentlemen of fortune, which is, the letting of small portions of land to the more steady and industrious labourers, for gardens, and for keeping a cow: a second assistance is in the hands of farmers, and may be afforded without loss to themselves; it is that of furnishing poor families, particularly where there are small

small children, and of their own labourers, with milk at a reasonable price through the year: this would conduce more to increase the comforts of the poor than any other means at the same expense to them, and without real loss to those who supplied it. Mr. Knight is satisfied, from observation and inquiry, that two pints of milk per day, in such families, is of more service to them than one shilling per week in money; and milk is not regularly to be bought in country villages. A third advantage would be derived to the poor, and to society in general, if farmers would bestow more attention to the minutiæ of their business, and employ poor women and children in many things now omitted, but which would pay well for doing, such as rooting out thistles, nettles, and other weeds, not only from crops, but from pastures, road-sides, and hedges, by which they would in time be nearly extirpated, or in any other employments which they are capable of, and which would pay for doing. Mr. Knight also thinks it would conduce to the improvement of the poor if persons in affluent circumstances would more generally encourage benefit-societies, by becoming honorary members; which would be a means of their becoming more general, and of more extensive advantage to the poor where they are established.

The Lamport Society are of opinion, that, where circumstances will admit, the honest and industrious labourer should be accommodated with land, at a fair rent, sufficient to keep a cow; but, where that is not practicable, with sufficient to grow potatoes for their family, and to enable them to feed a pig.

That those whose province it is to relieve the poor should

should make it a part of their system of management to sell them as much milk as they wish to purchase.

That occupiers of land should employ poor women and children in rooting out thistles and other weeds, especially those with flying seeds, not only from corn-fields, but also from pastures, hedges, banks of earth, and road-sides, by which means the poor would be relieved, and weeds extirpated, which now spread and multiply themselves without bounds, by the neglect of the land-occupiers. The evil arising from this neglect is of so public and extensive a nature, that it ought to be taken up in a public way; and the individual, or liberty, suffering such weeds to perfect and spread their seeds, ought to be presented and indicted at the county-sessions for the public nuisance.

Where property is left in trust for the poor, the trustees should, previous to its distribution, make themselves so far acquainted with the wants of the poor as to assist them in such articles as will be most to their advantage, and which will generally be done best by selling such articles at reduced prices rather than giving them money.

That benefit-societies should be encouraged by the opulent.

SECT. VIII. — POPULATION.

THOUGH it was not possible to ascertain the number of inhabitants with any great degree of correctness,

ness, yet from the information received of the population of particular parishes, in different parts of the district, the number of inhabitants may be reckoned at 400 in each of the country parishes or townships, and 3000 in each of the market-towns, making, in all, 167,600, of which, by far, the greater proportion is employed in agriculture. Mr. Donaldson.

It is very difficult to collect any data, from which an accurate estimate can be formed, or the above corrected. I am inclined to think the towns not overrated; but, perhaps, the country parishes may be rather over-charged, particularly the grazing-parishes, on which account I should be disposed to reduce the estimate to 150,000. W. Pitt. 1797.

The above may remain to shew the uncertainty of conjectures on this subject: as it appears, by accounts published in 1805, by parliamentary authority, that the number of inhabitants, in this county, was then 131,757

Of which were males	63,417
Females	68,340

Being 136 upon a square mile; the average of England and Wales, per square mile, being 152; of England alone, 166; and of Wales alone, 67.

Also, that the active population, or those by whom all the business of agriculture and manufacture is performed, was 60,729, being less than the one-half, or between 46 and 47 in a hundred upon the whole; the other part living on their property, without labour, or being superannuated, or children under the age of labour.

Also, the commercial and manufacturing population,

tion, exceeds the agricultural, being, upon the whole, about . . . . . 51½ in 100

The agricultural population . . 48½ in 100

Respecting births and burials as a data, from whence to estimate the population of a country, unless such information were multiplied and extended, much farther than can be done by an itinerant inquirer, they can form no ground-work for any sound calculation; and the principles of population are now well understood. In some towns and villages are many dissenters, who baptize by their own minister, (which baptisms are not registered,) but bury at church. The effects of enclosures on population and employment are self-evident, and cannot be mistaken: the enclosure itself always creates employment, but principally for distant adventurers, or the more enterprizing workmen of the neighbourhood, who undertake the business by task-work, and generally gain increased wages. So long as the enclosure is kept in tillage, or what is called here an up and down system, no defect of employment or decrease of population can take place; but, if the bulk of the land be of a deep rich staple, and be thrown to, and continued at, grass, for feeding sheep and cattle, fewer workmen are necessary than in tillage-land; and if there be no manufactures, depopulation of that particular district must take place: and, in fact, all the grazing, and particularly the feeding, parishes, devoid of manufactures, are thin of population. Brampton, of about 3000 acres, grows about 50 acres of grain, and contains, as I was informed, about 12 houses and 60 persons, yet produces a very large overplus of beef and mutton, for the supply of London and elsewhere. Fawsley, near Daventry, is a considerable parish, without a single blade

of

of corn. Here I saw 90 oxen grazing in one pasture, and in plenty, but it is in vain to look for houses or inhabitants; for, excepting the family and mansion of the Knightleys, and a few graziers' occupations, and shepherds cottages, no other dwellings exist for human kind. In the agricultural parishes, births and burials can form no data for increase of population, because, if more are born and reared than can be employed, emigration to towns or manufactures takes place; the sons of the farmers are apprenticed to shop-keepers, and of the labourers to manufacturers, and their daughters marry or go to service elsewhere, and consequently settle and die out of their native parish; hence the births may exceed the burials, without any increase of the local population. Respecting the general population of any country, that will depend eventually upon the numbers that can be employed so as to gain, by their own industry, a comfortable subsistence; and upon the supply of that subsistence from agriculture, or importation, at a price so proportioned to the price of labour as to prevent any general distress. If a great population be desirable, then the most patriotic agriculture must be that which will feed comfortably from the soil the greatest number of people; and the best systems or practices must be those which most conduce to that end, and, in this respect, agriculture is much superior to grazing.

To the question: Is a great or increased population desirable? I would answer, as a philosopher, yes, if it be attended with increased happiness, otherwise, an increase of numbers is but an increase of misery; but increasing happiness, with numbers, can only be effected by improved morals, and it is necessary the multitude

multitude be taught as well as fed. Improved morals must be founded on an increase of knowledge and the cultivation of the intellectual faculties, and not on hypocrisy and visionary enthusiasm: as a politician, I might say increased numbers are necessary, to preserve the independence of a country against foreign intrusion, which would be true in the present state of society, little removed from barbarism; but, it is to be hoped, a time will arrive, when rapine and violence shall yield to justice and benevolence, and man shall not be roused against his fellow, or trained to destroy him for he knows not what, at the instigation of pride, or vanity, or ambition. As a man I must say, that every one who fulfills the duties due to society, and acts his part in those efforts and exertions necessary for the subsistence and welfare of the community, is entitled to a participation of the blessings and enjoyments of his species, sexual as well as individual, which implies, in a well-ordered state of society, the increase of numbers as a matter of course, and the subsistence of such increased numbers, by an improved culture of the earth, even till every reclaimable part of it is brought round, and stocked with inhabitants.

By favour of the Rev. Mr. Brotherhood, officiating minister of Desborough and Rothwell, I gained the birth and burials of those two parishes, for two distinct periods, of 10 years each, and they are as follow:

	Births.	Burials.
Desborough, for 10 years, ending 1759,—	201	123
Ditto, for 10 years, ending 1805,—	236	192

The increase of population in this parish is evident, taken in any way; it is partly agricultural and partly commercial, having a manufactory of tammies and

and calimancoes; but trade bad and poor-rates high, 10 or 12 shillings in the pound; baptisms and burials all at the church.

	Births.	Burials.
Rothwell, for 10 years, ending 1759,—	353	465
Ditto, for 10 years, ending 1805,—	278	392

This exhibits rather a melancholly picture of decline; but the burials exceeding the births is thus accounted for, the dissenters baptize by their own minister, but bury at church; but the annual burials are declined from 46½ to 39⅓. The present number of inhabitants is said to be about 1500, and they have probably declined in the last half century about 300; but this may be accounted for from the following local causes:

Rothwell was numbered among the antient market-towns of this county, but its market has long since declined; the ruins of a beautiful antique market-house, of stone, with latin inscriptions on all sides, still remain, but long since divested of its roof: a tradition prevails of the town having been depopulated by the plague, and its market suspended by that calamity, and never restored, but without any date to such event. A manufactory exists here of tammies and calimancoes, but which being, and having been for some time, in a declining state, occasions high poor-rates, and has forced numbers into the army: the depopulation of this town is, therefore, to be attributed to its lost market and declining manufacture.

As an agricultural district, this parish is very interesting, being of great fertility, but remaining in the open or common-field state. See common-fields.

The agricultural working population, by whom all the labour is performed, appears, from the parliamentary

tary documents before referred to, to be in this county about 30,000, upon 1000 square miles, or 30 upon a square mile of 640 acres in the gross, or, at least, nearly so. If we allow the 40 acres for waste, in roads, rivers, and uncultivated land, this gives only one working person to 20 acres upon the average of the county, employed in agriculture, and somewhat more than double that number supported by such employment.

Supposing the county divided into four parts, of 150,000 acres each, of agricultural land, I estimate one part to be common or open-field parishes; two parts enclosed, and managed in the up and down system of tillage and pasture alternately; and one part antient enclosure, and at permanent grass for feeding sheep and cattle, or mown for hay.

A farm, of 150 acres, in the common-field system, may be estimated to employ and support, as follows:

The farmer, his wife, a man-servant, a boy, and two female servants; a labourer, a shepherd, and one supernumerary, making, in all, nine upon 150 acres: these I suppose sufficient to do all the work. If the farmer and his wife do not take an active part, they must employ substitutes. Suppose 150,000 acres of this class of land, it will thus employ 9000 working people in its cultivation, besides children and other parts of the family not inured to labour.

I am of opinion, that enclosed land, in an alternate system of tillage and pasture, requires about the same proportion of numbers; for, although more work be necessary in fences and in many improvements not adopted in common-field parishes, yet the convenience of the work, being more compact and in less compass, will occasion more work to be done by the same number

ber of hands; to this may be added, that enclosed parishes are seldom in so large a proportion of tillage as common fields, and require fewer workmen on that account. If we suppose nine workmen or women employed upon each 150 acres of this class, or division, of land, and that it consists of 300,000 acres, then 18,000 persons are thus employed.

The antient enclosures, or old feeding-pasture parishes, certainly employ a much smaller proportion of hands. A grazing-farm, of 600 acres, may require, besides the master and mistress, or their substitutes, a waggoner and boy, a shepherd and assistant, a cowherd and supernumerary, two maid-servants, and two labourers, in all 12, or one working person on 50 acres; and this I believe to be as many as are generally employed upon feeding-pasture land, where little or no grain is grown. I have seen an instance of a grazing-farm, of 300 acres, managed by one man, living in a cottage, or tenement, with his wife and family, and with little or no other assistance; the master living in a town, at a distance from this land.

By this estimate, 150,000 acres of grass-land employs only one working person to 50 acres, or 3000 persons.

Recapitulation of the Agricultural Population.

Acres.		Persons.
150,000	of common-field, or land attached thereto, employs, at 9 to 150 acres .	9,000
300,000,	in an alternate system of grass and tillage, employs in the same proportion	18,000
		27,000

Acres.

Acres.		Persons.
450,000	Brought over	27,000
150,000	of old pasture, employed in feeding live-stock, at one person to 50 acres	3,000
	Total employed in agriculture,	30,000

Which agrees nearly with the returns made to the parliamentary requisitions; by which also it appears, that the children and others, not inured to labour but connected with agriculture, are 33,902

Making an agricultural population of	63,902
The commercial population	67,855
Total . . .	131,757

Hence it must appear, that the enclosure of common fields has little to do with population, unless such enclosure be thrown into a grass-system, in which case agricultural employment must certainly decrease; but that employment is increased by a more operose culture, as by hoeing, drilling, clean weeding, and whatever approaches a garden-like culture: and human food is by those means also increased, and that population will naturally increase, under a sufficiency of employment, whether agricultural or commercial, and with a plentiful supply of human food, at reasonable rates.

CHAP.

CHAP. XVI.

OBSTACLES TO IMPROVEMENT, INCLUDING GENERAL OBSERVATIONS ON AGRICULTURAL LEGISLATION AND POLICE.

THE obstacles to improvement may be classed under the following heads:

The continuance of open-field lands;
Tithes payable in kind; and,
The want of leases.

Open-field lands.—The management of the open-field farms is governed by the established customs which have prevailed in the parish for ages. An open-field parish may be classed into three divisions; viz. tillage, meadow, and pasturage.

The tillage-lands are cropped in the manner before mentioned, and the several occupiers must conform to the antient mode of cultivation of each division or field in which their lands are respectively situated; from which it will appear, that one obstinate tenant (and fortunate must that parish be accounted, where only one tenant of that description is to be found,) has it in his power to prevent the introduction of any improvement, however beneficial it may appear to the other inhabitants of the parish. The tillage-lands are divided into small lots, of two or three old-fashioned, broad,

broad, crooked, ridges, (gathered very high towards the middle, or crown, being the only means of drainage that the manner in which the lands are occupied will admit of,) and consequently the farmer possessing 100 acres must traverse the whole extent of the parish, however large, in order to cultivate this small portion. The great additional expense of cultivating lands so situated must be obvious to every farmer of common understanding; while the never-ending rotation of corn-crops, to which the lands are subjected, must render them incapable of producing any large returns.

The meadows are kept in a state of common pasturage from the time the hay is carried off till Lady-day, by which means the crops of hay are very indifferent, compared with those produced on enclosed lands properly managed.

The leys are generally divided into three fields; one is allotted for the pasturage of the sheep, another for the cows, and, on the third, the shameful practice of tethering the horses is still continued. And, by every information that could be procured, it appears that the stock is not kept with a view to any profit that can possibly arise from the sales, but merely as the means of cultivating and manuring the soil. Indeed, long experience has evinced, that no species of stock kept in these open fields can be carried to market on terms nearly so advantageous as the same articles reared by those farmers who occupy enclosed lands; nor is it to be supposed, considering the manner in which the stock is treated, that the owners will pay much attention to the improvement of the different breeds. While the numerous inconveniences attending the occupation of land, so dispersed and intermixed,

mixed, as open-field lands always are, will remain for ever a bar to the introduction of any improved system of husbandry; the greatest, indeed the only, objection against enclosing is the depopulation of the parish, which, it is said, generally takes place in consequence thereof; while it may be admitted, that the inhabitants of a parish must undergo a very material alteration in their situations, in consequence of its being enclosed; yet it does not follow of course that depopulation must be the consequence; as, though several of those who occupy small farms must necessarily be removed, in order to enable the proprietors to class the lands into farms of a proper size, yet it is equally clear, that a new set of people must be introduced, such as hedgers, ditchers, road-makers, and labourers of every description; and therefore, this may rather be called a shifting of population from one village to another than an expulsion from one particular parish: and, were it clear that depopulation was the consequence of enclosing a parish, that depopulation does not arise from the enclosing, but from the total alteration of system which commonly takes place in the management of the lands. For if, in place of laying down the lands in grass, which but too generally happens on these occasions, they were cultivated in an alternate course of corn and grass husbandry, the number of hands necessary for the cultivation, and carrying on the various improvements, which would, in such a case, be immediately introduced, would be at least equal to the number of inhabitants in the open-field state.

The average rent of an acre of open-field land, in this district, including the value of the tithes, which may be reckoned at 3*s.* 6*d.* per acre, may amount to

11*s.* 6*d.* while the average rent of an acre of the enclosed lands, which are generally exempted from tithes, may be accounted at 20*s.* which makes the difference of 8*s.* 6*d.* per acre; and, as there are 89 parishes in this county in the open-field state, which may contain nearly 150,000 acres, the rent, which the proprietors of these parishes lose by keeping them in an open-field state, may be estimated at upwards of 60,000*l.* a year; while, at the same time, the introduction of improvements is precluded, and consequently an increase of rent on rational principles. It may, however, be proper to add, that humanity, as well as strict propriety, should induce those who act as commissioners under an enclosing-bill to give a compensation in land, in every case where possible, to those having a right of commonage in the parish, in place of a consideration in money; by which means those people, instead of being obliged to remove, would be induced to build small cottages upon their own property.

One great obstacle to the enclosing of parishes seems to be the very great expense to which the proprietors are subjected, in procuring the act of parliament and carrying it into execution. As this complaint is general all over the kingdom, it is to be hoped, that some plan will be devised by the legislature for obviating this difficulty, and for enabling proprietors to effectuate this great improvement with more facility and at less expense. There is not, perhaps, any one circumstance, regarding the agriculture of England, that deserves the serious attention of the board of agriculture more than this.

Tithes.—The collecting of tithes in kind is very generally complained of; and, in those parishes where that

that mode is adopted, it certainly operates very powerfully against the introduction of improvements in husbandry; while, at the same time, it is attended with very disagreeable consequences, both in a religious and political point of view, as it is often the means of creating such divisions between the clergyman and his parishioners as renders the religious instructions of the former of little avail, while it loosens that chain of intercourse and connection, which it is considered of so much importance to keep united. It has happened, (though to the credit of the clergy of this district be it said, the instances are very rare,) where the tithes have been let to a layman, he has been known to exert that authority with which he was invested, and has not only taken the tenth shock of corn and the tenth cole of hay, but also the tenth lamb, pig, hen, egg, &c.; nay, has even gone into the garden, and taken not only the tenth part of the fruit, but also the tenth of the produce of the kitchen-garden. Under such circumstances as these, it may be asked, who is the farmer who would not feel himself aggrieved?

Many plans have been suggested, in order to bring about an arrangement of tithes, and to place them on some permanent footing. It has been proposed, that the proprietors should farm the tithes in each parish, or that a corn-rent should be fixed by the average price of grain for a number of years past; but that which appears most likely to meet general approbation, and which seems best calculated to do justice to all parties, is to give the clergyman a compensation for his tithes in land, because the depreciation in the value of money has been so great as to render any arrangement, which is to be founded on it as a medium

by which the value is to be ascertained in future times, very uncertain; whereas the produce of land must always bear reference to the value of money at the time.

Whether the open-field parishes are to be enclosed or allowed to remain in their present state, still it is humbly supposed, that a general arrangement might be made respecting the tithes, by giving compensation in land; and that, upon the same principles as those, which commissioners under enclosing bills determine these matters, which is generally by finding the clergyman entitled to one-fifth or one-sixth of the tillage-land, and one-ninth of the pasture, or two-thirteenths of the whole parish.

Were this desirable object by any means obtained, improvements in agriculture and the different breeds of stock would, no doubt, take place; and, instead of the clergyman and his parishioners living in a state of contention or warfare, we should see them living as one great family, in harmony and peace, and the clergyman considered as the parent and preserver of that bond by which they are united.

Want of Leases.—Next to the modes of culture and the management of stock, which must, according to the present system, be universally practised in the open-field lands, and the collecting of tithes in kind, nothing can operate so powerfully against the spirited exertions of farmers, in regard to the introduction of better modes of cultivation and greater attention to the improvement of the different species of stock, than the want of leases.

Every farmer, who possesses a farm from year to year, must feel that kind of dependence which must tend, in a greater or less degree, to damp his spirit for improvement,

improvement, and must prevent him from doing that justice to his farm, which would enable him to pay the highest possible rent to his landlord, or to procure that fair profit to himself, to which the extent of capital sunk in carrying on the operations of the farm, and his own industry, are entitled.

In such a situation, the prudent farmer must be restrained from any spirited expenditure, however much he may be satisfied that the improvements, which might thereby be introduced, would, under other circumstances, prove beneficial both to his landlord and himself.

In every country where improvements have been successfully and extensively carried on, leases have been granted, and every proper and reasonable encouragement given to the tenants; and, where this mode of letting lands on lease has been introduced, the proprietors have, in every instance, found it for their interest to pursue the same plan; because they saw that the tenants, feeling themselves possessed of an interest in the improvement of the soil, bestowed every degree of attention on that object, and the landlord, at the expiration of the lease, considering himself justly entitled to derive some advantage from the exertion and industry of the former tenant, to whom he had given this assurance, demands and receives an additional rent. The best proof, in this case, that granting leases is the most probable means of securing the improvement of farms, is to refer to the particular district now under review, where it will be found, that it is only on those farms where leases are granted, that improvements are carried on to any extent.

It is true, indeed, that few instances have occurred here, where the proprietors have not behaved to their tenants

tenants with that honour and good faith becoming their rank and fortune. Yet there are instances where tenants have been obliged repeatedly to agree to pay an advance of rent, rather than remove, while, from the uncertainty of the tenure on which they held their farms, they were debarred from making those exertions, which an advance of rent demanded, and which always happens in such cases when leases are granted

While the proprietors remain satisfied with the rents which they receive, (which in general are high enough under the present circumstances,) it is not probable that any material alteration will take place, either in regard to the manner of letting the land or the system of agriculture. But, if a general rise of rent should take place, it will be necessary to secure the tenant that permanent interest in the farm, which will entitle him, with propriety, to adopt those means of improvement which will enable him to do justice both to the landlord and himself. It may be added, that, if leases were granted on a reasonable advance of rent, and for 19 or 21 years, the community at large, as well as the individuals more immediately interested, would be benefited thereby; and this particular district, which is so favourably situated, would, in a few years, be one of the best cultivated in the kingdom.

The obstacles to improvement, as above enumerated by Mr. Donaldson, are sufficiently obvious; and his observations upon them just and natural to those he has named. I am to add as obstacles, the few waste-lands not yet divided, and more particularly the tenure, and clashing of different interests in the forest-lands, and the same in the waters of the natural rivers;

rivers; the assistance to be given by legislation towards removing these obstacles is:

1st. By a general enclosure-bill, both for waste-lands and open fields; 2d. a commutation of tithes; 3d. an arrangement of the forest-lands, by division, sale, or otherwise, so as to make it the interest of those concerned to improve such land and its produce; 4th. a system and arrangement of the waters, to enable the land-owners to apply to the purpose of watering land such water as now runs off in waste, and is not used for turning mills or for navigation. The improved police of agriculture should have, for its object, a liberal system of occupancy, between landlord and tenant, which should equally secure the rights and reasonable expectations of both; to the former his rent and the improvement of his estate; and, to the latter, by lease or otherwise, the just claim he has to the reward of his own exertions and industry; with which should be united a liberal system of covenants, equally regarding private interest and public good: and here I cannot but enter a caveat against a practice which has been but too prevalent, and, I believe, generally encouraged or compelled by the landlord, which is, that, upon the enclosure of open-field land, it has been a practice to convert to permanent pasture a considerable proportion of such land, whether adapted to grazing or not. This is the way by which enclosures may depopulate. and become a curse instead of an improvement.

Mr. Smith, Tichmarsh, has observed, "It is an erroneous idea to suppose that enclosures are calculated to depopulate. An enclosed farm, if properly cultivated, will increase instead of diminishing population for the most part. Some particular instances may

" may be adduced to the contrary; for instance, where " the soil is sufficiently good to be kept wholly in " pasture; but this is rarely the case, and will not at " all admit of a general deduction. True it is that " pasture-land was become so fashionable amongst " landlords as to induce them to lay down soils by no " means calculated for the purpose, and depopulation " followed of course; but 500 acres of enclosed-land, " in a good state of cultivation, would employ near " 20 people constantly; an open-field farm, of the " same size, not more than half the number, thus:"

" 4 ploughmen,
" 4 boys,
" 4 threshers,
" 1 shepherd,
" 1 hedger,
" 1 chaff-cutter,

" Besides people to draw turnips and other green " food in winter; and cutting and carrying vetches " and green food in summer; also, in weeding, &c."

Mr. Smith farther observes, " If landlords object to " leases, why do they not improve their estates at " their own expense, and charge their tenants interest " for such sums as they expend; no rational tenant " would ever object to it. Ought the community to " suffer so materially from such inattention and negli- " gence?"

It clearly appears that if land, upon enclosure, be kept in an alternate system of tillage and pasture, no injury to population can arise from such enclosure; but, on the contrary, both the population and the produce will be increased: to say that all land ought to be in such system, would, perhaps, be saying too much, because rich old pasture-land is necessary to produce

produce prime beef and mutton; yet nothing is more easy to prove than that such land is of less value to the public than inferior land in cultivation, because its gross produce and the employment it finds for mankind are less. It neither finds employment nor sustenance for an equal population with inferior land, producing grain occasionally; the value of gross produce, on all land, is an aggregate of annual value of the land, labour bestowed on it, and profit, but the labour on pasture-land is little: hence then, though the net profit may be greater, the gross produce is generally less than that of inferior land in good cultivation; and the subsistence and employment it affords to mankind, as well as the revenue to the state, is less also.

One object, therefore, of an improved agricultural police, should be the management of land, upon a system of finding employment for the many, and yielding a large gross produce for their support; in opposition to that of indiscriminately throwing new enclosed land into permanent pasture.

CHAP. XVII.

MISCELLANEOUS OBSERVATIONS.

SECT. I.—AGRICULTURAL SOCIETIES.

THERE are several small friendly societies formed in this county for the promotion of agriculture; consisting, generally, of respectable neighbouring farmers, who meet at stated times, and communicate with each other on such subjects as occur occasionally in their respective occupations. There is one, whose meetings are held at Wellingborough; another at Lamport, near Northampton; and a third at Peterborough: I believe they are all nearly upon the same plan. I attended a meeting of the Lamport Society, and am obliged to them for their friendly communications. I also had a letter from the secretary of the Wellingborough Society, (Mr. Robert Alderman,) requesting my attendance at their meeting, but it happened on a day that I could not make it convenient to attend.

The object of the Lamport Society is chiefly that of opening a free and friendly communication between its members, on such subjects of cultivation or stock

stock as may occur amongst them individually; to which is added, a fund for purchasing such books on agriculture and domestic economy as may be approved; also, an inquiry into the merits of new discoveries or projected improvements; and a discussion of such subjects on agriculture as may be occasionally proposed.

List of the Lamport Agriculture Society, 1797.

Atterbury, Mr. William, Hollowell.
Bosworth, —— Daniel, Holdenby.
Bosworth, —— Thomas, Highgate-House, *since dec^d.*
Chapman, —— William, Orton-Lodge.
Cooch, —— Thomas, Harleston.
Cook, —— William, Shortwood-House.
Davis, —— Thomas, Old.
Eaton, —— Edward, Kelmarsh.
Ekins, —— John, Brixworth.
Ekins, —— William, Brixworth.
Ellis, —— Robert, Clipston.
Knight, —— Richard, Walgrave, President.
Knight, —— Robert, Walgrave-Hall.
Palmer, —— Thomas, Old.
Parker, —— John, Cottesbrook.
Pearson, —— Martin, Spratton.
Weston, —— Joseph, Brixworth.

The institution is a late one, commencing about the beginning of the present year, 1797.

I beg leave strongly to recommend to the different societies the giving premiums to persons raising or collecting the seeds of the different pasture-plants which I have recommended for cultivation, or such of them as they may judge most worthy of trial.

From

From 1797 to 1806, one member only of this society deceased, and the following additional members have joined the society.

J. W. Roberts, Esq. Sturnby-Grange.
Mr. Salisbury . . . . Guilsborough.
Mr. John Sims . . . . Howthorpe.
Mr. Taylor . . . . . Little Bowenden.

SECT. II. — WEIGHTS AND MEASURES.

By information of the Lamport Society it appears, that "16oz. to the lb. and 112lb. the cwt. is universal: but that measures are very irregular; although "attempts have been made to render the Winchester "bushel general, the attempts have not been attended "with that success they so well deserved; as the laws "now in existence are of antient date, they are by "many considered as obsolete; and it is well worthy "the attention of the legislature to amend and "strengthen them, and render them effectual through "the kingdom."

I have often thought that a regulation of this kind between dealers in the wholesale way is of little consequence, as they always understand what they sell or buy, and calculate the price accordingly; but, having received the following opinion from a very respectable gentleman, I think it worthy of attention, and beg leave to make it public.

"I think the regulation of measures a matter of "much importance, on the following ground: a far-"mer comes to market with his *tub* of a measure; the "miller,

" miller, knowing his man, takes him into a corner,
" and buys his corn at 6*d.* over the market-price.
" The farmer goes and informs his friend the price
" he hath sold at: in a small time it is known through
" the market: each farmer then contends his own is
" of equal value; and the price becomes general.
" The evil does not stop here; it runs from market
" to market, and the standard of bread, being fixed
" from the price of corn, is unreasonably lowered in
" weight, so that the whole community, and particu-
" larly that part who can least bear it, suffer for a
" smuggled bargain. The miller or corn-factor re-
" tailing his corn, sells no more than 32 quarts, but
" charges the price for 36 or 40, and lays on a little
" more for profit. This act proves it a matter of
" importance to equalize the measures, that the con-
" sumer may know what measure is bought, and, by
" inquiring the market-price, be enabled nearly to
" know the extent of the imposition made on him;
" it will occasion the average price of corn to be
" given with more precision through the kingdom.
" As there is an effectual law to enforce regular mea-
" sures to be used, sure some means will be devised,
" by the wisdom of the board of agriculture, to carry
" it into execution.

" The repeated decisions of the worthy lord chief
" justice have done away all doubt as to the power
" of the law; but those determinations were made at
" too great a distance from the midland country to
" have any effect there. A few examples are want-
" ing to be made on the spot, to stamp on them the
" knowledge of doing wrong: this I conceive might
" be done by appointing a few persons in each coun-
" ty as market-survevors, who should lodge informa-

" tions

" tions against the offenders of the law, a few of " which would be sufficient to reclaim them. The " name of informer I admit is odious; but, in this " case, being regularly appointed, he would not be " more so than an exciseman, being equally appointed " to put the law in execution. Two years since, I " joined with some respectable farmers of this coun- " ty and Leicestershire to sell by Winchester mea- " sure only, and, by example, induce our brother " farmers to do it also; but, from the great opposi- " tion we met with from the millers, corn-factors, " and inn-keepers, all people materially interested, " we failed carrying into execution a law, the good " effect of which to the public is beyond estimation."

SECT. III. — SUPPLY OF LONDON.

THE supply sent by this county to the metropolis is considerable. It appears, from inquiries made by the Lamport Society, that the fat cattle annually sent there amount to about 15,000, and the sheep and lambs to 100,000, besides which the county has a considerable surplus of wheat, wheat-flour, butter, and cheese, which occasionally finds its way to the London market; and particularly butter, of which large quantities are regularly sent. A considerable number of hogs are also fatted in the county and sent to London: and the greater part of the calves bred in the county find their way there also, but these latter

latter are carried out of the county young, and fatted nearer the metropolis.

In chap. vii. on Arable Land, is an estimate of the grain supposed to be produced in this county, from which it should appear that bread-corn is here raised for 168,243 persons more than its own inhabitants; a proportion of this doubtless finds its way to London.

Also, that there is a considerable surplus of barley, oats, and beans, part of which probably reaches the same place.

Woad, for the dyer's use, is also an article of which London gets a considerable supply from this county.

I think the estimate as above, made by the Lamport Society, is less than the real fact, according to the estimate made under the article Feeding, chap. viii. sect. iv. The number of cattle annually fatted in this county is 33,750, and of sheep 250,000, producing 54,000,000 lbs. weight of beef and mutton, in nearly equal quantities.

The consumption in the county, at half a pound weight per day to each individual, and 131,757 persons, is about 24,000,000 of lbs. weight per annum. As a small proportion is sold from this county, otherwise than to London, it seems probable that about half the beef and mutton, fatted in this county, finds its way to that place; or about 125,000 sheep and lambs and near 17,000 head of fat cattle per annum, weighing 27,000,000 lbs.

If we rate the consumption of London at half a lb. per day to each individual, and 1,000,000 of persons, this will be 182,500,000 lb. per annum; and, by this calculation, the beef and mutton fatted in this

this county, and sent to London, is about one-seventh part of the consumption of that place in butcher's meat, or furnishes a supply to the whole metropolis for one day in each week.

Under the article Cattle, it is estimated that this county furnishes dairy-produce for 60,000 persons more than its own inhabitants, most of which finds its way to London.

Mr. Donaldson states the expense of sending fat cattle from this county to London, including the salesman's commission, to be from 6*s.* 6*d.* to 7*s.* per head, which I think tolerably reasonable.

SECT. IV. — EXPERIMENTAL FARM.

THE idea of an experimental farm is approved by every one with whom I have conversed on the subject; but nothing of the kind has, that I hear, been set going any where in the kingdom: it should be of considerable extent, and contain various sorts of land. By an establishment of this kind, useful experiments might be made, and doubtful points ascertained: the different articles of manure and compost might be tried, and their comparative value determined; new agricultural plants might be introduced and cultivated; the comparative merit of different modes of cultivation settled and decided; the proportionate nutriment from different kinds of food given to animals might be discovered; the

the merits of horses and oxen for the different kinds of labour decisively compared; the comparative merit of different breeds of animals fairly proved; the best and cheapest methods of improving different kinds of lands might be established; the implements and operations of husbandry improved, and agriculture advanced more rapidly towards perfection, than by the private efforts of individuals.

Mr. Knight remarks: An experimental farm, properly conducted, might, no doubt, render the country essential service. The quantity of land necessary for the purpose he supposes might be from 300 to 400 acres; the soil as various as possible; and that it would require from 2,000*l.* to 3,000*l.* to establish it, and about the rent of the farm sunk to conduct it with propriety, and make the necessary experiments.

CONCLUSION.

MEANS OF IMPROVEMENT, AND THE MEASURES CALCULATED FOR THAT PURPOSE.

NOTWITHSTANDING I consider this county as in a state of productive cultivation, yet it is certain that there is room for very great improvement in its agricultural-system, and that particularly in point of design, or laying out the lands and occupations, the following particulars would greatly tend to convenience and improvement.

1. The rendering of all landed property more compact and contiguous. This might easily be done by consent of parties, and appointing proper persons as commissioners to make exchanges, to the great advantage of all parties.

2. The rounding or squaring of farms and occupations in like manner, by which much trouble and expense would be saved to the occupier, and a great deal of trespass, now occasioned by right of road, prevented. This might easily be done by the land-proprietor, or a proper agent, and due attention might be paid to the proper size of farms; the best principle for which, I believe, is to lay them out of all sizes, from

from that of a garden to 500 acres, or according to the extent of the estate.

3. As the present farm-buildings in villages decay, to remove them to the centre of their respective occupations, or as near as local circumstances admit as convenient. With due regard, in the reconstruction of such buildings, to convenience, economy, and local circumstances. I believe it will seldom happen but the occupier could afford to pay a fair per centage upon such expenditure judiciously applied.

4. The rendering conveyance and communications more easy, by repairing highways, and laying out many of the private roads in new and more general directions, and stopping up others, many of which would become useless by concentrating landed property, as proposed above; and the public might be better accommodated by fewer roads in better repair; many of the by-roads between the villages being now scarcely passable.

5. The more general extension of the present established improvements in cultivation and stock. This would readily follow the above-proposed improvements, being at present checked by local inconveniences, and, perhaps, in some measure, by poverty, arising from those inconveniences. This would include a more general drainage, watering, and manuring, as well as every other practical improvement, established and acknowledged.

A commutation of tithes, and improvement of the waste and forest-lands, have been named before.

One great means of improvement would be, the attention of gentlemen of landed property to their own estates; or at least their employing agents who are well acquainted with the best cultivation and

stock, and who have activity enough to apply such knowledge; a criterion of which might be, their conducting a farm, for their principal or themselves, on an improved system.

Perhaps no study is more necessary for a country gentleman of moderate fortune than that of agriculture; and nothing could have a greater tendency to improve the estate than the exhibition of a well-managed farm by the landlord, and due encouragement to the tenants to follow his example.

From Mr. Donaldson.

IMPROVEMENTS SUGGESTED.

"FROM the preceding account of the modes of "cultivation adopted in this district, it appears that "about one-third of the tillage-lands have been for "ages, and are still continued, under a constant "course of corn-cropping. It is not necessary to "point out at greater length the impropriety of an "adherence to this system, nor to recapitulate the "reasons stated for recommending so strongly an alteration in the management of the commons and "woodlands. What has been already stated will, it "is to be hoped, induce the proprietors and those "immediately concerned to turn their attention to "those objects, and their own good sense, more than "any thing that can be stated in a report of this kind, "will enable them to adopt such measures as are most "likely

" likely to promote the improvement of the country " in these respects.

" There is a very small proportion of what may be " called the old enclosed lands at present under the " plough; and, whether it is owing to that universal " prejudice, which has long prevailed among landlords, " against the breaking up of old pasture-fields, to " want of activity in the occupiers, or to the impro- " per manner in which they were at first laid down " to grass, it is not necessary here to determine; but " it must be observed, that these lands are not at pre- " sent devoted to the most profitable purpose to which " they might be applied, being in many places greatly " over-run with ant-hills, and producing a coarse and " unwholesome sort of herbage. These lands would " no doubt be made much more productive by plow- " ing, artificial manure, and other means of improve- " ment that might be adopted. Two objections " naturally occur in the mind of the landlord against " ploughing up these old enclosures, as they are cal- " led: the first is: That the tenant would receive a " great additional advantage by the luxuriant crops " of grain which he would reap, and without making " any additional acknowledgement to the landlord. " And the second is: The risk which the landlord runs, " that the tenant will not bestow due pains in laying " down the fields again into grass. But, if the sys- " tem is a good one, (and the practice of almost " every other country proves that it is,) these two diffi- " culties may be easily obviated, as the landlord may " stipulate with the tenant for an advance of rent du- " ring the period when the lands are in the course of " corn-cropping, and he has it completely in his " power to punish the tenant for any act of impro-

" priety

" priety he may be guilty of, in regard to the man-
" ner of laying down the lands into grass.

" The new enclosed lands are in general well mana-
" ged; and, where the soil is of a reddish colour,
" with a small mixture of gravel, (of which there is a
" considerable extent, particularly towards the middle
" and upper parts of the county,) the rotation of
" cropping practised, that of the one-half in grass
" and the other half in corn and turnip, seems the
" best adapted for keeping it in a high state of culti-
" vation; and the alternate course of corn and grass
" husbandry is probably the most advantageous that
" can be introduced, both for landlord and tenant;
" as, from the great number of sheep which can be
" kept upon the artificial food produced on a farm
" consisting of a proportionable quantity of this kind
" of land, the occupier is enabled to relieve and as-
" sist his natural pasture-grounds, as circumstances
" and the seasons may require. And this mode of
" management seems also best calculated to enable
" the tenant to pay the landlord the greatest possible
" rent, while it prevents him from suffering those
" inconveniences which must necessarily happen by
" the fall of prices to that farmer who can carry to
" market one species of commodity only.

" It may be proper to recommend the introduc-
" tion of the machine now so generally used in Scot-
" land for threshing grain; and which, from several
" years experience, has been found to execute the
" work to much better purpose than can be performed
" by manual labour. It is worked either by two or
" four horses, where water cannot be procured, and it
" will thresh from 20 to 40 bushels in an hour, and
" separates the corn from the chaff at the same time;

" while

" while the ordinary servants on the farm are suffi-
" cient to put the unthreshed corn into the machine
" and carry off the straw. The expense of these ma-
" chines, on an average, does not exceed 80*l.* and
" the interest of money and the annual tear and wear
" may be reckoned at 10*l.* a year. In a country
" where the threshing of 120 quarters of grain costs
" that sum, the introduction of such a machine as
" this, must be a great improvement."

Another means of improvement, as suggested by a very intelligent person in the county, is in the hands of gentlemen, and is that of making a due discrimination between their industrious and negligent tenants; and giving a preference of encouragement to the former, instead, as is too often the case, of raising their rent in proportion as they improve the land, and continuing the dilatory sloven upon his old easy terms, without regarding the intrinsic and natural value of the land. And, where confidential agents are employed, regard should be had to their knowledge and skill in the best practical agriculture and natural value of land, and not merely to their adroitness in collecting and returning the most rent: and their instructions should be, in their contracts with tenants, to charge the full natural value to the dilatory, and let to the improver upon the lowest terms, which would in the end be a sure means to improve both the rent-roll and the estate.

There is great reason to believe, that one great means of improvement, hitherto much neglected, is a better application of the unappropriated and waste waters of the county for the purpose of watering land. Mr. Knight complains much of want of attention to this improvement; and Mr. Young observes,

Annal,

Annal, No. 94, p. 490. "That many thousand pounds "a year might easily, by this means, be added to "the rental of the county, and much greater sums "to its product." He farther says, "The Duke of "Grafton shewed me two noble springs on his estate, "one of which gushes out of the earth, on the side "of a hill, near Blisworth, and the other in a farm-"yard at Caswell, in Guns-Norton; each of them "powerful enough, even after a severe drought, to "water many acres, if judiciously carried along the "slopes of the hills, as high as the level will allow: "there is also a small perennial river, sufficient to "water a large tract of land, but no use is made of "it: this is surely to be regretted."

Large tracts might also be watered from the Nen and other rivers in floods, if the water were drawn along to the rising ground by carriers cut on a level for that purpose.

In the preceding pages, considerable pains have been taken in order to give a just account of the present state of husbandry in this county, for which purpose, not only the observations of Mr. Donaldson have been consulted and compared, but the writer has, personally, examined most parts of the county, and procured necessary information from many practical farmers; and he entirely agrees with Mr. Donaldson, that a spirit of improvement is certainly introduced, and has made great progress. In a farther examination of the county, in 1806, the writer has endeavoured to supply such deficiences as the board had pointed out; has expunged, cancelled, and new modelled, some articles; and made large additions to others; and is not aware, that, in its present form, he

he is capable of much improving it: and he hopes the statement here given may, in some degree, prove satisfactory to the board and the public.

Oct. 1806. *WILLIAM PITT.*

In the remarks from the board, the comparison in Mr. Donaldson's Appendix has been named as inapplicable, I think, however, in the abstracted form here given, it may be worthy of preservation. As it is placed, it may be either cancelled or preserved, at the pleasure of the board.

APPENDIX.

APPENDIX.

Comparison between the English and Scotch systems of husbandry, as practised in the counties of Northampton and Perth.

HAVING been directed by the President of the Board of Agriculture to draw up a comparative statement of the different modes of husbandry, practised in the county of Northampton, which is situated nearly in the centre of England, and that of Perthshire, lying near the centre of Scotland, it may be necessary to state, for the information of an English reader, that the county of Perth is the Yorkshire of Scotland in point of extent, and pretty similar to the West Riding of Yorkshire, and Westmorland, in respect to surface and general appearance, there being many bleak barren mountains and extensive lakes in each of these countries.

The Carse of Gowrie, which may be very properly denominated the garden of Scotland, is situated in Perthshire. This is a tract of rich deep clay land, containing about 30,000 acres, superior in fertility to any in Scotland, and not to be surpassed by any of the same extent in England.

Leases.

LEASES.

NORTHAMPTONSHIRE.

In this county there are scarcely any lands held by tenants under leases, except those granted by the bishop, dean, and chapter, of Peterborough, which are for 21 years, renewable every 7.

The tenants in general possess their farms only from year to year. There are, however, written agreements entered into between the landlords and tenants, in which the mode of cropping the lands is specified.

The farm-house and offices are generally kept in repair, at the joint expense of the parties; though in a great many instances the whole expense rests with the tenant.

The tenant is, on all occasions, expressly debarred from breaking up any old pasture-grass, and from selling hay or straw.

The term of entry to a grazing-farm is at Lady-day, and to tillage-lands at Michaelmas.

The size of the farms is much the same in both counties.

PERTHSHIRE.

There are few instances in this county where lands are now possessed without lease. The common term of endurance is for 19 years, though sometimes the lease is granted for the lifetime of the tenant, if he should survive after the expiration of that period.

The

The terms contained in the lease are, that the tenant shall receive the houses in a complete state of repair on his entry, that he shall keep them in proper order during the lease, and leave them equal in value at his removal.

Particular modes for cropping the lands are specified, and certain penalties or additional rents are stipulated for every deviation from these rules.

The tenant is generally bound to reside with his family on the farm, and is debarred from subsetting or assigning his lease, and from selling any straw off the farm.

The tenant enters to the houses at Whitsunday, and to the lands at the separation of that year's crop from the ground. The outgoing tenant has a liberty of selling his last crop before it is reaped, and it is generally disposed of in this way, which prevents any interference between the outgoing and incoming tenant.

OBSERVATION.

There is nothing that has tended so much to the general introduction of improvements in agriculture, which have taken place in Perthshire within these 50 or 60 years, as granting leases for a considerable number of years to substantial, intelligent, and enterprising, tenants.

RENT AND TAXES.

NORTHAMPTONSHIRE.

The rent of enclosed lands runs from 17*s.* to 25*s.* per

per acre, exclusive of tithes, from which the enclosed land is generally exempted. The average may be reckoned at 20*s.* to which may be added 3*s.* in the pound for poor-rates.

The open-field lands run from 6*s.* to 10*s.* per acre, medium about 8*s.* besides about 3*s.* 6*d.* per acre for tithes: the poor-rates the same as above-mentioned.

The rents are paid in money by half-yearly instalments. The first half-year's rent being payable twelve months after the tenant's entry to the farm.

PERTHSHIRE.

The rent of lands in the Carse of Gowrie is from 30*s.* to 45*s.* per acre, average about 35*s.*

For lands in the open-field state, from 10*s.* to 16*s.* medium about 13*s.*

For enclosed lands, which are all cultivated in an alternate course of corn and grass husbandry, 22*s.* per acre may be reckoned the medium rent.

The rents in the Carse of Gowrie are paid partly in money and partly in wheat and barley.

In other parts of the county the rents are paid in money, and either at Martinmas, (about the 22d of November,) after reaping the crop, or the one-half at that term and the other half at Whitsunday following.

OBSERVATIONS.

The difference of rent in favour of the Perthshire proprietor may appear surprising to those who do not know that in Scotland there are no tithes, poor-rates, or other taxes which affect the tenant in his character

character of farmer. The clergymen in Scotland are all paid by the landholders. On the abolition of popery in that kingdom, in the year 1560, the proprietors possessed themselves of the church-lands, and a certain quantity of money and grain was then allotted to each protestant clergyman, which generally bore a proportion to the state of the cultivation of the parish, and the consequent value of the tithes at the time.

The poor are in general maintained by the voluntary contributions of the inhabitants, which take place every Lord's day, either immediately before or after divine service.

CLIMATE.

Periods at which seed-time and harvest commenced in the different counties, for the six preceding years, from 1788 *to* 1793, *inclusive.*

NORTHAMPTONSHIRE.

THE periods at which seed-time and harvest commenced, on a particular farm in this county, for the six preceding years, from 1788 to 1793, will be found in the following tables:

Yrs.	Wheat.	Spring Corn.	Barley.	Harvest commenced
1788				4th Aug.
1789				18th ditto.
1790				16th ditto.
1791	5th Oct.	5th Mar.	11th Mar.	8th ditto.
1792	6th ditto.	15th ditto.	15th ditto.	13th ditto.
1793	27th Sept.	28th Feb.	21st ditto.	1st ditto.

PERTHSHIRE.

Below is an account of the periods at which seed-time and harvest commenced, on a particular farm in the Carse of Gowrie, from 1788 to 1793, inclusive.

Yrs.	Wheat.	Spring Corn.	Barley.	Harvest commenced
1788	11th Sept.	7th April.	6th May.	25th Aug.
1789	11th ditto.	6th ditto.	9th ditto.	27th ditto.
1790	13th ditto.	3d March.	6th ditto.	27th ditto.
1791	14th ditto.	7th ditto.	4th ditto.	18th ditto.
1792	4th Oct.	9th April.	7th ditto.	29th ditto.
1793	10th Sept.	25th Mar.	3d ditto.	28th ditto.

OBSERVATIONS.

By the above statement it appears, that there are about 15 days difference in the commencement of harvest, in favour of Northamptonshire, on an average of these six years.

The climate in the Carse of Gowrie may be considered as equal to that of any other part of Scotland; and that of the other parts of Perthshire as superior to the northern counties of England.

Rotation of Cropping, most generally approved of and practised, in each of the Counties, for raising the different Species of Grain.

NORTHAMPTONSHIRE.

The old enclosed lands are generally kept in a state of pasturage.

The

The open-field lands, at least that part of them which is considered proper for tillage, is under a constant course of corn-cropping, as follows; viz.

1st year, fallow or turnip.
2d —— wheat, part barley.
3d —— beans, with a few acres in oats.

The new enclosed lands are principally employed in the cultivation of grain, and cropped in the manner under-mentioned; viz.

1st year, fallow, part turnip.
2d —— wheat, barley after the turnip.
3d —— beans or pease.
4th —— barley, with 18 lb. red clover.
5th —— clover.
6th —— ditto.
7th —— part beans and part oats.

PERTHSHIRE.

On the rich lands in the Carse of Gowrie:

1st year, fallow.
2d —— wheat.
3d —— beans or pease.
4th —— barley, with 20 lb. red clover, and one bushel rye-grass.
5th —— clover.
6th —— oats.

On the lands adjoining, the following rotation is adopted.

1st year, pease, or other green crop.
2d —— wheat.
3d —— barley, with grass-seeds, as above-mentioned.
4th —— clover.
5th —— oats.

On the enclosed lands.

1st year, turnip.
2d —— barley, with 8 lb. red clover, 8 lb. white, 4 lb. rib-grass, and 1½ or 2 bushels rye-grass.
3d —— grass, generally made into hay.
4th —— pasture.
5th —— ditto.
6th —— ditto.
7th —— oats.
8th —— barley.

Average Return, per Acre, of the different Species of Crops, in the different Counties, for the same Number of Years, from 1787 *to* 1792, *inclusive.*

NORTHAMPTONSHIRE.

Years.	Wheat	Barley.	Oats.	Beans.	General average by the acre of all these grains.
	Bush.	Bush.	Bush.	Bush.	Bush.
1787	28⅔	28⅔	43⅔	20	30¼
1788	28	29	33	21	27¾
1789	21⅔	34	53⅓	26	33¾
1790	22⅔	35⅔	48	22⅔	32¼
1791	22⅓	31⅓	39	20⅓	28¼
1792	28⅔	27⅓	35	20	27¾
Div. by 6.	152	186	252	130	180
General average.	25⅓	31	42	21⅔	30

PERTHSHIRE.

PERTHSHIRE.

Years.	Wheat	Barley.	Oats.	Beans.	General average by the acre of all these grains.
	Bush.	Bush.	Bush.	Bush.	Bush.
1787	21⅓	32⅔	42⅔	25⅓	30½
1788	22⅔	46⅓	54	21	36
1789	29⅓	32⅔	43⅓	18⅔	31
1790	21⅓	39⅔	53	22	34
1791	24⅔	48	48⅓	35	39
1792	24⅔	24⅔	37⅔	16	25½
Div. by 6	144	224	279	138	196
General average.	24	37⅓	46½	23	32⅔

OBSERVATIONS.

By the above table it appears, that the returns by the acre of the different species of crops, except wheat, is in favour of Perthshire.

Average Prices, by the bushel, at which Wheat, Barley, Oats, and Beans, were sold off a particular Farm in each of these Counties, for the Years above-mentioned.

NORTHAMPTONSHIRE.

	1787		1788		1789		1790		1791		1792		General average.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Wheat,	5	5¾	5	8½	6	4½	6	6½	6	3½	5	10¾	6	0½
Barley,	2	6¾	2	6¾	2	7½	3	3	3	1½	3	4½	2	11
Oats,	2	0¼	1	10¾	1	8¾	2	4	2	5½	2	6¾	2	2
Beans,	3	7½	3	8¾	3	6	3	11	3	10½	4	1½	3	9

PERTHSHIRE.

	1787		1788		1789		1790		1791		1792		General average.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
Wheat,	5	5	5	4	5	9	5	5	5	0	5	5	5	4½
Barley,	2	5	2	3½	2	9½	2	7	3	0¼	3	3¼	2	8¾
Oats,	2	5½	2	3½	2	8	2	5½	2	6½	2	10	2	6½
Beans,	3	1½	2	7½	3	7¾	3	5¼	3	1½	4	6½	3	5

Difference of the Value of the Returns by the Acre, in each of the Counties, upon four Acres under Crops.

NORTHAMPTONSHIRE.

	l.	*s.*	*d.*
25¾ bushels wheat, the produce of one acre, at 6*s.* 0½*d.*	7	13	0¾
31 bushels barley, at 2*s.* 11*d.*	4	10	5
42 ditto oats, at 2*s.* 2*d.*	4	11	0
21½ ditto beans, at 3*s.* 9½*d.*	4	1	6¼
Total average, per annum . . .	20	16	0

PERTHSHIRE.

	l.	*s.*	*d.*
24 bushels wheat, the produce of one acre, at 5*s.* 4½*d.*	6	9	0
37¾ bushels barley, at 2*s.* 8¾*d.*	5	1	11
46½ ditto oats, at 2*s.* 6½*d.*	5	18	2
23 ditto beans, at 3*s.* 5*d.*	3	18	7
Total average, per Annum . . .	21	7	8

The

The Price of Labour and Provisions.

NORTHAMPTONSHIRE.

Butcher's meat, from 4*d.* to 5*d.* per lb.

Poultry, from 1*s.* 2*d.* to 1*s.* 4*d.* each.

Eggs, 6*d.* to 8*d.* per score.

Butter, 8*d.* to 10*d.* per lb.

Cheese, 4*d.* to 5*d.* per ditto.

The wages of a ploughman, from 8*l.* to 10*l.*

A young man or boy, from 4*l.* to 5*l.*

A female servant, from 3*l.* 10*s.* to 4*l.* 10*s.*

Day-labouring in summer, without board, from 1*s.* 2*d.* to 1*s.* 4*d.*

Ditto in winter, 10*d.* to 1*s.*

A man for the harvest-month, from 2*l.* 2*s.* to 2*l.* 10*s.*

A woman by the day, 1*s.* without board.

Grain is threshed at from 1*s.* 3*d.* to 2*s.* 6*d.* per quarter.

When the ploughmen receive board-wages, it is generally at the rate of 6*s.* the week all the year round; but they are more commonly maintained in bed, board, and washing, in the farmer's family.

The ordinary breakfast and supper are cold meat, with bread and cheese; and, for dinner, either roast or boiled meat, with pudding. Ale is allowed them on many occasions, and small beer they have always at command.

Labour commences about the same hour, at the different seasons, in each of the counties.

PERTHSHIRE.

Butcher's meat, from 3*d.* to 4*d.* per lb.

Poultry, from 1*s.* to 1*s.* 4*d.* each.

Eggs,

Eggs, 6*d.* to 8*d.* per dozen.

Butter, 6*d.* to 8*d.* per lb.

Cheese, from 2½*d.* to 3½*d.* per lb.

The wages of a ploughman, from 8*l.* to 10*l.*

A young man or boy, from 3*l.* to 5*l.*

A female servant, from 3*l.* to 4*l.*

Day-labourer in summer, without board, 1*s.* to 1*s.* 2*d.*

Ditto in winter, from 8*d.* to 10*d.*

A man for harvest-work (which is generally finished in 20 working-days) receives about 1*l.* 5*s.* and a woman about 17*s.*

Grain is threshed at from 1*s.* 4*d.* to 1*s.* 8*d.* per quarter.

When servants are boarded in the farmer's house, the ordinary fare is, for breakfast and supper, pottage, made of oatmeal, salt, and water, which is eaten with milk. For dinner, soup, or, as it is provincially called, broth, made with pot-barley, vegetables, and butcher's meat. But the more general practice is to give each ploughman a certain allowance of oatmeal, (about 36 ounces a day,) and three pints of sweet milk, or double that allowance of butter-milk. They lodge and eat in a house disjoined from the farm-house, and cook their own victuals.

OBSERVATIONS.

From the above statement it appears, that the difference in the price of labour and provisions is much less than could have been expected: The only material difference being in the maintenance of the farm-servants.

A Northamptonshire farmer considers 6*s.* per week as a reasonable allowance for the board of a ploughman, which, for 52 weeks, amounts to				15	12 0
The Perthshire farmer furnishes his ploughman with that quantity of oat-meal, which, on the average price of meal for a number of years, amounts to 2*s.* per week, to which, if 10*d.* per week is added for milk, makes the whole expense, for the year	7	7	4		
For coals, bed-clothes, &c. &c. may be added	0	9	8		
				7	17 0
				7	15 0

Thus, in consequence of the different modes in which the farm-servants are maintained in the different counties, the Perthshire farmer saves about 7*l.* 15*s.* a year for each of his servants, which the other must expend. There is no probability, however, that the Northamptonshire farmer can avail himself of any information he may receive in regard to this particular, as his ploughmen will not be disposed to give up their roast beef and pudding, and betake themselves to oat-meal and milk.

I have here abstracted the material parts of Mr. Donaldson's Appendix; but, if the board prefer it, they can print the original in full, the remaining parts, I think, do not fully apply; for instance, the estimate of land being ploughed in Perthshire at less than half the expense it is in Northamptonshire, unless it can be fully proved, that two horses in Scotland

land can do as much work as four in England; and I saw four horses, attended only by one man, working a two-furrow plough, upon the red soil of Brixworth, near Northamptonshire, and this practice is common on the light lands: but it cannot be admitted, that two horses can plough the strong clay loams of Northamptonshire of a sufficient depth; nor that they can be well ploughed in all cases, without the efforts of a man at the plough, as well as a boy to manage the horses. I have tried two good horses, at a five or six-inch furrow, on soil less tenacious than this, and found it would soon have worked them down, and have known many instances of horses over-worked at the plough; it is the duty and interest of a farmer to proportion his strength to his work; and, consequently, to vary such strength from that of two to three, four, or more, horses, as the case may require.

The wood-lands of the two counties seem dissimilar, the one being old forest-woods, and the other modern plantations.

Respecting lime, Mr. Donaldson has been strangely mistaken and misinformed. From the evidence of my own senses, I know it is used for manure considerably; and, from the unanimous evidence of the Lamport Society, it appears, that five times the quantity stated to be used in the Carse of Gowrie is annually used in their own district; and, so far from it being produced in every parish, it is often drawn for manure a great many miles.

The comparison of open-lands shews the Perthshire farmer, in cultivating enclosed land, has much advantage over the Northamptonshire farmer in his common field; and proves the advantage of enclosing, provided the land be afterwards kept in cultivation.

Respecting

Respecting the comparison of modes of harvesting, the subject is of a local nature, and depends upon the season and climate. In early seasons, or early countries, with the weather tolerably settled, mowing with the scythe is the most expeditious method, and answers very well for barley and oats, as a great many acres are soon cut down by a few hands, and which, with turning over, will soon be in excellent order, and dryer in the grain and straw than though it had been reaped and bound immediately. But, in late seasons or countries, with a humid atmosphere, every kind of crop is best reaped when dry, and immediately bound, and set in shocks, where it will stand much better proof against showery weather than lying flat on the ground. Upon this principle, all kinds of grain are reaped with a sickle, and bound, in the moorlands of Staffordshire, the Peak of Derby, and in Lancashire, as being late and humid countries; and, as Mr. Donaldson observes, also in Scotland.

It is not uncommon to reap a stout crop of oats in Northamptonshire, particularly if they are early ripe, before the farmer is fully engaged in his harvest; but they require more time before carrying than if they were mown and spread on the ground, otherwise the sample, when threshed, will be inferior.

Itinerary through the county, with some minutes not at all, or but partially, included before. By W. P. in 1797 *and* 1806.

1797, July 3, Braunston to Daventry, soil a moist grey loam, somewhat gravelly, land enclosed and consisting

consisting of old pasture, with a small proportion of fallow, crops, and artificial grasses.

Sheep of the largest size, with combing-wool. Daventry has a considerable common field, under the course of 1. Fallow, with dung; 2. Wheat; 3. Beans; with patches of grass-land for mowing or pasture.

North of Daventry, a hilly waste of some extent, uncultivated, used as a sheep-walk. The whole now enclosed, (1806,) and cultivated.

I estimate Daventry to contain 600 houses, and 3,000 inhabitants; several thatched houses, even in the principal parts of the town.

Meadow-land on the Grand Junction canal, between Braunston and Weedon. with the usual grasses, meadow-burnet, and rhinanthus, also the turfy hair-grass, (aira cæspitosa,) on wet spots.

Price of coal, at Weedon-Wharf, between Daventry and Towcester, 1797.

	s.	*d.*	
Wednesbury coal,	1	0	per hundred.
Redworth, ...	0	10	
Harecastle, ...	1	2	

but not much demand for the latter.

July 4th. Daventry, towards Banbury, through Badley, enclosed and cultivated with grain, pulse, and artificial grasses; soil, a grey stone brash loam. Turnips grown.

To Charwelton, old pasture-land, with ant-hills and wild thyme, stocked with sheep similar to the old Leicester, and fatting bullocks. Land mostly at grass, and fields large, with a few hovels or outhouses; the farm-houses crowded in villages: a whole parish together. Many houses thatched, and the roofs abounding

abounding with house-leek, and different species of stone-crop.

Lime laying on here for turnips; barley, on deep dry land, good: on moist cool land, starved from the superabundance of rain.

Vetches cultivated and the crop good, the showery spring having favoured their growth; turnip-land and wheat-fallow but in small proportion. Pass By-field.

A small instance of field-pease in rows, and the crop good; also of wheat in rows, and the crop thin; also a fallow liming, and a garden with six stalls of bees.

Hay-harvest just begun, and I suppose this will be the first carrying-day: the waters a little out of bounds, from profuse rain; a mown meadow under water at Wardington.

Banbury to Brackley, the soil often a brown or snuff-coloured light loam; under-stratum a calcareous incrustation, with sometimes lime-stone; some grain and turnips.

Brackley has a large common field, in which clover is grown for mowing, and a considerable part of it mowing-land, the rest in the usual common-field culture; under-stratum calcareous stone, some of which is dug up for flags and building-purposes. Brackley field has many curious agricultural plants growing spontaneously, which have been named elsewhere.

The town is very generally built with rough stone, and the roofs covered with thatch, with some instances of slate and tile.

July 5th. Brackley to Towcester, through Whittlebury Forest, (see Forest-Lands,) a good deal of this part

part of the county is occupied by dairy-farmers, and butter their principal object.

Towcester to Pottersbury, and back by Wakefield-Lodge, and through the forest. This forest, compared with Needwood, in Staffordshire, is much inferior in beauty, variety, and production, both of timber and pasture: when you have seen a specimen of it you have seen all its charms; whereas Needwood possesses an endless variety. The soil of Whittlebury Forest is a strong grey loam, adapted to produce timber, corn, or grass.

Between Towcester and Pottersbury, a common field, with good crops of beans and wheat.

July 6. Towcester to Northampton; passed Easton, (Lord Pomfret's,) pleasantly situated on a rising grass lawn, fronting Towcester, and well backed with plantations; a considerable river crossing the lawn. Enclosed land to Blisworth, and a good deal of grain grown. Lord Pomfret's woods in the neighbourhood of Towcester are very considerable.

Blisworth has a common field on a grey stone brash loam: the crops much infested with weeds: examined the wharf and tunnel. See Canals and Fuel.

Stoke-Bruern has a waste, or common, never yet enclosed or cultivated. The soil over Blisworth tunnel is a brown stone brash loam, under-stratum limestone.

Towards Northampton pass a field or two of cabbages. Northampton in view. The soil lighter, and rye grown for a crop. Nearer the town old turf and mowing meadows. Observed a dairy of cows, part long-horn and part Holderness. The Nen out of its bound, from rain a few days ago, and the water flowing over the meadow-grass not yet mown.

To

To Wellingborough, vetches eating up by sheep, and divided by hurdles. Weston-Favel, enclosed; soil an early light grey loam on a stone brash bottom. Oats and barley in full ear; crops good, but no beans. Turnip-fallows, stone fences, cherry and walnut orchards; a range of common field in view on the right. Lime laying on for turnips; good crops of vetches and white clover, very flourishing in sheep-pastures. In Wellingborough, much complaint of the badness of the lace-trade, the export having failed.

Towards Kettering, a large orchard of fruit; soil, a grey loam; land enclosed. Potatoes, in rows, well cleaned. Turnip-fallows preparing. Pass Isham; newly enclosed. Some closes abound in furze: a good proportion of tillage and clover; long-horn cows, and good sheep.

Kettering has a large common field of light red soil; very few beans grow in it, but turnips, grain, and artificial grasses. [This field since enclosed, 1806.]

Pass Kettering field towards Rockingham. A good apple and walnut orchard; crops, wheat, oats, vetches, and beans; a thin soil on stone, and crops indifferent: an instance of vetches and beans mixed. Country now enclosed to Rockingham-Forest, across the forest to Weldon. See Woodlands.

Weldon to Oundle eight miles, and the land almost wholly at pasture, and the principal stock sheep. Many ant-hills. At Benyfield, bullocks and long-horn cows fatting in pasture. Large walnut and other fruit trees about the village.

A common field belonging to Oundle, containing beans, turnips, fallow, and all sorts of grain, also clover. Meadows on Nen, here, from one quarter to one-half

one-half of a mile wide, and intended for hay, but not yet mown, July 8th. Much damage has been done on the grass by floods.

Oundle, to Mr. Martin's farm, Tansor-Lodge, where I viewed his chicory, Swedish-turnips, and coleseed, and continued on through Wandsford to Stamford; and, July 9th, from Stamford through Easton, Collyweston, and Duddington, over the north part of Rockingham-Forest, to Wandsford. Easton and Collyweston have common fields of weak light soil. No beans grown, nor turnips, and crops of grain poor; the soil a light stone brash, upon a stratum of lime-stone: beneath the lime-stone is a thin stratum of a brown arenaceous matter, and beneath that the calcareous shistus, or stone dug up for slate. See Minerals. Lime is burnt here, and large quantities of slate have been dug for ages past; most of the buildings in the neighbouring townships being covered with it, as well as some of the colleges in Cambridge.

Dodington and King's Cliff are a moist strong loam; the latter has a common field; crops wheat and beans.

Through Wandsford, and to Peterborough, on this road; pass Castor, an open field of light soil and good crops. Turnips grown, but no beans. Leave Milton-Park, the noble seat of Lord Fitz-William, on the left, and pass Longthorpe to Peterborough.

Peterborough Cathedral is one of the first pieces of gothic architecture in the kingdom, both in extent and external appearance, notwithstanding it is inferior to some others in the loftiness of its towers, spires, and turrets, those embellishments having undergone some mutilation. The west end had originally two main towers, finished with four turrets each, and two

others

others finished with spires to the height of 50 or 60 yards each, besides inferior turrets: one of the main towers is now mutilated; the top of one of the spires is off, and the top of the other has reeled aside. The main tower, over the centre of the cathedral, is also finished with battlements not extremely lofty: the whole, however, has an appearance truly venerable and magnificent; it is built with Barnock stone, which is of a calcareous nature, aud very durable, almost bidding defiance to time. The west frontal arches are very lofty and magnificent, highly decorated with gothic ornaments, and many other parts of the building enriched with sculptures of this order. The body of the cathedral extends 166 yards in length, 75 yards in breadth in the middle, and 56 yards in breadth on the western front; besides the cloister appendages detached from the main body, the west front lawn is an excellent clean turf with gravel walks in good order; the other sides mostly surrounded with a burying-ground.

July 10. Peterborough-fair has a vast number of cattle of different breeds, long-horn, Yorkshire, Pembrokes, and North Wales, both bullocks and heifers of various age and growth, and a brisk sale, the fen-lands being very full of grass both for hay and pasture.

Peterborough to Crowland, and back through Thorney. For particulars of the fen-land, see Peterborough Fen.

Through the country to Salcey-Forest, and back by Queen's Cross to Northampton; the minutes of this tour are incorporated in various parts of this survey.

July

July 17th. Northampton, towards Boughton, land enclosed, and generally light. Turnips and rye grown. Furze preserved; on stronger land cabbages grown, several acres.

At Kingsthorpe, extensive quarries of stone for building, and limestone for burning into lime. At Moulton, many instances of stone-wall fencing. Observed this day several fields of potatoes, and some rye turning colour for ripening.

To Walgrave, walked over Mr. Knight's farm, and Mr. Pickering's: they are fully stocked with sheep of a very improved quality. Some cattle fatted here, and much grain grown, as well as turnips and coleseed: the latter in great repute as green food. The country here has been enclosed about twenty years: a good deal of red land. The land here naturally given to produce white clover, cow-clover, and the best grasses.

Walgrave to Brixworth, along a ridge of excellent red loam, producing naturally four or five species of trifolium plants. Turnips grown, and barley a full crop. It is an opinion here, that great improvements might be made by breaking up old ant-hill pastures, and laying them even, but with some exceptions.

By Highgate-House to Welford, soil generally sound and good. Turnips grown; barley and wheat good. Leave the county.

Oct. 17. From Welford through Naseby. The open field extensive, and in as backward a state as it could be in Charles the first's time, when the fatal battle was fought. The lower parts a moist rough pasture, with furze, rushes, and fern, abounding; the rest of the field a strong brown deep loam, in the usual bean and wheat

wheat culture. Pasture-enclosures near the village, and a good many cows kept. This parish is as much in a state of nature as any thing I have seen in the county. The avenues across the field to the village zigzag, as chance has directed,, with the hollows and sloughs unfilled, except with mire. The village contains a good many dwelling-houses and other buildings, all of which I observed built with mud and covered with thatch, except the church and two dwellings, one of which seemed the parsonage. The principal inn I saw (the Bell) built and covered with the afore-named materials. The walls of many of the houses apparently shivering under their pressure, and seeming to indicate that a small force or weight additional would convert them and their contents into a ruinous heap; yet neither the soil nor aspect are by any means contemptible. Passed on through Haselbeach, an enclosed parish of much decenter appearance than the last; the land mostly in pasture; through Cottesbrook, in a low situation, almost wholly meadow and pasture, the stock sheep and cattle principally, to the Swan-Inn, Lamport.

Haselbeach has a neat seat of Mr. Ashby's; Cottesbrook an elegant one of Sir William Langham's; and Lamport a spacious mansion and park of Sir Justiniam Isham's.

Oct. 18. Lamport to Oxendon, all enclosed; soil, a strong grey loam, generally on limestone: some cultivation, but much more grazing.

Oxendon to Desborough, across old feeding-pastures, stocked with sheep and cattle. Hay-ricks in the fields, but no corn-stubbles. A deep heavy wet grey loam, or clay, continues for two or three miles: high land, yet often infested with rushes; some wood-land.

Nearer Desborough, more ploughing and a good deal of wheat sowing. Passed a few granges, or farms, in the field; but in general the farm-houses are in villages. Bean-stubbles here, and the land much infested with daucus carota; also wild chicory plentiful, some in flower, but mostly run to seed; in this state it has a weed-like appearance: the under-stratum here is a rough calcareous stone used for mending roads.

Rothwell has a common field of mostly light soil; beans in one part, but in another wheat sowing on fallow, and a large tract under turnips; but very much infested with the corn-marygold and other weeds. From thence, back through Kettering to Lamport: on the road observed some instances of clover growing luxuriantly in wheat-stubbles.

Lamport, through Brixworth, the two Bromptons, and Harlestown, to Northampton. On the Northampton-road, near Lamport, a good deal of stone-fencing. Brixworth has a good deal of red soil, moderately light. Observed two-furrow ploughs ploughing for wheat, and lime laying on in several places. The Bromptons and Harlestone generally light land, and turnips grown. Harlestone-Heath, a barren tract on sand, with a spontaneous growth of heath, fern, and furze. To Northampton, which is a pleasant town, on a low situation, surrounded principally with meadow-land to a considerable extent on the Nen; the rising grounds around which, are generally light loam.

In Kingsthorpe, light turnip-land on a stony understratum: much good meadow-land on the north water. Spratton and Great Creaton have a good deal of light land, and turnips grown thereon.

East-

East-Haddon is a good light soil. West-Haddon a stronger pebbly gravel, part arable, part pasture. Holmby is good stout grazing-land. Ravensthorpe lighter and principally arable. Crick and Winwick stronger land, and generally pasture. Brockhall, Wilton, and Floore, are rich feeding-land, with a little arable. From Northampton westward, the pasture-land is occupied for feeding and dairies jointly; whilst, in the south of the county, cows are kept, and butter a main object. Taking a retrospective view of the whole county, a great majority of the land is of a strong loamy quality, equally adapted to grazing or the production of wheat, beans, and oats, but with a sufficient quantity of lighter soil, interspersed in various directions, for the production of barley and green crops.

I have the following to add, from my Journal in 1806, which refers principally to such parts of the county as were not noticed before, or to such particulars as then escaped observation; and, to prevent repetition, have omitted such places as were sufficiently particularized on former occasions.

Saturday, Aug. 10, 1806. Welford to Highgate-House, the road passing along a high ridge of sound upland, commanding beautiful and extensive views of landscape-scenery. Here I had to lament the loss of my old friend, Mr. Thomas Bosworth, who occupied this inn and farm, and was an intelligent, enlightened, and communicative, agriculturist. To Spratton, the soil a brown or snuff-coloured lightish loam, on a loose stony under-stratum; a good deal of land in

tillage. Chapel-Brampton, excellent meadow-land on the north water. Mr. Pearce farms considerably, and in a good style, upon his own estate; is an improver both of land and stock; has some good rams, and cabbages in the field; is very hospitable, but not over communicative upon this occasion.

To Mr. Bull's, Pitsford, who shewed me a dozen of good fatting oxen. Crops here rather short in the straw, from a deficiency of rain in May and June, but good in the ear, plentiful showers having fallen in July.

August 12. Through Brixworth and Lamport to Kettering. Harvest very generally beginning; pass through old ancient enclosure, and Broughton, not very modern.

Kettering field lately enclosed. Mr. Wright shewed me here a field of oats of five quarters per acre at least, of a white sort, called, here and elsewhere, potatoe-oat, from the original having been accidentally picked out from an importation of potatoes, with which the oats had mixed. This sort I have known preferred elsewhere. By Mr. Wright's information, this land, in its open-field state, produced great crops, four or five quarters per acre, the seed of wheat being ploughed in four bushels per acre.

Viewed the common fields of Warkston, Weekly, and Goddington, the latter large, of 4 or 5,000 acres, the soil and management of all being similar. The crops, wheat, beans, barley, pease, oats, vetches, turnips common and Swedish, and in some places broad margins of grass-land, both hay-ground and pasture. The soil varying from strong bean-land to a light turnip-soil. The Duke of Buccleugh the principal proprietor. Aug. 13. Wheat reaping,

pease

pease cut, having been mown with a scythe; oats cutting; barley not generally ripe; clover saving for seed. Vetches 1, cut and carted home, and 2, eaten by tying horses. Beans short, but well corned: every thing sown broad cast. The most prevalent weeds in the corn-crops here are poppies and the corn-marygold.

The Duke of Buccleugh's seat and park of Boughton is excellently wooded.

Geddington is a large village, containing the whole population of the parish of 4 or 5,000 acres. Inferior houses, mud walls, and thatch; many stone-walls and thatch, and a few of the best, stone-walls and slate. A large brook and stone bridge, with excellent meadows, subject to natural irrigation. A very antient and beautiful stone-cross.

Pass Stanion; modern enclosure; crops as before; soil, a brown loam. The only improvements yet effected, since enclosure, seem to be cleaning the land by barley-fallow, or by turnips.

Through Weldon, Deanthorp, and Bulwick, to Laxton-Hall, Lady Carberry's. I find in this county stubbles of wheat are generally cut and carried home for thatch or litter. Barley seems the favourite crop of the enclosed land, where more is grown than wheat. Lime has a good effect upon the red land, where it acts as a stimulant, and, by the crops it forces, increases the dunghill and permanently manures the land.

The demesne of Laxton, consisting of 5 or 600 acres, is kept in hand, of which about 400 acres are clear land, the rest woodland. Great improvements are projected upon this demesne, both in its general aspect and its agriculture; the former under the di-

direction

rection of Mr. Repton, the great landscape-gardener; and for the latter they have very properly engaged, as steward or agent, Mr. Richard Knight, formerly of Walgrave, a very liberal, enlightened, and intelligent, agriculturist.

The estate of Fineshade, in this neighbourhood, has been much improved, both in its agriculture and general appearance, under the direction of Mr. Moncur, who is agent, or acting steward, to the Honourable John Monckton. He has completely drained the estate, and improved the grass-herbage.

Laxton to Harrington. Gretton, and Rockingham, also through Cottingham and Brampton. Excellent meadow-land on the Welland all through the county. Pass several common fields, which are in the usual course. See Common Fields.

Went over the farm of Holmby-Lodge, occupied by Mr. Daniel Bosworth, of 4 or 500 acres. Rent high: part old meadow and pasture, and part in arable cultivation. The land too strong for turnips to advantage, but often sown upon the whole, or, more generally, upon part, of the barley-fallow. Vetches grown, and part carried to the stables; part saved for seed; beans, wheat, clover, and potatoes, also grown. See Courses of Crops, Feeding, &c.

Holmby-House is famous in history, as the scene of some leading political transactions in the time of Charles I. the property was then in the crown, but has been since alienated. Some famous stone gateways now remain; but the premises have in general undergone great dilapidation.

Pass through Althorpe-Park, Earl Spencer's. Excellent turf-land, well stocked with deer, with very extensive groves and plantations of full-grown oak

and

and elm, also beech and other kinds of forest-timber, and one very large cedar. The residence, an elegant stuccoed mansion, covered with slate. The premises kept in the highest style of neatness. Pass through Floore to Weedon.

At this latter place is now erecting a very extensive range of barracks, and depot for military stores, as well as villas for commanding officers and commissaries; the whole occupying, as I am informed, 70 acres of land and upwards. The situation is well chosen; accommodated with land and water carriage, central, and in a plentiful country.

Northampton, towards Stony-Stratford, good land near the town. Pass Wooton; cold white clay on limestone. Crop poor, not more than three quarters per acre. Grass-land better. Pass Rode, an open parish, but enclosures near the village. Soil thin, on limestone. Pass Stoke-Bruern; enclosed grey loam on limestone. Some bean-crops, miserably poor; but, by Mr. Roper's information, not very bad land; but the drought in May, by caking the soil, stinted the crops, and the succeeding rains set the weeds a running, so as almost to smother the stunted plants. A dry beginning of summer is particularly unfavourable to these harsh and thin soils. Through Grafton-Regis, more grass-land, and Yardley Colier a better and deeper soil. To Pottersbury, a strong grey loam on limestone. This description of soil characterizes a considerable tract of country, from Northampton to Towcester and to Stony-Stratford; but excellent meadows and grass-land in the valleys, and upon the Ouse, and other brooks, rivulets, and rivers.

Mr. Roper's farm contains wheat, barley, oats, pease, vetches, turnips, both common and Swedish, meadow

meadow and pasture land, also clover, red and white, sainfoin and lucern. He is of opinion, that the upland in general in his neighbourhood will not graze profitably more than one or two years.

Back, through Towcester and Blisworth, to Northampton. The strong loams on limestone have suffered more than any other in this county from spring drought, especially where the soil is thin. The deepest soils in all cases stand excess of either drought or moisture the best.

Kettering to Northampton; country enclosed, but common fields in view. Northampton to Daventry, through Upton, Heyford, and Floore, to Weedon. Soil generally a good grey loam. Cabbages often in the fields. Weedon to Daventry, a good loamy soil; pretty much at grass. Daventry common field three years enclosed.

Through Badby, Fawsley, Badby-Wood, and to Fawsley-Park, the seat of Sir John Knightley, Bart. Badby-Wood extensive. Fawsley-Park well stocked with full-grown oak and elm timber. Some of the oaks worth 50*l.* each. Fawsley chapel repairing, new pewing, and ornamenting, at some hundred pounds expense, by the benevolence of Lady Knightley. This parish, as well as the adjoining ones of Preston and Chanvellton, are mostly at grass; and a good deal of grass-land intermixed in all the country to Banbury, and applied to feeding or dairying.

The country to Catesby is occupied in a mixed system of grazing and cultivation. At that place 50 acres of woad are now in cultivation. See Woad, (isatis tinctoria.) The state of most other parts of the county will be found under different heads in various parts of this Survey.

ALPHABETICAL

ALPHABETICAL INDEX

TO THE

NORTHAMPTON SURVEY.

A.

B.

C.

C.

D.

E.

Enclosing

F.

G.

H.

I.

L.

M.

N.

O.

P.

R.

S.

T.

V.

W.

Y.