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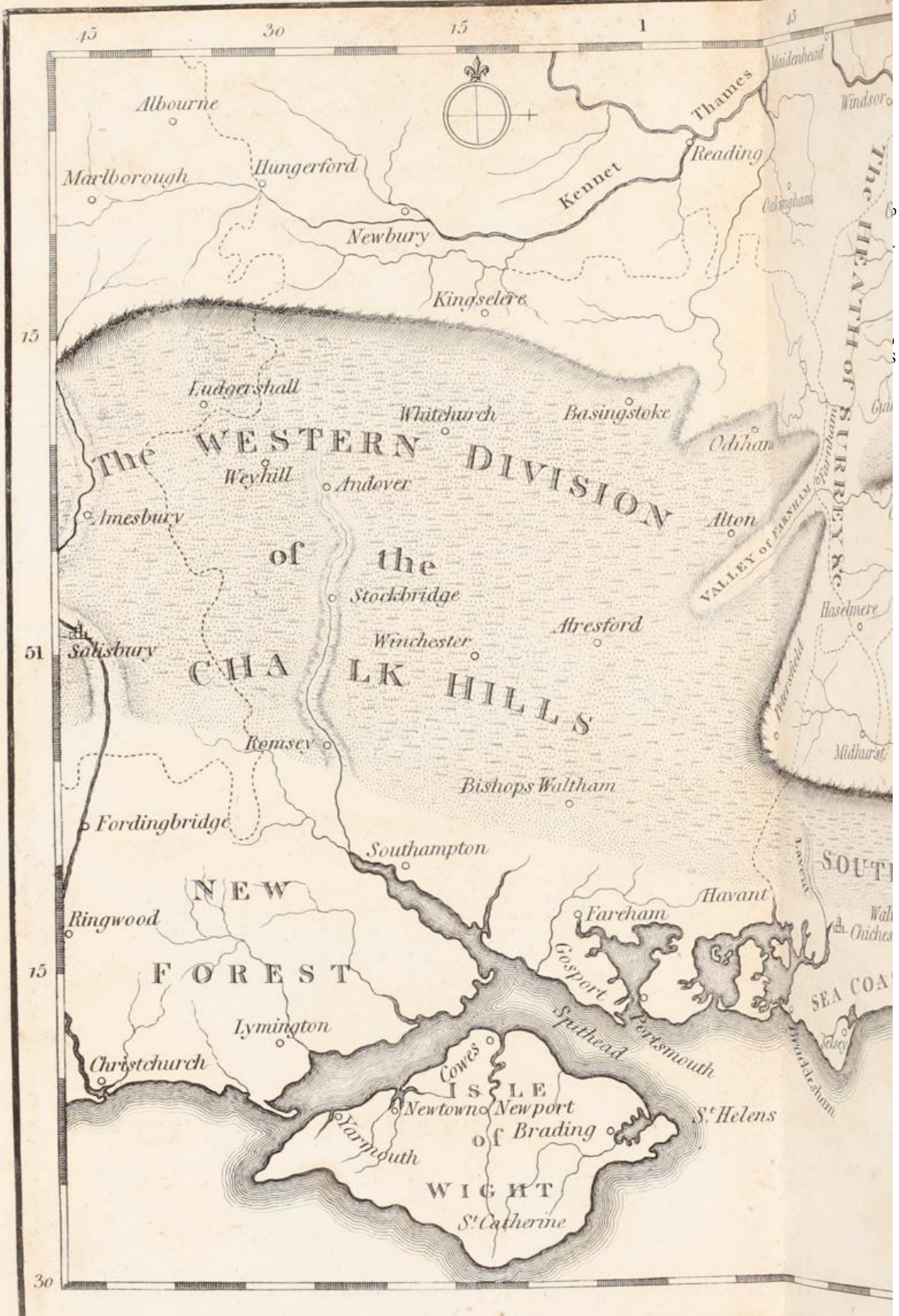
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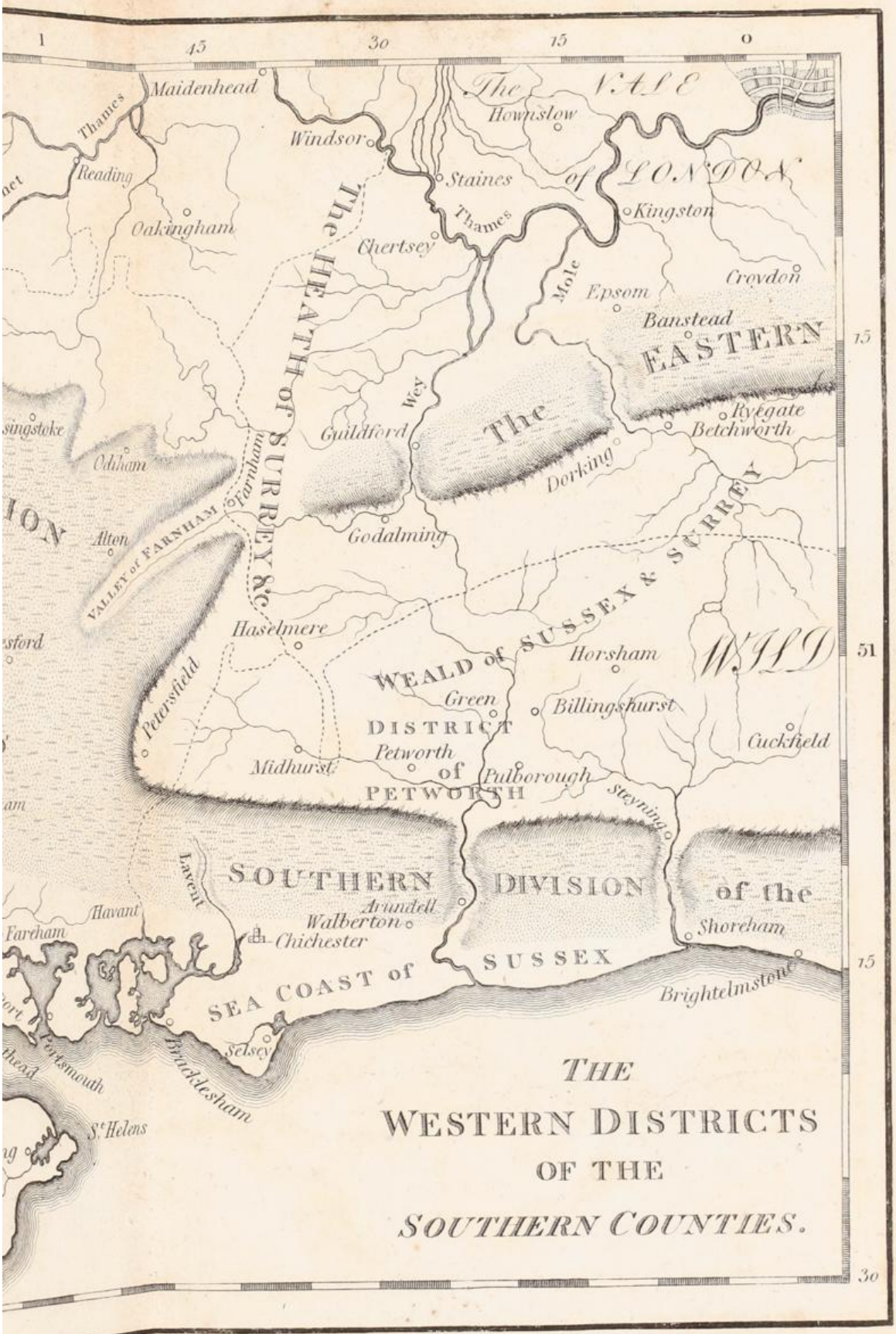
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THE

RURAL ECONOMY

OF THE

SOUTHERN COUNTIES;

COMPRIZING

KENT, SURREY, SUSSEX;

THE ISLE OF WIGHT;

THE *CHALK HILLS* OF

WILTSHIRE, HAMPSHIRE, &c:

AND INCLUDING

THE CULTURE AND MANAGEMENT OF

HOPS,

IN THE

DISTRICTS OF MAIDSTONE,

CANTERBURY, AND FARNHAM.

BY MR. MARSHALL.

IN TWO VOLUMES.

VOL. II.

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THE ISLE

OF

THANET.

Introductory Remarks.

IN MAKING the EXCURSION in EAST KENT, mentioned in the Introductory Remarks to the last District, I appropriated some days, to the examination of this celebrated Islet ;—every acre of which I probably *saw* (except a small portion on the northern coast), and passed over the several parts, which distinguish its soils and culture. First, in my way, from Canterbury to Margate; next, in making a circuit, through the Island, and ascending the higher grounds, in different places ; afterwards, in crossing it,

to Ramsgate; and, finally, in taking a view of the southeastern margin, and the Marshes, in my way to Sandwich.

These examinations were made, in the beginning of September. The harvest (in a very backward season) being then in its height. I was, therefore, able to form a pretty accurate idea of its soils, and their cultivation; excepting, so far, as relates to the minutiæ of management, in putting in the spring crops.

THE

DISTRICT.

THE SITUATION of this District is peculiar. There can be little doubt of its having been, heretofore, in reality, what it is now denominated; the sea having, it is more than probable, flowed between it and the main land; and occupied, at high water, the space that is now filled, by the

Marshes, which connect it, on the east and south, with the rising grounds of East Kent.

EXTENT. Considering its oval OUTLINE, as a circle, and estimating its mean diameter at eight miles, it contains, near fifty square miles of surface, or more than thirty thousand acres.

In ELEVATION, on the north and east sides, it is considerably above the sea; which washes it on these sides: and some rising grounds, in the interior of the Island, swell above the sea cliffs. Nevertheless, in approaching it, from the west, the rise is so gradual, that its elevation appears much less, than it really is. Seen from the higher grounds of East Kent, it meets the eye, as a broad plain; or, at most, as (what it may with propriety be called), a gentle chalk-down swell.

The SURFACE is remarkably smooth, and unvaried; especially in the central and western parts. The upper grounds shelve gently, as it were, beneath the Marshes; and rise, with an easy ascent, to the central heights. The eastern parts are more broken and rugged; but, even there, the quantity

of surface, too steep or broken, to permit the plow, is inconsiderable: so that almost every acre of its surface may be said to be fit for the purposes of cultivation.

The CLIMATURE, of this small plot of country, is somewhat earlier, than that of the DISTRICT of CANTERBURY; owing, probably, to its lying out of the reach of the influence of the hills, that rise to the south of Canterbury; whose base is naturally kept cool, by the moisture which is necessarily lodged beneath it*: an influence, which, from the cases under notice, appears to be greater, than that of the bleakest exposure. The Isle of Thanet is exposed, to every wind that blows: and those from the north and east are poured in upon it, immediately from the ocean.

The WATERS may be said to be those of the sea. To the south, the river Stower, in its passage from Canterbury to Sandwich, winds through the flat of Marsh lands, on that side of the Islet: the area or body of which is, in a manner, free from surface

* See YORKSHIRE, Vol. I. Article CLIMATURE, on this subject.

waters. The entire substructure being, in all probability, absorbent, the rain waters are drank up, where they fall.

The SOILS are, pretty universally, what come under the description of CALCAREOUS LOAMS; and are mostly of extraordinary depth, for soils of that nature. On the lower margins of the swells, and on some of the flatter parts of the area, they are from eighteen inches to two feet deep. Even on the very summits, of the central and western heights, there is ten to fourteen inches of free culturable soil; and this incumbent on loose calcareous rubble! Taken together, it forms, by far, the best soiled plot of chalk hill, this Island possesses. On the uppermost stages, of some of the more broken heights, towards the northeastern margin, the soil is thinner, and more flinty. But I know no tract, of equal extent, with so large a proportion of good, and so inconsiderable a share of bad land; either on the Wolds of Yorkshire, or on the Downs of Wiltshire, Dorsetshire, Hampshire, Sussex, Surrey, or Kent.

The SUBSOIL, as well as the entire SUBSTRUCTURE, is probably CHALK.

The ROADS, in general, are good; and what renders them more agreeable, to the traveller, they are *free*.

The TOWNSHIPS are numerous, and well distributed.

STATE OF INCLOSURE. In this, as in other respects, the Isle of Thanet resembles the Wolds of the northern, or the Chalk Downs of the southern provinces; and is, in reality, one of the latter. The whole country lies open; excepting the immediate environs of villages. Those of Birchington, Minster, and St. Laurence have, perhaps, the greatest quantity of inclosed lands. The towns of Margate and Ramsgate may be said to lie open to the Downs. In one or more instances, here, as on the Wiltshire Downs, I observed the remains of neglected hedges!

The PRESENT PRODUCTIONS of this favored spot, if we cut off the Marsh lands, which are mostly or wholly in a state of GRASS, may be said to be ARABLE CROPS. Of perennial SHEEP WALK I find no notice, in my Journal, nor do I recollect observing a single instance; and of WOODLANDS, and HEDGE TIMBER, nearly the same may be

said; except a few masses, or shaws, of the former; and except some hedgerow elms, in the neighbourhoods of St. Laurence and Minster; on rich deep soils, sheltered from the north.

This nakedness, conspiring with the natural tameness of surface, in giving a similarity of SCENERY, the Island, itself, is productive of no other beauty, than what other passages of bare chalky downs afford. But, as a PLACE OF VIEW, the Isle of Thanet is capable of gratifying the *liberal* eye, in a superior manner.—From the southern declivities, the rich and beautiful rising grounds of East Kent are seen hanging, as a picture, before it. And the views northward, and to the west, are equally interesting. The Isle of Shepey—the Nore—the coast of Essex, with the almost incessant throng of vessels, which in the busy sea roads to the Thames, are seen stealing upon the view, and passing away, as by a charm, into immeasurable space, furnish a broad, but delightful prospect. The eastern view is still more striking; as including, in its offscape, an object that few points of view, in this Island, can command,—the Continent of Europe.

AGRICULTURE.

FARMS. In traversing the country, several capital farms are seen, detached from the villages; the buildings large, and the pieces extensive. But too many of the farmeries are gathered together, in villages, or hamlets; in the manner of other open arable districts. Towards the east end of the Island, the farms appear to be smaller; and the lands to be frequently intermixed.

FARM BUILDINGS. DWELLING HOUSES are mostly of bricks, or of flints, and covered with tiles. The BARNS, commonly, of weatherboarding, and thatch. On the larger farms, the barns are of extraordinary size; very wide, with a range of hovels or sheds, on either side; the same roof covering the whole; reaching from the ridge of the barn, to near the ground, as in West Kent. Some of these enormous buildings, when seen endway, or caught in particular points of view, have the appear-

ance of Egyptian pyramids, rather than of English barns.

REMARKS. The excessive consumption of straw, which these immense roofs necessarily incur, is doubtless a serious evil, in a country, that is situated, beyond the reach of town manure. If, however, we recollect that the decayed thatch, as it is washed from the roofs, by heavy rains, is much of it deposited in the yards, and, by this means, reaches the dunghill and the field, and that, the old thatch finally follows it through the same path, the actual *loss*, which the land eventually sustains, is not great. Nevertheless, the temporary withholding, of an immense quantity of vegetable matter, from the arable lands, is itself an evil; beside the actual waste of decayed thatch; which is liable to be carried away, by the currents of heavy rains, and to be blown, by the wind, into places, from which it never returns to the farm. The danger, which thatch roofs are peculiarly exposed to, with respect to fire, is another reason, why they should be discontinued. And, should this country continue to prosper, and improve, during the next century, as it has, during

the present, it is probable, that, long before its close, the practice of covering farm buildings, with the materials of manure, will be wholly laid aside; not in this Islet, only, but in every culturable district of the Island at large.

BEASTS OF DRAFT. These are, invariably, HORSES; of a heavy breed; but not of the heaviest. Some of them are in a good form, for the farmer's use. Four of these costly, expensive animals are the PLOW TEAM;—on land which a north-country farmer would plow, with two; and these, of little more than one third of the cost and expensiveness of the Thanet team; would work the lands of the Isle, at less than half the expence, that is bestowed upon them, in the present practice.

IMPLEMENTS. The heavy TURN-WREST PLOW is the only one in use; even on the flattened surfaces, and the gently sloping lands of the Isle of Thanet; and even in working the fallow grounds, for which this Island well deserves celebrity.

In SUBPLOWS, "shims" or "broad-shares"—for cleaning the surfaces of pulse grounds—"pea and bean grattans"—for

wheat, or spring crops, this Islet exceeds even WEST KENT; especially in the variety of construction. One, with a straight edge, four feet long, and of proportional strength, which was hung behind a pair of cart wheels, struck me the most. Surely, land in which such an implement, as this, can be worked, requires not four horses to *plow* it!*

OBJECTS OF HUSBANDRY. On the body of the Island, ARABLE CROPS, and SHEEP, with a due portion of SWINE, are the leading objects of the Thanet husbandry. In the Marshes, many cattle are seen; but, upon the arable farms, a few cows, teddered

* On the thin chalky soils of East Kent, in the neighbourhood of Barham Downs, I observed instances of subplows, with shares on a construction, different from any I saw, either in the Isle of Thanet, or in the District of Maidstone. Instead of a straight blade, or *shim*, as in the Island; or a crescent, or *broad share*, as in Middle Kent; a large prong, with three or four broad flat tines (resembling those of the common potatoe fork, but perhaps four times as large) is drawn horizontally, with the points forward; thus making its way among the flints and chalk rubble, which, in a manner, constitute the cultured stratum of these lands, better than a continued edge.

on temporary ley grounds, are the only cattle observable,—in the autumnal season.

The arable crops are

Wheat, barley, oats;
Beans, peas, tares, turneps;
Sainfoin, lucern, clover, &c.
Canary seed, radish seed, &c.*

The COURSE OF PRACTICE. Nothing which arose to the eye, in travelling over the arable lands under view, nor any information I gained respecting them, discovered what is sometimes called *a regular system of husbandry*. Indeed, where sainfoin is a common crop, and where a variety of garden crops are grown, there is the less opportunity of adhering rigidly to a fixed routine of crops.

But although there may be no regular succession of crops, in the Thanet husbandry, there is a PRINCIPLE OF MANAGEMENT, evidently observed, here, which is much wanted, in the central parts of the county; and, more or less, in almost every district of the kingdom; namely, that of

* There are no HOPS cultivated, in the Island; though much of its soil appears to be well adapted to their culture.

cleaning the land, for spring corn and ley grasses, rather than for wheat; a principle which cannot be too frequently, or too strongly urged; as the superiority of MODERN HUSBANDRY, over the old common field practice, hinges almost wholly upon it.

What struck me most unexpectedly, in examining the Thanet practice, was the quantity of FALLOWS, that everywhere appeared. In part, pulse grounds, that had been plowed between the rows, while the crops were growing, and afterwards shimmed, or underplowed, to rid the surface from running weeds, that had got footing in the rows. But many, or most, of them SUMMER FALLOWS.

On expressing my surprise, at so unexpected a sight, in the Isle of Thanet, I was told, by an intelligent farmer, who was attending to his harvest work, that "land must have a holiday,"—and that "it is always better to be a year too soon, "than too late, with your summer tilth:" supporting his assertion, by shewing me a piece of stubble, the intended crop of which had been *drilled*, on land that ought

to have been *fallowed*. The consequence was a crop of weeds, rather than of corn: the surface of the ground being carpeted with hog weed; *polygonum aviculare*.

TILLAGE. The SUMMER FALLOW, HORSE-HOED PULSE-CROPS, and the TURNEP FALLOW, are the means whereby many of the lands of the Isle of Thanet are kept in a high state of cultivation. In the autumn of 1795, though the season was backward, the fallows, in general, were beautifully clean. And many of the stubbles, as well as the clover and turnep grounds, showed the soil to be in a state of cleanness and tilth: while some stubbles, and crops then uncut, especially those of wheat, were foul, and the land out of tilth, to a degree, that would disgrace any district.

SODBURNING appears to be in much use, and good estimation; especially on sainfoin leys, previously to their being broken up; whether for wheat, oats, or other crop. See the Art. SAINFOIN.

REMARK. This is one of the purposes to which sodburning is peculiarly applicable.

MANURES. The principal extraneous manure, that I perceived to be in common

use, is SEA WEED; but with some SEA SAND; and, on the *land* sides of the Island, what is called "MARSH MUD" is seen collected. These are mixed up, with DUNG, and MOLD; every thing appearing to be formed into COMPOST:—a practice, which is common to the well cultivated districts of Kent, and has probably been instrumental, in raising the fame of the Kentish husbandry.

SEMINATION. One of my inducements, to view the Isle of Thanet, was the celebrity of its DRILL HUSBANDRY. Either through misrepresentation, or misconception, I expected to have found no other, than drilled crops. The fact however, was, that, for one acre of *corn* (wheat, barley, and oats) IN ROWS, three were seen at RANDOM. And, of that which stood, or had stood in rows, not one third wore the appearance of having been either *drilled*, or *hoed;* the rows appearing to be merely the effects of the grooves, or seed seams, of the stricking plow; (see DISTRICT OF MAIDSTONE, Vol. I. p. 118.) with the straggling plants, that had risen from the seeds which happened not to be buried in the seams, still standing in the intervals.

In the immediate neighbourhood of Margate, the crops appeared to have been principally cultivated in rows, and most of them to have been hoed. *There*, town manure is plentiful; and if the farmer can keep the head of his corn above the tops of the weeds, it has to contend with, he ensures a crop,—of *straw* at least,—*by the force of manure:* no matter as to the state his stubbles are left in; or how unfit his land is, to be laid down to herbage, or for the ordinary purposes of husbandry. But such slovenly practice we see, in the neighbourhood of the metropolis, and other great towns: the strength of stable dung being the town farmers dependence.

GENERAL REMARKS on the DRILL HUSBANDRY.

If it be necessary, or proper, to sow corn, on land that is too foul, to permit the crop to rise, with advantage, by reason of weeds, or the seeds of weeds, in the soil, at the time of sowing, it becomes prudent, to put in the seed in such a manner, as to be able to check the growth of the weeds, without destroying the crop: and, in this point of

view, the practice of the Margate farmers is preferable to that of the garden-ground men, in the neighbourhood of London. But what farmer, in the *country*, who has nothing but his skill and industry to depend upon, would wittingly, and in pursuance of a constant practice, sow (no matter how) *clean* corn on a bed of weeds? For who would not as soon mix corn and weeds together, in the *seed box*, as in the *soil?*

If (to use the common language of slovens) a soil were so "given to weeds," as to be altogether irreclaimable, a good excuse would be had, for crouding the roots of corn together, in rows, and cropping the ground, partially. But what man would voluntarily mix the seeds of corn crops with those of weeds? at least, until he had been as anxious to clean his *soil*, as his *seed corn?* Who, seeing a farmer mixing the seeds of thistles, docks, poppies, charlock, and cleavers, among his seed corn, would not take him for an idiot, or a maniac? But is it not equally devoid of reason, to mix seed corn, among weed seeds, of the same description? Yet true it is, that not only drillists, but plain professional men, and even those who

rank high in the profession, will winnow, skreen, sift, and perhaps cast, their seed corn, with the greatest anxiety, until not a weed seed is discernible; and immediately throw it over lands, which contain three times, ten times, perhaps an hundred times, the quantity, of the very same seeds, as those they had just been separating, with so much solicitude!

With respect to the advantage of HOING, we have seen, in the culture of hops, that forcing the bine, in the early stages of its growth, has a probably bad effect; by throwing the vigor of the soil into stem and foliage, instead of fruit: and, it is possible, a similar effect may be produced, by stimulating the *straw* of corn, without being able, when every exertion is wanted, to mature the *grain*, to render it further assistance. It is true, that where there is a great strength of soil, and when, added to this, a favorable season happens, extraordinary crops of corn, as well as of hops, are grown, under this treatment: and these incidents, well set forth, give eclat to the practice. But, in soils less powerful, and in seasons less prolific, we have seen the hop

dwindle, without any apparent cause; and the "loss of crop," which has, probably, terminated the career of the drillist, from the day of Tull, to the present time, cannot perhaps be accounted for, in a more satisfactory manner. (This by the way.)

Beside, one instance has been mentioned, in which hoing the narrow intervals of a corn crop, was unable to prevent the weeds, from gaining full possession of the soil; and many instances, of a similar nature, were observed, in the Isle of Thanet: so that hoing the narrow intervals of corn crops appears, in the practice of the Isle of Thanet, to be altogether inadequate, to the cleansing of foul soils, for future crops.

It is nevertheless true, that, in the Isle of Thanet, I observed several instances, in which the crops were ample, and the soil clean, after the drill and hoe. But in these cases, the land had evidently been *fallowed*, for the crop: and had it been *evenly seeded*, and left undisturbed, in the early stages of its growth, the produce would, it is possible, have been still more ample: the *saving of seed*, and depositing that which is sown, at an *equal depth*, being, in my mind, the only

rational motives, for drilling corn in clean fallowed ground.

Judging from the experience I have had, and the observations I have made, in different parts of this Island; and, particularly, from the attentions I have bestowed, on the semination and growth, of the ordinary crops in English husbandry, I am clearly of opinion, that culmiferous plants, that CORN; namely, WHEAT, BARLEY, and OATS, which bear their fructifications and seeds, on the tops of the stems, should *cover the ground:* that the soil should be *wholly*, and *evenly*, occupied by the crop: that the roots of the plants should grow *distinct*, from each other; in order that each of them may enjoy, as much as may be, its *separate field of pasturage*,—as the roots of grasses, in a meadow, or of trees, in a forest; and that they ought not to be matted together in rows, and be placed, from their earliest infancy, in a state of conflict with each other.

If these positions are right, it follows of course, that the plants of corn should stand in triangles, or regularly aquincunx, as trees in a well planted orchard. And a machine, or implement, to distribute their seeds, in

that manner, would be a valuable acquisition to agriculture.

Dibbling in the seed, in the Norfolk manner, comes the nearest of any established practice, to this desired mode of distribution; and, for unbroken ground, a better method will not, perhaps, be readily invented.

What is wanted, for broken ground, for barley most particularly, is a machine that will distribute the seed, *sufficiently regular*, and at an *even depth*, (as one, two, or three inches, according to the species of grain, the nature of the soil, and the season of sowing,) as the nurseryman sows his tree seeds, and agreeably to the Norfolk practice of two-furrowing;* so that *no seed shall be wasted*; and in order that *the whole may vegetate at the same time*, and *rise in one crop*.

On the contrary, PULSE; namely, the PEA and the BEAN, which throw out their fructifications, laterally, or from the sides of the stems, and down to the ground, if not obstructed, require *wide free interspaces*; as hops, filberts, and other fruits.† Hence

* See NORFOLK, MIN: 43.

† See GLOCESTERSHIRE, Vol. I. Sect. 18, for farther remarks on this topic.

a practice of GLOCESTERSHIRE, in which peas are "bunched," or planted in tufts, is an evident and effectual way of obtaining the end required; and, were it right, not only to plant, but to clean peas, *by hand*, this method might, under due regulation, be eligible. But it falls far short of the practice of KENT; in which peas and beans are cultivated, in rows; with intervals, wide enough, to admit the *plow*, or *horse-hoe:* thus rendering them most eligible FALLOW CROPS. For the interspaces, which are requisite to the due fruitfulness of the crop, of beans especially, are converted under this practice, when properly performed, into SUMMER FALLOWS, and are not only *cleaned*, but *ventilated*, and prepared for a succeeding crop.

Crouding the roots together, in rows, is doubtless an objection to this practice. But the roots of pulse, particularly of beans, are of a nature the most different, from those of culmiferous plants: the root of the bean strikes downward, with a strong tap, and throws out a few straight lateral shoots, horizontally, *at different depths;* does not form a mat of fibers, near the surface, like the gramineous tribe of plants.

Beside, pulse crops, *it is asserted*, receive much of their nourishment, from the atmosphere; and this (if true) is another reason for growing them with wide interspaces.

Again, by reason of wide intervals, and by using the plow in cultivating them, the evil effects, mentioned, of hoing the narrow intervals of corn crops, early in the season, are avoided: for if, in plowing, during the infant state of the crop, the soil be turned from the rows, into the middles of the intervals, the plants are rather checked, than stimulated, by the operation: and, by returning the attempered soil to the rows, previously to the season of blowing, the plants may be said to receive every advantage, that reason and art have to give them.

Further, by the strength and firmness of their roots, beans, though they are crouded in rows, and the intervals be cultivated to near their stems, do not lose their roothold, and fall over, into the intervals, like corn, when cultivated with wide interspaces.

In fine, there is not, perhaps, any two classes of plants, in nature, less analogous, in their structures and habits, than those of corn and pulse. And to attempt to subject

them to one and the same mode of culture, or to reason, implicitly, and *indiscriminately*, on the culture of the one, from that of the other, can only tend to involve the general subject of cultivation, still more obscurely, than it already is, in the clouds of ignorance and error, under which Agriculture has been too long groping its way; and it is more than time that the lights of science and natural knowledge, which have rapidly increased of late, should be brought to its assistance; in order to enable the practitioner to *distinguish* the different paths of his profession.

HARVESTING. Several varieties of practice are observable, in this part of Kent; and will appear in their places. That of MOWING a considerable part of the WHEAT crop, is the most striking.

This practice is some excuse for the many able WOMEN, who are seen GLEANING, in this thinly inhabited corn country!

Several instances were observed of TITHE being taken, *in kind!*

REMARK. How improper to continue this ancient custom (instituted, no doubt, in a sort of necessity) in the present state

of society; when a circulating medium is current, and while a spirit for improvements in agriculture prevails! Very little more impolitic would it be, to continue to take *rent* in kind.

The method of SHEAFING MOWN CORN, here, is similar to that of the DISTRICT OF MAIDSTONE, but not the same. The handle of the rake is more crooked, and the head turned more inward; the teeth standing almost parallel with the upper part of the handle. In using it, the workman keeps his left foot forward; treading upon the middle of the swath! and his right, close to the buts; so as to assist in regulating them; working in a stooping posture, and drawing the swath after him, or lifting part after part, with the teeth of the rake, until a sheaf, or rough bundle, is collected. Even wheat, I have seen gathered in this uncouth manner; with the buts uneven, and full of loose ears.

A child attends the workman, with ready made bands; giving them to him, singly, as he wants them.

REMARK. This is an admirable minutia of practice. The bands are made at leisure

times, and the child is thus early rendered useful, and taught a degree of subordination and attention; without being subjected to labor above his strength.

WHEAT. A large PROPORTION of wheat is grown, in this Islet; almost every acre of it being adapted, under proper management, to this grain.

But judging from the crops of 1795 (not a good wheat year), the wheat culture is by much the worst part of the Thanet husbandry. In that year, many of the crops were not only thin, but foul in the extreme; particularly with Mayweed, or corn cammomile. And what appeared most extraordinary, the HOING of WHEAT was less observable, than that of *oats;* or of *barley*, even after fallow! If any one *corn* crop require hoing, more than another, it surely is wheat; in as much as it occupies the ground longer than any other.

The practice of MOWING WHEAT has been mentioned. I saw it applied to the thin, ravelled, foul crops, above noticed; but with the most unworkmanlike effect. For wheat which is clean, and stands tolerably fair, mowing is most eligible; particularly when

the straw is short. But it should not only be laid down straight, with the sithe; but be gathered, neatly, into sheaf, and be set up as reaped corn.

I observed an instance of wheat being set up, in SINGLE SHEAVES (a sort of *gaits**); bound near the middle; and placed in short rows, of ten sheaves each; as if for the conveniency of tithing.

BARLEY. A still greater PROPORTION of barley, than of wheat, is grown "in Thanet:" the soil being equally, or still more peculiarly, adapted to this crop.

In 1795, the crops were large and mostly clean; being chiefly AFTER FALLOW, or FALLOW CROPS; as turneps, beans, peas, &c. and generally succeeded by cultivated herbage: a principle of management, as has been intimated, which, in the present state of society, in England, cannot, perhaps, be exceeded.

Barley appears to be, universally MOWN INTO SWATHS, and laid upon beevors, as in West Kent. The method of binding, or putting it into rough bundles, has been mentioned. And it only remains to notice

* See YORKSHIRE.

a peculiarity, respecting the BANDS, made use of for barley; especially when the straw is short. In this case, the plants are drawn up, with the roots; and the corn and dirt being thrashed off, the straw is made, at leisure times, into bands, to be distributed by children, in the manner above described. The advantages gained, by this practice, are the additional length of band, and the preventing of a waste of corn; in making and using the bands; or by their growing, in wet weather.*

OATS. Many oats were observable, in 1795; and the crops mostly good. But the PROPORTION was much below that of either of the preceding species.

In one or more instances, I observed the oat crop IN ROWS, with hoed intervals! Surely, a crop, which requires so large a proportion of seed; which does not spread as wheat or barley; and which, to have a full return, requires that the stems should

* For OATS, that are too ripe when cut, thrashing the bands would prevent much waste. In the neighbourhood of Canterbury, I observed oats bound with hops bines.

nearly touch each other, is ill adapted to the drill husbandry.

BEANS. The PROPORTION grown, in this District, is extraordinarily large; greater, to general appearance, than that of wheat or barley.

In 1795 (a pretty good bean year), the crops were in general good; and many of them very clean; cultivated in the very best manner: while others were foul and ill managed: the intervals out of tilth, and the rows unearthed up. Upon the whole, however, the Isle of Thanet stands high in the culture of this crop.

PEAS. This is also a prevailing crop; but not so prevalent, perhaps, as that of beans.* In 1795, they were mostly harvested, before I went over the ground;

* PULSE. The whole line of country, from Rochester to the North Foreland, abounds with these two crops. In the autumn of 1795, a very considerable portion of the arable land had been occupied by them; with little, if any, regard to the nature of the soil! While, between this county and the western extremity of the Island, scarcely a BEAN is cultivated; let the soil be what it may! Does this contrariety of management arise from an essential difference, in soil or

though some still remained in the field; in reaps or bundles.

The ground was in general clean; and the rows, in most cases, had the appearance of having been earthed up. But, in general, the subplow was at work; or had, already, passed beneath them.

In the culture of PEAS and BEANS, as FALLOW CROPS, the practice of KENT, I must here repeat, may properly be recommended, as a pattern.

TURNEPS. These appear to be most prevalent on the upper grounds; where extensive plots are seen; and mostly in a high state of culture. In 1795, the whole were broadcast. I did not, at least, observe any in rows. The crops were in general clean and good.

POTATOES. I did not perceive, even a single plot, of any extent, in the Island! A few patches, about villages, and here and there a head land, were all that appeared, at a season when even a small plot could not easily be passed unseen.

climature; or from situation with respect to markets? or is it merely the effect of custom; originating in accident, and persevered in without reflection?

In the quantity of CANARY SEED, grown in the Isle, I was still more disappointed. In traversing it, as above described, there did not twenty acres, of this species of produce, fall under the eye. There is, however, I understand, a sufficient quantity grown in the eastern parts of this county,* to supply the markets, domestic and foreign: its culture, therefore, is not an object of general attention. It may be arranged among garden, rather than farm produce.

Of RADISH SEED numerous small plots were observed; especially in the eastern parts of the Island; where those and other GARDEN SEEDS are raised, for the London seedsmen.

SAINFOIN. No other part of this kingdom, of equal extent, has so many acres of good sainfoin to show, as the little Island under view. Indeed, every part of it, even the higher swells, appear to be singularly adapted to this valuable species of herbage.

There is no part of the Thanet husbandry, whose minutiæ I should enter into, with greater solicitude, than that which re-

* In the neighbourhood of Sandwich, I observed several pieces of considerable extent.

lates to sainfoin: for although much, doubtless, is derived from the soil and substrata, the prevailing excellency, that almost everywhere appears, is in part, perhaps, owing to principles of Management: no other species of cultivated herbage requiring so delicate a treatment.

In the first week of September, horses and cows were seen teddered, on the after crop of sainfoin leys; but no instance of general feedage had then taken place.

The only interesting fact I caught, respecting this crop, arose from a piece of old sainfoin ley, that had been PARED and BURNT, as a preparation for wheat; the ashes being, at the time I saw it, standing in heaps; which were partially hid, by a luxuriant crop of sainfoin; notwithstanding the operation!

The plants appeared to be sufficiently numerous, to stand on, for a crop; and its owner seemed to have no other objection, to giving it a trial, than the probable deficiency, that he conceived would accrue, from the hillsteads; which, he took for granted, were "killed."

REMARK. This is not only a most eligible way of breaking up an old worn out sainfoin ley, (and is, as has been said, the prevailing practice) but appears to be an admirable expedient, for cleaning one, that is foul with surface weeds; and of giving it, perhaps, fresh vigor, by means of the ashes. Judging from the incident under notice, there is little *danger* to be apprehended, from such an expedient. The plants were luxuriant, even to grossness, and beautifully clean! If the sainfoin should not be sufficiently relieved by the operation, the soil would be in a fit state, to receive any other crop.

LUCERN may be said to be, here, AN ORDINARY CROP IN HUSBANDRY. Upon the open Downs, it appears to be universally grown, in the BROADCAST MANNER; as sainfoin and clover; agreeably to what may be called the KENTISH PRACTICE.* I observed only one piece, in rows. This was a pretty large inclosure, on the eastern coast; and, in the middle of it was a mound of earth, inhabited by rabbits!

* See the DISTRICT OF MAIDSTONE, Vol. I. p. 152.

The other species of CULTIVATED HERBAGE, observable in this Islet, are RED CLOVER and TREFOIL. Of the WHITE CLOVER, or of RAYGRASS, I saw very little, if any. Indeed, in an open arable country, where little livestock is kept, and where the temporary ley is chiefly intended to stand only one year, red clover, alone, or, when intended for sheep, with a mixture of trefoil, is perhaps the most eligible. And many clean full crops, of these valuable plants, were observable.

GRASS LAND. On the body of the Isle, I saw no instance of old grass land, or NATURAL HERBAGE. The Marshes are chiefly in this state. But judging of them, from what I saw, in crossing them to Sarre, and in going from Ramsgate to Sandwich, they do not appear to be under any very accurate plan of management. In the latter part, indeed, they may well be said to lie in a shameful state of neglect; and to call loudly for improvement.

HORSES. I observed none, but heavy, team horses,—either at work, or teddered on the ley grounds.

CATTLE. Upon the Island, a few milking cows, teddered on the leys, and seldom more than two or three together, were the only cattle. The breeds chiefly mongrel; with some Welch. In the Marshes, the same motley collection was observable. In a country where arable crops are the principal object, livestock are generally seen in a state of neglect and degeneracy.

SWINE. Many herds were seen, tended on stubble grounds. The colors, and breeds, various, and mixed. Mostly thin-carcassed, ill bred creatures. This is the more remarkable, as the number kept is considerable, swine being a requisite species of stock, in an arable country. But it only shows that the SPIRIT OF BREEDING has not yet reached the Isle of Thanet.

SHEEP. Several small folding flocks, of a hundred or more each, were observed, on the upper swells. Mostly two-shear wedders, of a poled breed, and middle size; but variously faced; as if they were a cross, between the Romney Marsh and the South Down breeds: or rather the Marsh breed of Kent, slightly mixed with the South

Down; and diminished in size, by upland pasturage, and folding. Their faces mostly white, but some of them grey.

REMARK. These appearances, however, only serve to show, with additional strength of evidence, the origin of the Kent breed: which has doubtless sprung from the same source, as that of the South Downs. See ROMNEY MARSH, page 378, of the last Volume: also the SOUTHERN DIVISION of the CHALK HILLS, in this Volume.

The WEDDER FLOCKS, which I saw in the Isle of Thanet, were probably bred in the Isle of Shepey, or other part of East Kent; not in Romney Marsh; they being of a smaller frame, and more colored, than the breed of the latter district.

On the hills, to the north of Canterbury, I observed a flock of a still smaller size; yet apparently of the same breed.

FOLDING. I remarked an instance, in which a barrel cart was employed, *to carry water to the fold:* where it was given to the flock, in narrow wooden troughs.

The folds were chiefly on *clover* and *trefoil leys;* which were folded off, as tur-

neps, or tares. Trefoil is a favorite food of sheep; and sowing it with barley, to be folded off for wheat, on wheat land, in an open country, and in situations where the dung cart has difficulty of access, is evidently good management.

STATE OF HUSBANDRY. From this view of the Thanet practice, we may safely rank it, among the best cultivated districts of the Island. But this is as much as can be truly said of it. It has no claim to that exclusive right of superiority, which celebrity has given it; and which it may, heretofore, have deserved. The quantity and quality of its crops are to be ascribed, principally, to the natural advantages of soil and manure, which the Isle of Thanet enjoys.

That the natural advantages of situation are seen, and well attended to, by men of spirit and judgment, here, as in many other parts of the Island, is evident. But, even in a cursory view, much foul bad farming is observable.

In the management of PULSE, as a FALLOW CROP, the Isle of Thanet farmers may claim great merit; and, perhaps, in their having, unfortunately, GENERALIZED the

idea of the ROW CULTURE; extending it to CORN CROPS; and placing the same kind of dependance, on hoed wheat and barley, as on hoed beans and peas, *for cleaning their lands!*—may be found the source of the foul bad husbandry, which is seen.

With respect to LIVESTOCK, whether as to quantity or quality, the Isle of Thanet appears, in a general view of these kingdoms, at a distance, in the back ground of modern husbandry.

IMPROVEMENTS. In any one, who has not a general knowledge, of the several departments and branches of the rural science, and of the different practices, which time and circumstances have established, in these kingdoms, it might be rashness to propose alterations, in the established practice, of any district, without better information, than a few days inspection could afford. But the Isle of Thanet being the last, of the more celebrated districts of *this* kingdom, that I have examined,—or, to speak with somewhat greater latitude, having seen every thing that is right and wrong, in the several established practices of the Island, at large—I feel myself the less em-

barrassed, in suggesting the few improvements that occurred to me, in my cursory survey of the Isle of Thanet.

The INCLOSURE of the open lands, of which the body of the Isle may be said to consist, is probably the first improvement, that strikes those who turn their thoughts to the subject.

The propriety of inclosing Chalky Downs, in general, will be considered, in speaking of the WEST DIVISION of the CHALK HILLS, in this Volume. But the thin soiled, wide spreading Downs of Wiltshire and Hampshire, the principal part of which is best adapted to sheep walk, are very differently circumstanced, from the fertile plot of country, now under notice; every part of which is in a state of aration; and every acre fit for an alternacy of grain crops, and temporary herbage; and, consequently, capable of supporting livestock in great numbers, and of every description.

Were the Isle of Thanet properly inclosed, and put under the course of MODERN HUSBANDRY, in which grain and herbage, cattle and sheep are made subservient to each other; agreeably to the practices of the

Midland Counties, and various other parts of the kingdom ; and the different breeds of livestock, properly chosen, and duly attended to, there can be little doubt of the aggregate value, of its marketable produce, being rendered *much* greater than it is at present.

But so long as it remains under the present plan of management—so long as it is considered, merely, as a matrix of grain, it might be wrong to inclose it. The celebrity of the Thanet seed corn,—(particularly of its barley,—) and the fairness of its samples, whether as to body or color,—may not be wholly owing, to the soundness and fertility of its lands, but, in some considerable part, to an openness of the country ; which not only promotes a plumpness of grain, but preserves, during harvest, the brightness of its color. And it remains with the proprietors of this favored spot, to determine, whether fame or profit is more estimable.

The extreme nakedness of this plot of country aptly suggests the improvement of PLANTING. But the lands, in general, are much too valuable, for the purposes of *husbandry*, to be converted to a state of *wood-*

land. Nevertheless, there are particular spots, as the steeper hangs of the hillocks, towards the eastern coast, and the worst of the flinty heights, which, if plants were properly chosen, and set thick enough, might, notwithstanding the bleakness of the exposure, be raised to the growth of coppice wood; and be at once useful, as such, and give a degree of shelter, which, even under the present plan of management, is wanted, in these bleak, exposed situations.

But the most obvious and valuable improvement, which presents itself, relates to the LAYING OUT OF FARMS. At present, though there are some capital farms, properly placed, in the areas of the lands that belong to them, farm houses, and yards are, more commonly, crouded together: mostly, on the outskirts of the Island, and on the lowest sides of the arable lands; and this, while there are numberless situations, on the midway of the rising grounds, where farmeries might be erected, with valuable effect. A want of water can no longer be brought, as an objection, to placing farm buildings in upland situations; even where wells cannot be sunk with propriety. By means of cisterns, tanks,

or WATER CELLARS, the rains, which fall on the roofs of a farm house and offices, are found to be abundantly sufficient for every domestic purpose.* And, by means of POOLS, properly placed, and properly formed, water, for every purpose of stock, may, in a common season, be secured.† Nor can a want of shelter be a good objection, against distributing farm buildings, over the farm lands of the Isle of Thanet, or any other district, under similar circumstances. If sites were chosen, in those dips or hollows, which generally are to be found, in the midway stages of uplands; and if, when the foundations of the buildings were laid, SKREEN PLANTATIONS were judiciously placed, such situations would not only soon become more convenient, and profitable, but more pleasant and wholesome, than low damp grounds; liable, perhaps, to the pernicious effects of the putrid air of marshes.

With respect to the quantity of improvement, to be expected, by these means, there will be little risque in saying, that, by placing farm buildings, within the areas of the lands

* See YORKSHIRE, Vol. I. sect. FARM BUILDINGS.

† See the same, Section DRINKING POOLS.

that lie to them, and by inclosing, and skreening such lands and buildings, many of the upper grounds of the Isle of Thanet would be rendered nearly twice as valuable, to a farmer who knows how to profit by such advantages, as they are, in their present state.

The most obvious, and perhaps the only *great* improvement, to be made, in the Thanet plan of husbandry, as it is now conducted, relates to its TILLAGE. To continue to plow free soils, even in a state of broken ground, with four horses, and with an implement altogether improper to be worked in broken ground, is a crime, which it would be criminal to let pass, uncensured.

I know not what rent the Thanet farmers pay for their lands (not having a sufficient opportunity of ascertaining it); but I well know, from a length of experience, on different soils, and in different and distant parts of the Island, that, by an obvious improvement, in their present mode of tillage, they might afford to pay, from five to ten shillings an acre, more, than they can at present.*

* See the DISTRICT OF MAIDSTONE, page 60, for the merits and demerits of the turnwrest plow.

By conquering this prejudice (which I perceived to be deeply rooted, or I should not censure it, in the terms, I have here deemed appropriate) and by discarding the notion of keeping lands, in a proper state of cleanness and tillage, by hoing the narrow intervals of *corn* crops, the husbandmen of the Isle of Thanet might well be celebrated, as the first *arable* farmers in the kingdom.

THE

VALLEY

OF

FARNHAM.

Introductory Remarks.

ANY ONE, who had been long striving with a difficult work, that too a public work, and with the knowledge of numbers, who were capable of forwarding his design, yet without furnishing the least assistance, would naturally feel superior gratification, when at length he found a man, to whom no court had been offered, nor any interest made, and this man of the first rank, and highest character, coming forward and offering his assistance.

Such has been the liberal conduct of the EARL OF EGREMONT, towards the work I am executing.

In March, 1791, by an invitation as pleasing as it was unexpected, I had the honor of paying my first visit, at PETWORTH; where I spent the spring months, and part of the summer and autumn, of that year.

From this central situation, I made EXCURSIONS to the surrounding districts: to the SOUTH DOWNS and the SEA COAST OF SUSSEX; to the VALLEY OF FARNHAM, the HEATHS OF SURREY and HAMPSHIRE, and the WEALD OF SUSSEX.

Since that time, I have been repeatedly indulged with opportunities of renewing my observations, in that quarter of the Island. And if the facts, there collected, should prove in any way useful to the public, or interesting to the promoters of rural knowledge, to the PUBLIC SPIRIT of the EARL OF EGREMONT they will be indebted for them.

IN THE SPRING, and the early part of the summer, of 1791, I made repeated excursions, to this District; with a view to examine the culture of the HOPS, for which

it has been long celebrated. I was the more anxious to see the spring management, here, as it was the only part of the hop culture, that I had not made myself fully acquainted with, in the DISTRICT OF MAIDSTONE. I therefore took three distinct views of the Farnham culture: namely, in the early part of April, the early part of May, and the beginning of June. And, in September, I made this District in my way, from Devonshire to Sussex, to attend the picking.

The SITUATION of this Valley is on the northeastern margin of the Hampshire Downs; which, in this quarter, divide into points, or depressed ridges, that shoot into the low vale lands, by which they are bounded. Basingstoke is seated on one of these points; Odiam, at the foot of another; and a third forms the northwest side of the VALLEY OF FARNHAM.

The EXTENT is small. The hop grounds are confined, principally, to the parishes of FARNHAM, WRACKLESHAM, and BENTLEY; but spreads into those of Trayl, Holyburn, Alton, &c. &c. In descending the Valley of Tistead, from Petersfield to

Farnham, hop grounds are first seen, a few miles above ALTON. About that town, there are many plantations; also about Bentley; and there are likewise many plots, scattered, on both sides of the Valley, down to Farnham; which is situated at its lower extremity. But the Farnham plantations lie, more particularly, on the northwest side of the Valley; on the chalky lands: the gravelly soils of Holt Forest pressing down, on the opposite side, to near the base of the Valley.

The hop culture, therefore, extends, in length, from ten to twelve miles. But its width, even on the north side, of the Valley, at Farnham, is only a few hundred yards (a quarter of a mile at most); climbing up the side of the Valley, no farther, except in small plots, than where the chalk lies near enough the surface, to give the requisite absorbency and fertility to the soil; which, higher on the slope, becomes a cold retentive infertile clay; resembling, in appearance, and productions, the southeastern quarter of the DISTRICT OF MAIDSTONE. And, above this, on the top of the ridge, is a barren heath.

On the south side of the Valley, opposite to Farnham, in the parish of Wracklesham, the hop grounds are scattered, among arable and grass lands, the base of the soil being, on that side, a flinty gravel, on sand; while the chalky lands of Farnham, are wholly hop grounds, and some of them old, beyond memory.

SOIL. This is a further evidence, that hops are partial to a CALCAREOUS BASE.* For although they are grown, and on some particular spots endure, on the southern hang of the Valley, there is every reason to believe, that the lands they flourish on, are in some degree calcareous. The gravelly subsoil is flinty; and probably of calcareous origin; and what corroborates this idea, sainfoin flourishes on the same lands. We may therefore conclude, that it is either naturally calcareous, or has been chalked. On the north side, some of the soil is mixed with flinty gravel, similar to that of the south side; which, probably, has a like mixture of calcareous matter: the two sides being separated only by a narrow flat of meadows.

* See DISTRICTS of MAIDSTONE and CANTERBURY.

The prevailing TOPSOIL, on both sides of the Valley, is the same: a rich strong loam: resembling the coomb of West Kent. The UNDERSOIL, on one side, is chalk or chalky rubble, on the other, flinty gravel, in some places of great depth: the SUBSTRUCTURE, of the one, is calcareous strata, of varied composition; of the other, sand rock: a a substratum common to the sandy wastes of Hampshire and Sussex.

But hops, here, as in the neighbourhood of Maidstone, are grown on soils of different qualities: in the upper parts of the Valley, the ordinary top soil is a much lighter loam, than prevails about Farnham; and, at the lower extremity, they are extended over the margin of the sandy wastes; on lands not worth, for any purpose of husbandry, five shillings an acre. This, however, is merely in pursuance of an established practice,—is only falling in with the fashion of the place,—and probably does not repay the contingent expences.

In the neighbourhood of Odiam, I observed some flourishing plantations of hops; and wherever there is a rich deep loam, on a loose calcareous base—wherever sainfoin is observed to flourish and endure, there it is

more than probable, hops may be planted with safety and profit.

SPECIES. There is, I believe, only one variety in cultivation, here; which is known by the name of the FARNHAM HOP.

PLANTING. In 1791, the plantations of Farnham were increasing; the passion for hop grounds having, then, risen to a degree of rage.

The PREPARATION OF THE SOIL, until lately, I understand, has been that of "trenching," or *double digging*. Now, *pits* are growing into use! owing, I was informed, to a mere incident of practice, in which they happened to succeed; and, being less expensive than double digging the entire soil, this incident may possibly give a turn to the practice;—whether a good or a bad one, a few years experience will probably show.

In the DISPOSITION and DISTANCE of the hills, the practice appears to have varied, and to be still varying. In the very old grounds, in the immediate environs of Farnham, whose origin, I understood, is not now to be traced, the hills stand *irregularly;* not in straight lines! In grounds

of a middle age, they are *in rows*, with wide intervals, one way (as seven or eight feet) and with the hills, three and a half to four feet apart, in the rows. In one instance, I observed them, nine feet by three. At present, six feet, square, appears to be the prevailing distance.

The SKREENS of hop grounds, here, as in Kent, are trained thorn hedges; where the lands are INCLOSED. In a few instances, I observed lime trees planted, in close rows, and trained for this purpose.

But, the grounds of FARNHAM are in a state of OPEN "FIELD"—having doubtless been a common corn field; the pieces being distinguished by narrow lines of grass.

However, in 1791, several young hedges were training; for the intention of "breaking off the blights;" which are understood to come in the form of mist, or flying clouds, scudding over the surface of the ground; and, it is thought, that tall skreens assist in checking their career, or in breaking their force; so as to lessen, at least, their mischiefs, as far as the shelter of the skreen extends.

CULTURE OF GROWN HOPS. The outline, with respect to the SOIL, is this: manure, in autumn: dig the intervals, a full depth, in winter: open the hills, and hoe the intervals, early in the spring: break them up, a few inches deep (in the manner that will be described) about the beginning of June: round up the hills, at Midsummer: and give the whole a superficial hoing, before corn harvest sets in.

REMARK. It may here be observed, and is an interesting fact, in the history of the hop culture in this Island, that the practice of FARNHAM, and that of MAIDSTONE, are, in many respects, so very different, as to leave no doubt, on the mind, of their having had DIFFERENT ORIGINS; or of each having groped out its own way; the central parts of Sussex forming the division between the two practices. In West Sussex, about Petworth, where hops are in cultivation, the Farnham practice prevails: while, on the eastern side of the county, about Cranbrook, the practice of Maidstone is followed.

In the western practice, now under view, there are no IMPLEMENTS in use; no shims, subplows, or harrows, drawn by HORSES;

the whole being performed by MANUAL LABOUR;* and, in performing this, many of the tools, in use, are so perfectly different, in shape and operation, as to show them, demonstrably, to have been separate inventions. The soils,—if we take the coomb of Maidstone, and the strong loam of Farnham field,—on which, it is more than probable, the two practices were first introduced,—are very similar. Perhaps, that of Farnham is somewhat more stubborn; and the tools, there in use, are best calculated for such a soil. But they also are used, on the lighter lands. There is scarcely any trace of the two districts having copied from each other; except, in digging the intervals, with three pronged forks, instead of spades; a practice which is common to both.

* I was told, that team labor has been tried; but that "it would not do." It may therefore be admitted, that either the soils of this district, or their cultivators, are of too stubborn a nature to admit of the practice: perhaps, the former. If, however, the intervals, or "allies," were to be laid up, in dry beds, before winter, there can be little doubt of their being, thereby, rendered mellow enough, to be worked with team implements, the ensuing spring and summer.

The MANURE of this District is DUNG; which is purchased, at an extravagant price, —"a guinea a load"! fetching it out of the country, on every side, where it is to be procured: thus impoverishing the whole neighbourhood. *Woolen rags* are not much in use, here, as in Kent; but *wool* (the dirty locks, or trimming, &c. of sheep) is used. These differences of practice arise out of situation: woolen rags are conveyed to Maidstone, by water, at an easy expence; and wool locks are the produce of the Downs, in the immediate neighbourhood of Farnham.

In DRESSING, (namely, opening the hills and cutting off the old vines), the only variation, which appeared, was that of the crowns of the roots being more generally left bare, in the Farnham, than in the Kentish practice; under the idea—as I was told by an intelligent hop-ground man —that "the sun draws them out the better," when they are exposed, than when they are covered with mold. This, however, may be a mere popular idea. The fact is probably of more importance, than the reason given for the practice.

POLES, here, are chiefly of ash; (but some of alder, sallow, and fir!) culled from the neighbouring woods, and plantations. The price, in 1791, was about a guinea and a half, a hundred, in the wood.

A method of PILING the poles, in winter, differs from that of Kent; though part of them are set up, in the Kentish manner. In the Farnham practice, they are laid along the ground, horizontally, and formed into triangular piles. To preserve the form of the pile, and prevent them from rolling down, four poles are entered into the ground; namely, two near each end of the pile. These cross each other, at the upper angle of the pile; and are kept in their places, firmly against the sides of the piles, by a fifth pole, thrown in between them. They are less trouble, and less dangerous, than the conical piles of Kent; but seem to be much less calculated to preserve the poles.

In POLING, there is a notable variation from the practice of Kent. The NUMBER in ordinary cases, is *two* poles to a hill:* and these are DISPOSED, in a peculiar

* But see the operations of tying, and shifting poles.

manner; especially where the hills are in thickset rows, with wide intervals. In this case, the disposition is changed, alternately, in the rows. The poles of one hill is set *in* the line of the row, and of the next *across* it; the poles, in the latter case, standing about eight inches from the line, and one on either side of it: the ordinary DISTANCE between the poles being fifteen to eighteen inches, at the bottom: spreading to three or four feet, at the top; the back of the pole being usually placed inward, as in Kent.

The TIME of poling depends on the emersion or shooting of the vines. In 1791, the *pointing*, and *distributing* of the poles in the intervals, the first by men, the latter by women and boys, were going on, in the first week of April; the young shoots, at that time, just beginning to make their appearance. On the 8th of April, some few poles were setting up, on the south side of the Valley, which is somewhat forwarder than the north side; notwithstanding the aspect; gravel, perhaps, being a more absorbent, *warmer* subsoil, than chalk. On the tenth of May the poles were mostly

up; but not wholly: the majority of the plants, then being two or three feet high; some much higher.

The METHOD OF POLING is this: a hole being sunk, of a size, and in a direction suitable to the foot of the given pole, and about twelve inches below the crown of the root (or fifteen below the level of the intervals) with an iron crow, or bar, and the workman having adjusted the pole, in his hands, so as to make the top spread properly outward, it is punched down, with a single effort. If it do not stand in the true position (a circumstance which seldom happens to an expert workman) it is forced, by hand, until its top be brought into its proper situation; when the ground is trodden hard to its root, with the heel. But altering the first position deprives a pole of much of its firmness, and ought to be avoided, as much as possible.

TYING. In 1791, this work commenced, about the beginning of May.

The ninth of May, the grounds might be said to swarm with women and girls, at this work: who, with the men employed in sharpening poles, poling, and hoing or

"becking" the intervals, formed a busy interesting scene. While the country, viewed from a distance, had a striking appearance: the whole Valley wearing, at that season, the winterly garb of naked leafless coppice grounds.

The NUMBER OF VINES, that are usually trained to a pole, in the Farnham practice, are three. Hence, at six feet square, or twelve hundred hills to the acre, and two poles to each hill, the usual number of vines, to an acre, are seven thousand two hundred: so that, notwithstanding the hills are placed at shorter distances, here, than in the DISTRICT OF MAIDSTONE, the number of vines, trained, are much fewer. In the plantations of a middle age, in which eight feet, by three feet and a half, are the common distances, or about fifteen hundred and fifty, to the acre, the numbers are nearly the same, as in WEST KENT; namely, nine to ten thousand vines, to the acre.

In the CHOICE OF VINES, to be trained, much may depend. In the early part of the season, the strongest and *cleanest* vines are made choice of. But later, when the

vines have run away from the tyers, the forward "branchy" vines, as well as those that are slender and weak, are rejected, for those which are clean and of a middle growth; namely, about two feet long.

REMARK. The reason seems obvious: the strong branchy vines are difficult to train; and, have probably acquired a procumbent habit; their natural tendency to climbing being checked, by not having it exercised in the first instance: and the lateral branches weaken, of course, the strength of the leader. Had these forward vines been trained to the poles, at a proper age, the branches, if sent out at all, would doubtless have been, in respect to the leader, comparatively weak.

In a case, in which there are two vines, of equal growth and strength, and of a proper age for training, it may be a moot point, which to choose. If *strong*, rather than *tall* vines, are the best able to withstand the attacks of enemies, and bear a crop with the most certainty, that which is inclined to throw out side shoots, and thereby strengthen the lower part of the stem, becomes the

proper object of choice. A medium, in this, as in most other disputable matters, is probably the best.

The BANDS or TIES made use of, here, are rushes (of the species *juncus effusus*). They are cut about Midsummer; made, or dried, as hay; and put up, in a sort of mow, under cover, until the tying season, the ensuing spring; when they are tough, and well adapted to the purpose.

In TYING, the workwoman kneels, on one or both knees, upon the side of the hill; having a bundle of rushes hanging before her, in a sort of bag apron; which, as she kneels, nearly touches, or rests upon the ground. Three bines being selected, and brought to the pole, a rush is put round them, a foot or more from the ground; and, their upper parts being wound, somewhat spirally, but with an easy curvature, upon the pole, *and with the sun*, another rush band is tied, about a foot above the first; more or less, according to the length of the vine in training, and the distance it rises from the pole.

If, at the time of tying, the root be found very strong, and has thrown out a super-

abundance of vines, eligible to be trained, a *third pole* is set up; and, in this case, nine bines are trained.

On the 31st May, the tying was nearly over; the workwomen being then chiefly employed, in adjusting, and *retying the loose bines*, that had been torn from the poles by the wind; the vines being, then, about six feet high.

SHIFTING POLES. This is a tedious and disagreeable part of the hop culture; and requires great judgment and experience, to do it with good effect. The operation is that of removing a weak undersized pole, overloaded, or likely, from the strength of the hill on which it stands, to be overloaded, with bine, to a weaker hill, which has a strong pole; thus reversing the situations, and offices, of the two poles. In performing this operation, the ties are broken, and the bines laid down, until the poles are changed; when the vines are wound upon the fresh poles (not very dexterously perhaps) and tied again, with fresh rushes.

If, at this season of the year, and during the adjustment of the poles, a hill is perceived to be so strong, as to be in danger

of overloading two well sized poles, a *third pole* is set up, and one vine taken from each of the other poles, and transferred to this. In a year of heavy bine, this appears to be a necessary work. Overloaded poles, broken off by the wind, are not only a loss in themselves, but are liable to injure others in their fall.

SPARE VINES. These are left, at the time of tying, to run wild over the intervals; and remain at the roots, until about Midsummer; when they are taken off, and the hills rounded up.

REMARKS. The reasons assigned, for this practice, are, that if they were taken off earlier, they would shoot again; whereas, by letting them spend their strength, and then taking them off and burying the roots deeply with soil, they are subdued: and another, that they help to shade the intervals, before the trained vines are able to do it; and thus tend to keep the ground moist. *Suckers*, too, are sometimes seen rising, *in the intervals;* and are considered as assisting in the same intention.

Whether the above reasons have any weight, or whether they are the true ones for the

practice of this District, I will not attempt to say. But it appears to me, as being much more reasonable, that *no stated time* should be observed, with respect to the cutting off these spare vines; but that the period of their growth ought to be regulated, by the season, and by the strength and luxuriance; not of the crop in general, but of individual hills; retaining them as regulators to the growth of the trained vines. In a forcing season, let them grow at will, to check, as much as in the nature of their growth they are able to check, the too great luxuriance of the crop. On the contrary, in a backward season, check or remove them; in order to throw up additional vigor, into the rising vines.*

"BECKING." This operation is peculiar to the department of hop grounds, now under notice. The tool, with which it is performed, is of a singular construction. It resembles, in its general form, the mattock: one end of the head, or iron work, being an adze, or small strong hoe; the other, a fork, or dung-drag; differing, in

* For fuller remarks, on this head, see the DISTRICT OF MAIDSTONE.

nothing, from the ordinary tool with which dung is usually drawn out of the tail of the cart; except that the tines are somewhat flat, or broad; as those of the dung drag sometimes are, and ever should be.

The intention and use of the BECK is that of breaking the surface of stubborn ground, or that which has been run together, with rain, and baked by the sun, as well as of cutting, or tearing up, the weeds of the intervals. If the tines, or fork end, do not tear up a clod or a weed, the hack is applied. In using it, the workman appears to strike, nearly horizontally; but, in reality, somewhat dipping; loosening the soil, three or four inches deep.

The grounds of this department seldom having the summer digging, which is usually given in Kent, (though I observed it in one instance) a more effective instrument, than the hoe, is requisite, to break, sufficiently, the surface of strong land.

The usual time of performing this operation is the beginning of June.

The beck is useful, not only in chopping over and loosening the surface of the intervals, in summer; but in opening the hills,

in the spring; being a powerful and effective tool, for this purpose. I have also seen it used, in hacking over the intervals of beans; and, in a dry season, it is valuable, in this intention.

HOING. This operation is usually applied, to cut off the early spring weeds. In an instance, in which it had been omitted, the winter weed, chickweed, groundsel, &c. &c. had evidently seeded, before the time of becking; and the seeds were, of course, let into the soil, by the latter operation. It is usual to apply the hoe, again, between the becking and the harvesting, to prevent the second crop of weeds from seeding.

The WEEDS of the hop grounds of Farnham, the 9th May, 1791, were

Winterweed—*veronica hederifolia.*
Groundsel—*senecio vulgaris.*
Chickweed—*alsine media.*
Shepherd's purse—*thlaspi bursa-pastoris.*
Fumitory—*fumaria officinalis.*
Dwarf poe—*poa annua.*
Charlock—*sinapis arvensis.*
Cudweed—*gnaphalium luteo-album.*
Dwarf nettle—*lamium purpureum.*
Cleavers—*galium aparine.*

Goose foot—*chenopodium.*

Convolvulus—*convolvulus arvensis.*

The HOES in use, here, vary with the intention, and the state of the soil. For merely cutting over the intervals, of loose free soil, a common plain hoe is used; but, where the ground is stubborn, or baked with drought, *a three-tined hoe* is made use of! The tines flat, as those of the beck: a tool that might frequently be used, with good effect, in the intervals of beans, in a dry season. But, for scraping the surface of the intervals, and rounding up the hills, *a very large plain hoe*—a sharp mud-scraper—is in use; answering the same purpose as the shovel, in the Kentish practice. I have likewise seen this uncouth, but efficient tool used, in cutting over the surface, in the spring, and early summer months.

PICKING. The SEASON OF PICKING, here, is earlier, even than in the Maidstone District: not, however, from this District being the forwardest, in regard to climature; but because hops are here gathered, in an earlier state of ripeness, than they are in Kent. At the close of the picking, in 1791, on the 18th September, the hops were

barely in full condition; had but just acquired those CRITERIA OF RIPENESS, which, at Maidstone, are the signal for beginning. What are here termed "fine hops," would in Kent be called "green hops;" and, if bitterness be the most desireable quality, the "fine samples" of Farnham are, in reality, no other than hops, gathered, *under ripe*.

The APPARATUS of picking is the *bin;* but different, in construction, from that of West Kent; and smaller: the modern bin being of a specific size, like the basket of Canterbury; each bag, or bin cloth holding seven bushels. The bag is hung, on studs, set on the inside of a square frame of wood; the two ends of the frame rising somewhat above the bag, to receive the poles; which are here laid, horizontally, upon the ends of the bin; not made to lean against a ridge pole, or horse, as in the Kentish practice.

The WORKPEOPLE are, here, much more numerous, in proportion to the quantity of work to be done, than in the Maidstone quarter. The picking is more tedious; and the season of picking is shorter. "Fine hops" bear the best price; and every pru-

dent manager is anxious to make the most of his crop; and, of course, *to reap it, while it is ripening*. Hence, in a favorable season, the principal part of the picking is done, in ten days, or a fortnight. In 1791, the picking commenced on Saturday, the third of September, and the "sorting" closed on Wednesday the fourteenth; the hops then becoming too high colored, for the purchasers of fine hops.

The workpeople are chiefly collected, from the towns of Surrey and Hampshire; the town of Portsmouth inclusive.

They are divided into *pickers* and "*pole pullers*," and formed into sets, as in Kent; and as the nature of the business indispensably requires.

In CUTTING THE VINES, and DRAWING THE POLES, the practices of the two districts are similar; except that the vines are here cut higher than in Kent; owing, doubtless, to their being cut, in an earlier state of ripeness, and are therefore more liable to bleed, than the vines of riper hops. See Vol. I. p. 238, on this subject.

PICKING. The pullers having laid the loaded poles, along the ground, in heaps,

by the sides of the bins, the pickers lift them, one by one, to the frames, each of which has two pickers; one standing on either side. They begin to pick at the *bottom* of the pole,* moving it endway as it is picked; and, having finished it, throw it on a pile; in which the unstript poles remain, until the picking is over.†

Another part of this operation, that marks the practice of this District, still more strongly, is that of *sorting* the hops, as they are picked; particularly in the early part of a favorable season; and, always, when picking "fine hops." The bin cloth receives the first, or best sort; a basket, which stands by the side of the frame, the "seconds;" and frequently a third receptacle is provided, for the "brown hops:" and sometimes a fourth, for the "fliers."

Beside, the picking is done more accurately, here, than in Kent. The practice of "sorting" leads to the habit of pick-

* Whereas, in Kent, it is the invariable practice, to begin at the *top*.

† When, I understand, they are universally burnt; and their ashes wasted! Even where dung is "a guinea a load"!!

ing the hops, *singly*. Even, at the close of the season, when they are picked "all together," they are mostly picked, singly; and not stript off the stalks, as in the Kentish practice. Hence, the Farnham hops have fewer leaves in them, than the Kentish hops; even the few that are accidentally torn off, are picked out of the bins.

Yet the PRICES given for PICKING, are not much higher, here, than in Kent. The ordinary price is three halfpence, a bushel; or eight for a shilling. In 1791, the crop being under par, two pence a bushel was given, towards the close of the season, with beer: namely, a quart of small beer to each of the pickers; with ale to the pole pullers.

The MEASURING, or rather estimation, is done, in a summary way. Nothing is measured, unless the picker remonstrate against the estimation; which is made by the eye and experience of the steward. Where the ordinary bins, of seven bushels, are in use, the estimate is the less vague, than where bins, of irregular form, and indeterminate size are the receptacles. In proof, however, of the *expeditiousness*, at least, of this

mode of ascertaining the value of the workmanship, I attended a hop planter (who acted as his own steward,) through one of his "measurings," where upwards of fifty pickers were employed; and there was only one exception to his estimate.

This mode of valuing the labor saves much time; and is perhaps, on the whole, sufficiently accurate; the parties giving and taking, as differences of opinion arise; and by measuring, occasionally, the judgments of both of them are regulated.

The PICKERS' ACCOUNTS are kept, at present, is a somewhat complex manner. *Tokens* of copper, numbered from one to ten, are given; the number or numbers (if more than one piece is given) corresponding with the number of bushels. At stated times, as every two or three days, these tokens are called in; and, for every *twenty bushels*, they amount to, a notch is cut on a *tally*, similar to that of Kent.

It is probable that keeping the accounts, by means of tokens, was the original method of Farnham; giving money for the tokens, whenever they are called in; and

that the tallies have been copied from Kent, in order to throw the whole season into one account, or general payment.

This being as it may, scoring, for every twenty bushels picked, is far less eligible, than for every shilling earned; as being less obvious, and intelligible, to illiterate work-people; requiring a sort of calculation, at the end of the season, to which many of them are not competent.

The FINISHING FROLICKS, here, exceed even those of Kent. The pole puller has not a handkerchief, only, but also a shirt (that is, a piece of linen cloth to make him one) given him by the pickers. This is worn, sash-wise, and is ornamented with ribbons. The women, likewise, decorate themselves, with such handkerchiefs, ribbons, and finery, as they purchase at the shops, to carry home with them. Some of the companies parading the streets of Farnham;—perhaps with a fiddler at their head,—singing and shouting, in tones of true licentiousness; the evening being usually closed, by a dance; and always with copious libations,—doubtless, to the goddess of hops.

The itinerants, who live at a distance, are (by agreement) sent home in waggons; forty or fifty, perhaps, in each; with a fiddler in the midst of them; and with their various colors flying. Altogether, a sort of glee and merriment, which, in these decorous times, is rarely met with; and whether it be right or wrong, let moralists determine.

DRYING. The ordinary KILN, of this District, resembles the stove kiln of Kent:* —namely, a hollow cube, with one, two, or three "holes," mouths, or fire-places, in one side of it; the only FUEL, here, being charcoal. No sea coals nor even coke; and little, if any, sulphur is used: *green*, rather than *yellow*, being, here, the desired color: a "*primrose color*," however, is spoken of with some degree of respect.

In the neighbourhood of Farnham, there is an extraordinary pile of building, erected for the purpose of manufacturing hops. It is planned and executed with great judgment; and is worthy of the attention of those, who are about to erect buildings, of this intention.

* See Vol. I. p. 261.

The part that struck me, as being the most estimable, in the CONSTRUCTION of the KILNS (though differing in other respects from the ordinary form) is that of their being furnished with TWO FLOORS, one above the other; with a space of five or six feet between them; so as to give room, for the effluvia of the lower floors, to escape; and for men to work upon them.

In DRYING, the fresh-picked hops are spread upon the upper floor; and, by receiving the heat which escapes through the drier hops, on the lower one, there lose a part of their moisture; and, when those below are removed, these, on the chamber floor, are let down, through a trap door, upon the immediate floor of the kiln.

This, for hops that are gathered under ripe, as those of Farnham mostly are, is an admirable expedient; and is not, I understand, peculiar to the suite of hop kilns, above noticed. In any place, such a plan would be found most eligible, and pay amply, during the early part of the picking season; as well as during moist weather, in any part of the season. See Vol. I. p. 264.

PACKING. The whole of the produce, of Farnham, is put into POCKETS; which are

marked, or rather decorated, with stamped devices, that are altered every year; in order to distinguish the produce of Farnham, from the vulgar growths of the rest of the kingdom; the Farnham planters entering into a bond, not to send any other hops, than those of Farnham, in packages bearing these devices.

The MARKET, for Farnham hops, is chiefly the fair of WEYHILL; to which they are carried, by land, between thirty and forty miles! And those which are bought, there, by the London dealers, are carried from thence, *back* to London, near seventy miles!

This practice, however, is the more reconcileable to common sense, when it is known, that the Farnham waggons load back, with cheeses; and that a considerable part of the hops, of this growth, go forward, into the West of England, by the waggons, which brought the cheeses to Weyhill.

Another condition of the bond, entered into by the Farnham planters, is not to carry any hops, into WEYHILL FAIR (accidents excepted) after twelve o'clock, on old Michaelmas day. Formerly, the hop fair

lasted a week, or more: now, under this regulation, only a few days.

GENERAL REMARKS on the FARNHAM PRACTICE.

The first and greatest evil, that reflection aptly suggests, is the waste of land, labor, and manure, that is incurred, by this mode of practice. The crop is not only small, but the quality is weak. Half a ton, an acre, is esteemed as full a crop of "fine hops," as five or six bags are, in the Kentish practice. In 1791, the crop somewhat below par, six hundredweights were considered as about the medium produce of Farnham: and judging from the "fine samples," that were shown me, the quantity of bitter and aroma, contained in these, could not be estimated at more than one half of what is contained, in a well matured, full-ripe sample, of Kentish hops, or of such fully matured hops, as I saw picking, at Farnham, in the wane of the season; after the sorting, for fine hops, had closed. Estimating the quantities of bitter and flavor by the ordinary tests of the handle and the

smell, many of the finer *leaves* of the Maidstone plantations appear to contain, as much "condition," as the fine *hops* of Farnham. And we may safely say, that, in a NATIONAL LIGHT, the practice of Farnham is wrong; as incurring a great waste of the three most valuable things, any country possesses: namely, LAND, MANURE, and LABOR.

Nevertheless, it appears to be the interest, and of course the best policy, of the PROPRIETORS of these lands, as well as of the PLANTERS, to pursue the practice; no matter how absurd it may be, in itself, or mischievous to the interest of the country. The RENTS of the Farnham HOP GROUNDS, and the PRICES of Farnham HOPS, are excessive; —much higher, than they are in Kent.

In 1791, ten pounds, an acre, was not considered as an extravagant price, for grounds of a good growth; twelve or thirteen pounds were said to be given, by men who make a distinct business of the hop culture; who hire grounds, and work them themselves, or with assistance. A gentleman, near Farnham (who erected the excellent drying house aforementioned) is said to have advanced his estate, manifold, by

planting hops; keeping them in hand, until they have reached their full growth; and then letting them out, in small lots, at the extravagant prices mentioned above. And, with respect to the prices of the hops,—the fine samples of Farnham, frequently, fetch twice the price of Kentish hops, that contain twice the quantity of bitter and aroma.

It will doubtless be said, by the Farnham planters, and the advocates for Farnham hops, that their flavor and color are *finer*, than those of any other growth. That they are *weaker* will readily be admitted; and may not their weakness be mistaken for delicacy? I am not, however, sufficiently versed in the art of brewing, to say, that one fourth of the quantity of full ripe, high conditioned, well harvested hops, are equal to four times the quantity of the fine hops of Farnham.

They have, certainly, one very powerful recommendation. They are dear; bear the best price; are ever at the top of the market. And although this may not always be a sufficient recommendation to gentlemen (by whom, I understand the Farnham

hops are chiefly consumed) it doubtless has its weight with their butlers.

Upon the whole, however, if through the name of Farnham hops, such a liquor can be produced, as will render malt liquor fashionable, and thereby lessen the present inordinate import of foreign fruit liquors, it will be of less concern to the public, whether their estimated merits, in producing it, be real or imaginary.

THE HEATHS

OF

SURREY, &c.

THE KNOWLEDGE, which I have of these barren lands, has arisen in crossing them, in various directions; as, by the great western road, between Staines and Bassingstoke; by the road, between Bagshot and Farnham; by passing, between Farnham and Petworth, by three different routes; and in going from Petworth to Petersfield. The northern extremity, and the part about Woking, towards Weybridge, I am the least acquainted with.

The SITUATION of this wide spread waste is in the four counties of Berks, Hants, Surrey, and Sussex; but chiefly in the two

latter; and the major part of it in Surrey; forming a broad *blank* margin, on the western side of the county.

The EXTENT would be difficult to ascertain, without actual measurement; the outline being extremely irregular. It reaches from Ascot Heath, in Berkshire, to Bexley Heath in Sussex, a distance of about thirty miles; without any interruption; except a few inconsiderable slips of cultivated lands, that run up into its area; accompanying the brooks and rivulets, that have their rise within it. These, and other plots of inclosed lands, that indent it, on every side, render the width altogether uncertain. If we call the medial width five or six miles, we shall, I believe, come near enough the truth, to give a general idea of the extent; so as to answer the present purpose. Six miles, I apprehend, is too much for the medial width of *heath;* as it would probably include some of those shreds of cultivation, above spoken of. I will, therefore, set down the width of heath, at five miles, and thus estimate the whole, at one hundred and fifty square miles; or a hundred thousand acres.

The ELEVATION of this tract is remarkably small, for lands of this description. The principal part of the Heaths of Surrey lie on almost a dead flat; and this barely high enough above the Thames, to shoot the waters, which escape from them, into that river. The southern extremity, however, rises to a considerable height. Hind Head, in Surrey, Black Down and Bexley Hill, in Sussex, are high lands; though they have no claim, as mountains.

The SURFACE is of various casts: the central parts, as has been said, are mostly flat: the northern and western quarters rise with more billowy surfaces; while, in the southern, the surface is broken, in a singular and striking manner. East Devonshire scarcely exceeds it, in the variety and irregularity of its surface: smooth-toped, steep-sided hills, of every shape; divided by winding irregular vallies; some of them of a strong improveable soil, if there were roads to carry away the produce. At present, the Heathy Heights of Sussex are as difficult of access, as the mountains of Merionethshire, or Perthshire.

The SOIL, of the whole of these heathy wastes, that I have particularly attended to, is a barren sand, or gravel; encrusted with the black earth of heaths, of a dry crumbly quality; and, in general, very thin; the soil, altogether, being of the very worst quality; especially, on the low flat-lying lands; where it is inferior, even to that of the Yorkshire Moreland; and much inferior to the heaths of the Highlands of Scotland.

The present PRODUCE, if it deserves the name, is a sort of dwarfish, stunted heath; in many places unable to hide the sand, on which it may be said to starve. The flat, between Farnham and Godalmin, is, almost literally, a barren waste, a sandy desert.—Some of the hills, however, have a stronger heath; and, upon Hind Head, a singular sort of brushwood issues from one of the vallies, or dingles, on its side, and spreads over part of the hill. It is mostly composed of shrubby wide-spreading oaks; though not more, perhaps, than four or five feet high; being cut off with the winds, as with an edge tool. I have, since going

over these wastes, seen similar appearances, on the skirts of Dartmore, in Devonshire.

The other shrubs, in this instance, are birch, white leaf *(aria theophrasti)* hawthorn, furze, &c. The "running furze" (a variety of *ulex europæus*,—or a distinct species of *ulex*; see WEST OF ENGLAND) here mixes freely with the heath: also the bleaberry, or whortleberry *(vaccinium myrtillus)* —and the needle furze *(genista anglica)*.

The LIVESTOCK, which this wide tract of country maintains, at present, are inconsiderable.

Those which are most conspicuous, on the barren flat Heaths of Surrey, are small mean-looking CATTLE. Yet they must be of a quality, intrinsically good, or they could not exist, on so base a pasture. Their bone is, in general, remarkably fine. In horn, color, and thinness of carcass, many of them resemble, so much, the ordinary longhorned breed, that there can be little doubt of their being of one and the same race.* And, what is observable, here the longhorned

* The history of this remarkable variety of cattle requires to be traced.

breed terminate, to the south. In the neighbourhood of Farnham, they are the established breed: while round Midhurst, the Sussex cattle are in full possession; Hind Head forming the boundary between them.

The number of SHEEP, seen on these barren lands, are inconsiderable; especially, on the more central and southern parts. In the Bagshot quarter, they are more numerous.

The BREED resembles that of the wild lands of the West of England; and they are probably a branch of the same ancient stock. See WEST OF ENGLAND. They are, in general, small, mean, ill formed animals. Their mutton, however, is in high repute. And they are probably well fleshed; having been *starved* into their present state.

Of RABBITS, I observed no one instance; on any part of these weak, infertile lands!

But of FISH, I saw several instances; these being a *species of livestock in husbandry*, which is common to this and the two following districts; as well as to the more cultivated parts of Surrey.

The FISH PONDS, that are seen, in the dips and hollows, of the flatter parts of this

barren tract, appear to be of long standing. The heads or dams, by which they have been formed, bear the marks of age. Some of them are of stones and earth; one I observed of chalk.

The only particular that struck me, in the economy of these ponds, is the forming of dams, one below another, across the waste water channel; doubtless, as means to prevent the small fish from escaping.

REMARKS. Where the soil is worthless, how eligible to cover it with water; and, by this means, to increase the value of the produce, of a given space, perhaps, an hundred fold. How many opportunities of this kind are neglected; while rich meadow lands are buried under fish ponds; and frequently to the great injury of other valuable lands, that lie below them.

Might not large tracts of this worthless land be profitably covered with deep water: not merely as a source of fish; but to water the dry lands that lie lower?

On a general view of this extensive tract of country, there will be little risque in saying, that, notwithstanding its advantages of situation, with respect to the metropolis,

it is, in its PRESENT STATE, the most unprofitable, to the community, of any district of equal extent, in the Island; the mountains on the north-west coast of Scotland, perhaps, excepted.

MEANS OF IMPROVEMENT SUGGESTED.

My only motive for bringing these unprofitable lands before the public, and giving the foregoing sketch of their natural state, and present productions, was to prepare the way for the following suggestions, relating to their improvement.

Having long been aware of the value of the LARCH, as a timber tree; and, seeing it thrive, with sufficient luxuriance, as such, on lands similar to the tract I was then (1791) repeatedly crossing:* observing the following year (1792) the progress made,

* The instance, which first caught my notice, and led me to the idea of raising larch timber on the waste lands under notice, occurred on a flat barren heathlet, in the interior of Sussex; on which the larch throve with luxuriance; outstriping any other plant. Since that time, I have seen other instances of a similar kind.

by this extraordinary tree, in the bleakest situations, and on the inferior soils of the Highlands of Scotland; also learning, there, the extreme durability of its wood; and conceiving the possibility of training the trees for SHIP BUILDING;* my reflections reverted, with double strength, to the barren tract, now under view; whose situation is most eligible, as a SOURCE OF SHIP TIMBER; being equally within the reach of Portsmouth, and the several yards on the Thames; as well as the private yards of the port of London; from which water carriage might be extended, into every part of the forest; so as to render land carriage, in a manner, unnecessary.

Should it even be found, that ENGLISH LARCH is not quite so eligible, as ENGLISH OAK, for ship building; yet it might, nevertheless, be sound policy to use it, in that intention. The OAK, to bring it to the size of ship timber, requires a good soil,

* See PLANTING and RUR: ORN: Vol. I. page 143. See also a REPORT to the BOARD OF AGRICULTURE, respecting the CENTRAL HIGHLANDS of Scotland.

and a sheltered situation; must be raised on CORN LAND; it might well be called the RIVAL of the WHEAT CROP:—and there is not a sounder position, in rural, or in political economy, than that *wood* should be confined, as much as possible, to *unculturable lands*; either as being too steep, too rocky, too bleak, or too barren, to bear profitable crops of corn, or herbage.

The LARCH, I believe, if planted with judgment, might be planted with certainty, on the major part of the lands under view. And it is highly probable, that, when once a shelter shall have been formed, on the better stapled soils, the weakest might be planted, with success; and, it is possible, might produce wood of still greater durability, than that grown on the less barren lands.

The profits arising, from this proposed improvement, to the PLANTER, would be progressive; and, in the end, immense. In the first thinning, (if planted sufficiently close) stakes and fagot wood, of the best quality, would be had. In the second, hop poles, superior perhaps even to those

of the chesnut, would be obtained. Afterwards, larger poles, balks, or ufers, for scaffolding, and a variety of other purposes. Next building timber, and boards. And, ultimately, planks, and ship timber.

THE

VALE LANDS

OF THE

WEALD OF SUSSEX, &c.

TO REPEATED excursions, from PETWORTH, I owe the information I have collected, respecting these Vale Lands: my observations being more particularly made, in the WESTERN PARTS of them. I nevertheless gained a more GENERAL VIEW, of the District; in a route, taken for that purpose, by *Pulborough*, *Billingshurst*, and *Horsham*, to *Betsworth*, in Surrey; from whence, I have had frequent opportunities of observing the NORTHEASTERN QUARTER.

The SITUATION of this well defined NATURAL DISTRICT, is between the Hills

of Surrey, and those of Sussex; which bound it, on the north, and the south; with the Forest of St. Leonard (one of the heathy swells that fill up the northeastern quarter of Sussex*) on the east; and, on the west, Black Down, and the other barren hills, which form the southern parts of the District, last described; lying, chiefly, within the county of Sussex; but, in part, in that of Surrey.

The EXTENT, from the foot of Black Down, in Sussex, to the outskirts of the commons, below Betsworth, in Surrey, and winding, as the Vale Lands bend, round the Surrey Hills, is near thirty miles; and the medial width may be estimated at ten miles: thus giving an area of near three hun-

* The HEATHS of EAST SUSSEX and KENT. This barren tract reaches from Horsham to the Weald of Kent. The Forest of Ash Down (next in succession to St. Leonard's) as well as the Heaths about Tunbridge Wells, are as bleak and barren as the Moreland of Yorkshire or Westmoreland. Hence this forms ANOTHER HEATHY DISTRICT OF THE SOUTHERN COUNTIES; in extent equal to that above described; but it is not so entire, nor, altogether so barren and unprofitable, as the Heath Lands of Surrey, &c.

dred square miles; or two hundred thousand acres.*

The ELEVATION is inconsiderable; being less, I believe, than that of any vale district, of equal extent, in the Island. Nevertheless, it has ever lain sufficiently above the floods, to keep it free from surface water. I have observed no *extent* of water-formed land, in any part of it; though there is, here and there, a slip of what is called "brook land," and though on some of the flatter, commonable lands, the waters which fall on them, may hang occasionally, for want of proper shores to conduct them off.

The SURFACE is singularly uniform. Excepting the gentle rise of Billingshurst, and the rising grounds about Green, there are few prominent features,—scarcely a billow or a break,—to be seen, in any part of

* In looking from the loftier chalk hills of Surrey, a much wider extent is taken into the view. The Forest of St. Leonard, with other lands of a similar nature, and with a tract of broken country to the eastward,—lying comparatively low, with the Downs on either side of them,—appear as a continuation of the Vale; and is all comprehended under the vague name of the "*Wild*." See the WEALD OF KENT, in Vol. I. p. 336.

the area of this extensive tract of ground: which, however, is, in general, sufficiently diversified, especially near the brooks and rivulets, with which it abounds, to shoot off surface water. The margins are more broken; mixing, particularly on the west, with the heathy hills which bound them.

WATERS. In this respect, the extensive flat, under view, is remarkably circumstanced. Lands of a similar description, lying between lofty ranges of high grounds, are generally accompanied by a river; bearing some proportionate size, to the extent of the vale, and the height of the hills, that define it. Whereas the vale lands under view, instead of giving passage to waters, collected on higher grounds, may be said to give rise, themselves, low lying as they are, to three rivers; whose branches, at least, have their origin within its area: namely, the MOLE (and perhaps some slender branches, of the Wey), which falls northward, to the Thames; and the ARUN and ADUR, which direct their courses southward, to the English Channel: the former collecting its waters, chiefly, within the limits of Surrey, the latter within those of Sussex;

the division of the counties being near the turn of the water; which, however, is given by so gentle a rising, as to be imperceptible to the eye.

The SOIL is, almost uniformly, of a clayey retentive nature; except near the extremities; where the sand hills mix, more or less, with the clayey soils. The low-lying lands are mostly pale, and unproductive; while the rising grounds are generally of a higher color, and a more fertile quality.

REMARK. This difference of quality, between the soils of high and low grounds, is observable in other vale districts, and may be owing, not so much to any original difference in their natures; as to their respective situations: the one having lain, from the time of their formation, in a drier, the other, in a moister state. And whether dryness, or what is usually, and not improperly, called *warmth*, be produced, by elevation, or by an absorbency of subsoil, the effect on the productiveness, or fertility of the land, is perhaps similar.

In a state of nature, trees would grow more luxuriantly, and afford a greater quantity of vegetable produce, as leaves, branches,

decayed stems, and roots, in dry and warm, than in cold ungenial situations: and this, alone, would be sufficient to alter the color, texture, and fertility of the rising grounds.

It is very probable, that the topsoils, of the present day, are, more or less, the accumulations of their own produce; according to the original covering; and the circumstances of situation, substructure, turn of surface, and elevation.

The SUBSOILS of this District I had few opportunities of examining. But the complexion of the soils, every where, shows them to be RETENTIVE.

In examining a STONE QUARRY, towards the west end of the District, I found the substrata of varying qualities; covering a seam of light blue limestone; chiefly composed of marine shells, and in blocks, about eighteen inches thick; lying in a watery bed, and a shelving posture; dipping from seven to fourteen feet beneath the surface.

FOSSIL PRODUCTION. This LIMESTONE is sometimes called SUSSEX MARBLE, or PETWORTH STONE; and is cut into chimney pieces, hearths, and is used otherwise as a material of building, and furniture.

ROADS. Excepting the more public ones; as between Godalmin and Petworth; Petworth and Horsham (by Pulborough); and Horsham and Dorking; and except a less public one, from the Godalmin road, towards the center of the Weald; this extensive and valuable District may be said to be at present (was in 1791) *without roads*. In every part, I have been in, *lanes* are sufficiently numerous, and generally of ample width; frequently wider than is necessary: but, unless towards the outskirts, and in some particular parts, the lanes through the inclosed lands, as well as the glades across the commons, lie in their *natural* state; worn into gullies, and trodden into sloughs. Even in the spring, and early summer months, they appear intolerable, to a stranger; and, in winter, are barely passable to the natives of the country.

From Petworth towards the center of the Weald, attempts have been made, to form roads of hard materials. And, it is probable, a sufficient quantity have been buried, in the clay and mud, to have formed, under proper management, roads that might have been travelled, with conveniency, the year round.

This subject will be resumed under the head of PROPOSED IMROVEMENTS.

I have to mention, here, an instance of practice, which I observed in the neighbourhood of Billingshurst, and which may well be adopted, as a general practice; especially where hard materials are scarce.

That the road may dry quickly, and, of course, to prevent unnecessary wear, the mud (which has a similar tendency as water to rot and injure roads) is scraped off, and suffered to remain, in narrow ridges, (or thinly spread) on either side of the road; until it be sufficiently dry, to work easily, with a hoe, or other light tool: when the stones, that are necessarily scraped off with the dirt, are separated from it; and, with the hard materials thus disentangled, ruts and hollows are filled up, *as fast as they are formed.*

This light work is well suited, to worn-down, and maimed laborers; and, in the instance under notice, one old man had the care of a considerable length of road; which, under this principle of management, was, in the beginning of April, in the finest condition.

The TOWNSHIPS of the Weald are, in general, very large; owing, as it would seem, to the fewness of sites, fit for habitations; especially in the early stages of clearing and cultivation. At present, the sites of the VILLAGES, and especially of the CHURCHES and PARSONAGES, are well chosen. But the fertile rising grounds, on which they are seen, were probably cultivated, long before the rest was cleared; being, in the first stages of society, scattered villages, or groups of huts, in wide spreading woods; which, in the more advanced periods, were divided among those eligible hearts of parishes.

STATE OF INCLOSURE. A large portion of these vale lands remain, in a state of commonage: particularly, on the outskirts, and towards the extremities of the District: while the more central, and better lands, are mostly inclosed; there being, I believe, no trace, at present, of common fields having ever gained an establishment.

The inclosures appear, pretty evidently, to have been made from a state of woodland. Not, however, in the way in which forest lands, in other parts of the kingdom, have been inclosed; not by following nar-

row lines of bushes, or underwood, and clearing up to these, on either side; thus leaving crooked hedges, and irregular inclosures;* but, by leaving broad, straight-edged hedgerows, with square, or straight-lined inclosures, surrounded with these wide borders of wood.

REMARK. This appears to have been done, on the same principle of precaution, that the coppice hedges of Devonshire were raised; namely, to afford a supply of fuel; there being, in the greater part of the Weald, no extensive plots of woodland left; and, in this recluse, roadless district, wood, growing within each township, was necessary. And it shows a degree of prudence and forecast, which does credit to those who struck out, and established, so valuable a custom. In Holderness, in Lincolnshire, and in some parts of the Midland counties,—where the woodlands have been improvidently swept away, and no provision made, to give the requisite supply of fuel, in places where coals, peats, or turves, are not to be had, but at too great a cost for farmers and cottagers to compass,—straw and the dung of

* See MIDLAND COUNTIES on this subject.

cattle, are ordinary articles of fuel,—even to this day!

The PRESENT PRODUCTIONS of the portion of vale lands, now under consideration, may be said to be WOOD, and ARABLE CROPS! Excepting the COMMONS, and some narrow slips of BROOK LAND, there is scarcely an acre of NATURAL HERBAGE, or OLD GRASS LAND, in a township: and this, notwithstanding almost every acre of the District is fitter for permanent herbage, than for any other species of produce. The green lanes, every where, are seen in the finest turf. But the inclosures having been formed, from a state of woodiness; and having, ever since, been subjected to the plow (or, if suffered to lie a while to rest, it has been for so short a time, and in so foul and weak a state) they have never had an opportunity of acquiring a thick profitable sward of perennial herbage: and it is, I believe, considered, by their occupiers, as a thing impossible, to bring them into so desirable a state.

Near the village of Kirdford, I observed two or three instances of old sward. But it appeared to have grown into grass,

from the forest state. Not the trace of ridge or furrow. The herbage various and good.

This subject, also, will be resumed, in offering hints for IMPROVEMENT.

To speak of the ORNAMENT, of the wide flat of vale lands, now in view, might seem almost ridiculous. Yet there are passages; particularly that between Green and Billingshurst; where the two principal branches of the Arun separate; in which much beauty may be *caught;* though, with the present roads, it cannot well be *enjoyed,* by travellers. There is an advantage, in a vale district, which elevated grounds have not; for if a tolerable foreground can be had, good distances are seldom wanting.

MANAGEMENT

OF

ESTATES.

OF ESTATES, or their MANAGEMENT, I learnt little, that is profitable, in this District.

PROPERTY appears to be much divided: many comfortable places of SMALL OWNERS (the roads to them apart) are seen scattered, on the better lands; but the principal part is in the hands of tenantry.

The prevailing TENANCY, I understand, is that of *leases*, of fourteen, or twentyone years; especially, on the smaller estates; while on some of the larger ones, the occupation remains, *at will*.

The usual time of the REMOVAL of tenants is Michaelmas.

The BUILDINGS of farms are, in general, mean. The *materials*, of the shells, are

mostly timber; with weatherboarding, or strong laths and plaster, or pannels of brick-work;—of the roof, plain tiles, thatch, and chips! namely, the splinters and shavings of hoops, and other coppice wares; with which hovels and sheds are frequently *thatched*.

In the PLAN of FARMERIES, I observed nothing commendable. They are, generally, ill sheltered thoroughfares; such as are seen, in other recluse, unimproved parts of the kingdom.

The *corn barns*, in general, are sufficiently high, in front, to admit a loaded carriage, beneath the plates; but drop lower, behind; so as only to give height enough, for the empty carriage to be drawn out.

Hay barns are very common, in the Weald. The foundation masonry; the roof fixed; being supported, by a sort of slight, open frame-work. Some of them are of a large size: costing fifty to a hundred pounds, in building. Suppose one, to hold fifty loads, costs fifty pounds, the annual expence may be reckoned at eighteen pence, to two shillings, a load. In a difficult hay

harvest, this is no consideration, compared with the advantage of having a safe receptacle, for the hay, as fast as it becomes dry; beside the saving, in winter, by having the broken cuts always under cover.

The HEDGES of the Weald have been mentioned, as broad forest belts; with, of course, a *fence*, running through the middle, or on one side of the border. The hedge-woods are black thorn, hazel, maples, &c. which are cut, or laid, at the time the coppice border is felled; and this is regulated, as in the management of other coppices and underwoods; which will appear under WOODLANDS.

A method of *guarding the fresh-made banks* of outside fences, against lanes or commons, may be noticed; as being particularly useful, in making up decayed parts. It is simply that of setting up long, rough black-thorns, against the bank; laying three or more rods across them, at equal distances; and pinning these, close to the bank, by means of strong hooked pins. This *thin* covering lasts, until the bank is compleatly firm, and its surface bound by the grasses

and weeds; which, by this means, have time, and opportunity, to flourish, and take deep root.

In the GATES of the Weald, we frequently find the old, and doubtless the original, hartree and stay; namely, a forked bough, with one strong arm, set upright, as the hartree (or principal end piece by which the gate is hung), and with a smaller one, rising obliquely, as the stay to the top rail: thus forming the stiffest, and most durable gate.

The method of *hanging* these *gates* is equally primitive, and simple; and, for common field gates, where there is not a particular road or thoroughfare, a better perhaps has not been introduced, into modern use. The bottom or foot of the hartree being reduced to a pin, or wooden pivot, or shod with an iron one,—and the top of it, in like manner, formed into a pin, or round tenon, about three inches diameter,—a piece of plank, with a hole through it of a size suitable to the top of the hartree, is morticed into the post,—or, which is better, when the post is short, is dovetailed into the top of it; and another

piece (answering to the head of the post) is spiked down upon it, to keep it firmly in its place, and to preserve it, and the head of the post, from decay. These pivots are less expensive, and less liable to be out of order, than hooks and thimbles.

WOODLANDS

AND

HEDGEROWS.

THE TWO, here, are under a similar course of management; being applied to the same purposes of TIMBER and UNDERWOOD. Hence, in the area of the Weald, though there are no *woods*, there is much timber and underwood; resembling in description and management, the extensive tracts of inclosed woodlands, on the western margin.

Sussex having been long celebrated for its timber, I gave particular attention, to

its growth and management; but gained less information, which was *new* to me, or peculiarly excellent, than I had been led to expect. The superiority of the Sussex timber appears to be more owing, to the Sussex soils being peculiarly favorable to the growth of the oak, than to a uniform superiority of management.

Nevertheless, in a country, where timber may be said to have been a staple produce, for ages past, the mode of treatment, that has grown out of this length of practice, is entitled to a scrutiny.

In viewing the practice of the Weald of Sussex, with respect to its woodlands, it will be proper to observe the following arrangement.

The rise of the present practice.
Its outline or general economy.
The method of training, now in use.
The age of felling.
Valuing and sale of timber.
The method of taking it down.
Application of the Weald timber.
Converting timber.
Coppice woods.

Not many centuries ago, perhaps, the whole of the vale lands of the Weald of Sussex were in a state of woodiness. The iron forges, with which its outskirts, formerly abounded; and the demand for ship timber, during some centuries past, have been the means, probably, of reducing the quantity of timber, at least.

The reason why much of the western margins of the vale lands remain in wood, while the area has long been cleared, appears to be the greater difficulty of carriage, which the interior of the vale experienced; whether in conveying charcoal to the forges, fuel and fencing materials to the neighbouring hills, or timber to the ship yard, or other market. Woodland was of *less value*, in the area, than on the margins; while the lands, in general, were better adapted to corn.

This being as it may, it is evident, that there has been a time, when the clearing of woodlands was carried to excess; either through the success that attended it, on the better lands; or through a temporary rise, in the value of corn lands; or a depression

of the value of woodland produce; at the time, probably, when the furnaces were extinguished. It is evident, that lands have been cleared, and no doubt at a great cost, which would, now, be more profitable in wood, than in any other produce.

And it is ascertained, by tradition, that at no great distance of time, even timber has been of little estimation; estates having been, formerly, bought and sold, without much regard to the timber they bore; and instances are mentioned, in which (probably through a rise in the market) the purchase money has been regained, by the timber alone. This has roused men of landed property, to a closer attention to their woodlands, and hedge timber; and this, to a more accurate and regular plan of management.

The GENERAL ECONOMY, or outline, of this plan, may be conveyed, as follows. The main or ultimate object is TIMBER: coppice, or UNDERWOOD, being only a mean to that end. Thus, when a wood of timber is fallen, the shoots from the stools are protected, as COPPICE WOOD: and at the fall of this, every seedling plant of

oak, that has sprung up, in the interspaces, is sedulously left; to rise for another crop of TIMBER: it being an invariable principle of management, with the Sussex woodmen, to reject all sapling shoots, from the stools of fallen trees, as standards, for timber. At the next fall of coppice wood, the timberlings, or "tellers," left, at the first cutting, are thinned, where they are too numerous, and others left, in the vacancies, which were not sufficiently filled, in the first instance: thus, continuing to nurse up seedlings, in the vacancies, and to thin crouded tellers, until the entire ground be occupied, by seminal timber trees: continuing, however, to cut off the underwood, from time to time, so long as it pays for the labor; which, under the present practice of felling timber, prematurely, is probably until the fall takes place.

Under this routine of management, it is evident, that the Sussex timber woods become, in effect, GROVES; and its timber, STRAIGHT-STEMMED, GROVE TIMBER. For, growing with great luxuriance, and in a crouded state, the trees shoot up, straight, as pines; with the bark, generally, as smooth and as palely colored, as that of the

beech, or the esculus; and with regular elliptical heads, resembling those of the latter; except that the tops of the Sussex oaks are generally more pointed, and conical.

In the *woods*, now training, there will scarcely be a strong KNEE, or a sharp CROOK, in a hundred acres. And the trees of the *hedgerows*, being trained, in a similar way, their structure is very much the same; except that the underwood being less close, strong, and tall, (as it is liable to be brouzed by cattle) the stems are not forced up, so high, as they are in the woods; where twelve to fifteen feet is the usual length of stem; while, in the hedgerows, eight to twelve may, perhaps, be taken as the more common height.

The METHOD OF TRAINING is judicious; being well calculated to give strength, and length of stem. The great error, in training timber trees, where the young plants rise thickly on the ground, is that of leaving too many; and thereby leading them up, weak, and topless.

The yeomanry of the Weald,—having, in the experience of ages, come at this

truth*; and seeing, in each other's woods, the mischiefs, which an overweaning fondness, in the owner, for every straight, luxuriant teller, no matter whether properly placed; (thus leaving too many, to the injury of the whole)—form themselves, into societies, or CLUBS; meeting, at each other's houses, and going over their respective woods, to point out and correct, their several errors.

REMARK, This custom, in itself, is sufficient to establish accurate ideas, on the subject; and similar meetings, and juridical

* ON SETTING OUT TELLERS. Yet, woodmen even of the first experience, in the Weald of Sussex, differ in their opinions, respecting the particular manner, in which "tellers" should be set out: namely, whether they should be left, *in the first instance*, at the distance, ultimately required; as one to two statute rods; or whether they should be thinned, *from time to time*, as their tops enlarge.

The first gives greater freedom, in reaping the succeeding falls of UNDERWOOD (and is of course more favorable to a *tenant* who reaps them); the latter, a better choice of TREES, and a greater chance of furnishing, eventually, an even, full, *tall* grove of TIMBER. But it is less calculated to grow *knees* and *crooks*, than the practice of setting the standards out, at a full distance, in the first instance.

decisions, might have as good an effect, in other matters of rural economy; especially in the breeding of stock. The annual shows of rams, in the Midland Counties, have doubtless been highly useful, in ripening the judgments, of those who attend them. And all public shows, of livestock, have a similar tendency; by associating individual opinions, and (when private interest and passion do not get the better of reason and general utility) drawing from them the most accurate ideas, they collectively afford. But they are, by no means, equal to meetings of professional men, for the purpose of going over each other's flocks and herds, of different breeds and ages, to point out, not only the individuals, which are proper to be kept on, to *improve* the several breeds; but also those which ought to be expelled, as being liable to *injure* them; beside giving the subject a sort of agitation, which it cannot receive, without a free communication of sentiments and opinions: and this most particularly, when men, whose prejudices have separate roots, are brought together.

And hence, would arise one of the many advantages, to be expected, from PUBLIC SEMINARIES.

PRUNING TIMBER TREES. There is a principle of management, adhered to, in the Sussex practice; especially in the training of *wood timber;* which may be right in Sussex, where not only timber, but underwood, grows with unusual luxuriance; but which, in countries less prone to wood, might be deemed most improvident; as leaving that to nature, which, as in many other instances, ought to be assisted by art.

A Sussex woodman may be right, in never using the pruning knife; as the luxuriance of the underwood, there, precludes the use of it. The impervious thickets, that grow round young timber stands, smother, or check, the tender side shoots, to a certain height; as ten to fifteen feet; and, if this be a sufficient length of stem, for a Sussex timber tree, their principle of management is right.

But, in training *hedgerow trees*, this religious principle is, frequently, or uniformly,

dispensed with. In this case, the young trees are pruned, "as high as a man can reach;" and if he should mount a ladder, and *go a little higher*, the advantage, not only to the trees, but the fences, and the grounds on either side of them, would be increased.

REMARKS. A more erroneous, and injurious opinion does not exist, in the whole circle of rural management, than that of leaving timber trees to *Nature*, in situations where *Art* has put it out of Nature's power, to give them the proper assistance; as is invariably the case, with respect to hedge-row and standard trees: and is equally such, in wood trees, where the *natural growth of underwood* is not sufficient, to force them up, to the length of stem, that *human purposes* require. What injury, can removing a twig, the size of the finger, from a stem the thickness of the arm, do to the body of a tree, *then to be produced?* And, under common good management, there is no occasion to remove a twig, thicker than the finger, nor to prune a stem larger than the arm; provided the operation be performed, in due time.

The argument held out, by the Sussex woodmen, is, that boughs, though ever so small, even twigs, which are *cut* off, from stem of a tree, cause a "bleeding;" and this is injurious to the "heart." While a bough of the largest size, which *rots* off, leaves not even a scar, or a crinkled grain behind; the stump filling up the orifice, until the wound be healed over: and this argument has been so long made use of, until those who apply it, believe it to be true.

But who, in passing through a wood, has not seen the stems of trees using every effort, to overtop decayed stumps; raising their barks and outer growths, several inches, perhaps, without the general surface? At length, the bark reaches the end of the stump, or the stump rots down to the bark; where, if it be large, a hollow is formed; convenient, in the first instance, for birds to build their nests in; and, as the decay proceeds, becomes a receptacle for water; the rottenness, sinking, by degrees, until the heart of the tree be reached.

GENERAL REMARKS, on the SUSSEX PRACTICE. The Weald of Sussex has long been

celebrated, for its oak timber; and, of the excellency of its quality, there cannot be the least doubt. But, from an attentive examination of the soil, and the management, by which it is produced, I am clearly of opinion, that its superiority may be fairly claimed, by the former. For, unless in the particular of setting out young stands, with sufficient freedom, I perceived no superiority of treatment, in Sussex;—compared with other woodland districts of the kingdom.

With respect to the practice of training oak timber trees, from SEEDLING PLANTS,* and scrupulously rejecting sapling shoots, the propriety, or impropriety, of it depends, entirely, on circumstances.

In a situation, where a sufficiency of seedling plants can be had, *in a few years;* and

* "SEEDLING OAKS." Woodmen, in different parts of the Island, and even in the Weald of Sussex, differ in their opinions, respecting the young plants of oak, which rise in the interspaces of fallen woods; as to whether they are wholly *seedlings*, from acorns, disseminated by birds or vermin, or in part *suckers*, thrown up, by the more superficial roots of the fallen trees.

This matter requires to be cleared up. If the oak sends up suckers, exposing its roots to the atmosphere might assist in producing them.

where a straightness of timber, either for the *house carpenter's* use, or for *planks* to be used in ship building; and especially where *coppice ware* is wanted;—the practice of training seedlings appears to be perfectly eligible. But, in situations, in which the oak is less a *native;* where a sufficiency of seedlings could not be expected, to fill up the ground, in the course of a few years; more especially where mere coppice wood is of little value (as in the coal countries) and where ship *timber* is the main object,—training the first shoots from the stools of fallen trees is, indisputably, the most eligible practice.

A Yorkshire wood, trained from the stools, agreeably to the common practice of that county, has an hundred fold the number of CROOK and KNEES, that a wood of the Weald of Sussex has, when trained, agreeably to the practice of that district, from seedling plants.

Were the several circumstances of the two districts duly weighed, it is more than probable, that both practices would be found nearly right; each being adapted to the soil and situation in which it is established.

And it would, of course, be wrong, to transplant either of them, into the soil and situation of the other.

There is, however, one point of the Sussex practice; which, though not peculiar to Sussex, might be introduced, with good effect, in many places, where it is not thought of, or used, at present. This is DRAINING the wet swampy parts of WOODS; so as to carry off surface water, at least; and, in some cases, to cut off the springs. In this, the Sussex woodmen might will be copied, universally.

Accurate management requires, that a crop of wood, as of corn, or herbage, should be even, and full, on the ground; and that every part should be productive.

AGE OF FELLING TIMBER. Either from an extraordinary demand for ship timber, and other timber of size, or from the price which bark has borne, for some time past, or a concurrence of other circumstances, there is no oak timber left standing, in the Weald of Sussex (except on the demesne lands of men of fortune), which, either in growth, or in size, is applicable to the purpose of building ships of burden and

strength. In 1791, there were very few woods of more than half a century standing: and woods, even of less than that age, were then paying, not the debt of nature, but the debts of their owners. The oldest wood, I find particularized on my Journals, was then about seventy years old; and this drew my attention, more particularly, as it was, at that time, making its bow.

I recollect but one estate, on which a reservation of timber is now making: and, should succeeding possessors be as solicitous to preserve, as the present proprietor is to train up, this estate must necessarily become, a century hence, a valuable boon to the possessor and the community. I speak of the PETWORTH ESTATE.

SELLING and VALUING TIMBER. Large allotments are sold to timbermen, who purchase them standing, take them down, and convert them, for the ship yards.

The SALE is generally, by *private contract;* the seller and buyer making their separate valuations; by measuring and estimating the trees, as they stand, in a ready and accurate manner.

It is done by means of a LONG ROD, or slender pole, about a statute rod in length; generally, a slender ashen sapling, that has been drawn up, to that length, among tall coppice wood: and its mean thickness is about that of the handle of a hay rake: together with a MEASURING STRAP, on the most simple principle; the invention of long and extensive practice; being common to the Woodlands of Sussex; and is, perhaps, peculiar to them: I have observed it no where else in use. It is a long slender strap of leather, graduated and figured, agreeably to what is called timber girt; (allowance being made for the bark) so that the figures and intermediate graduations show, at sight, what the naked timber will square; and the rod gives the length of the main stem, at least; so that, by the help of the sliding rule, the admeasurement of the principal part is set down, in this summary way, with a sufficient degree of exactness. The upper length, if the tree be very tall, also the main bough, or spire, together with one other bough, are estimated, by the eye: it being the practice of Sussex, to measure *two* principal boughs, or branches,

of the top of a timber tree, up to six inches timber girt.

Two men, accustomed to this mode of estimation, will "view" an extent of timber, with very little deviation, as to quantity. Hence, the matter of bargain lies with the specific qualities of the wood and bark, the situation in which they grow, and the fair market prices, at the time of sale.

Another simple invention, probably the result of the same long continued practice, has been hit upon, for MARKING the trees, thus measured, and set out, for sale. This is a light HATCHET, with a broad hammer end, and with a letter or other character, rising, with a sharp relief, out of the face of it. The roughness of the bark being struck off, with the edge of the hatchet, the required mark is imprinted, by one stroke of the hammer.

The method of TAKING DOWN timber trees here, is, invariably, that of sawing them off, horizontally, close to the ground: by means of a long saw, with one or both handles fixed on the *upper side*, in a manner somewhat similar to that, by which the

lower handle of the pit saw is fixed, at the *back:* the trees being first dipped in, on the falling side, with an axe.

REMARK. This method of taking down timber is very eligible, *in a wood*, where a fresh supply of shoots, from the stools, is required; as saving more timber, than the North-of-England method, of cutting them, aboveground, with axes; beside leaving the top of the stool, level with the ground; so that the sapling shoots spring quite down to, or from beneath, the surface of the soil; as they ever ought. But, for *standard trees*, and, in all cases, where the land is intended to be kept in, or converted to, a state of husbandry, whether as arable or as grass land, this method is very improper; as incurring, not only a waste of land, but of timber; compared with that of the NORFOLK and MIDLAND practices, of cutting off the side roots, and tearing out the crown, entire, and adhering to the stem of the tree.

In an instance, in which many large trees had been taken down, in the Sussex manner, on pasture land, rings of sapling shoots had risen, round the stools; which, themselves, were not only an additional incum-

brance to the land; but, being large and smooth, and, after rain, slippery as glass, were dangerous to playful horses, or young cattle. Had they been taken down, in the method above mentioned, and the dimples, which this method leaves in the surface, filled up with ant hills, or other roughness of the soil, and grass seeds sown over them, the entire surface would, at once, have become sightly and productive.

In the BARKING of the OAK, I observed no striking improvement, or deviation, from the ordinary practices of the kingdom, collectively. The trees are peeled, about a yard high; and, sometimes, six or eight feet high; while standing; before the axe is laid to them.

In the *peeling tools*, the only particular, that deserves to be registered, is the handle of the larger tool; which is sometimes that of a broken spade or shovel; or is made with the same sort of end, as the handles of those tools are in the South of England; giving both power and ease to the hand of the workman.

The BARK is set up to dry, with unusual care and accuracy. The ordinary trestle,

formed of forked piles, and horizontal poles, or a cord, as strong rope yarn, fastened to the top of a line of stakes, is the stay; against which the small and middle sized bark is set, very even and upright; the large, thick, coarse pieces of stem bark being put over them, as a roof; which shoots off rain water, almost entirely, from the upright pieces; at the same time shading the thin rinds, from the sun; while the thick stem bark is placed judiciously, to receive the full effects of the sun and wind.

The APPLICATION of the timber of the Weald is chiefly to SHIP BUILDING. For although, at present, there is very little large timber left, such is the *estimation* of the timber of Sussex, that trees, of twenty feet measurement and upwards, are eagerly purchased, by the builders. In 1791, I saw very few trees taken down, of more than a ton of timber each.

In the CONVERTING of timber, I saw little to instruct, in this District; the straight *wood trees* are sawn up, into *planks*; the *hedgerow trees*, where forks, or bends, have casually formed, into *knees* and *crooks*.

It is, I understand, the prevailing practice

of the District, for the timber merchant, or other seller, to convert, by slitting or squaring, the whole, or some considerable part, of the quantity that is offered for sale. This not only lightens the carriage, but shows the growth and quality of the timber.

The COPPICES, or UNDERGROWTH, of the woodlands of the Weald of Sussex, are of

Oak,	Ash,
Birch,	Mountain sorb,
Alder,	Wild cherry,
Sallow,	White leaf,
Hazel,	Chestnut,*
Dogwood.	

The AGE OF FELLING coppice woods is that of ten years, more or less; as eight to twelve years.

The WARES, into which these woods are converted, are

Hoops,	Stakes and Edders,
Fagots; as	Hurdle Rods.
"Baker's bavins,"	Poles,
"Spray bavins,"	Cordwood: for fuel,
"Brushes," for	Common charcoal,
kindling fires,	Gunpowder coal.

* But, query, native, or propagated?

Hoops and *gunpowder woods* are the more valuable articles. The species of woods most in esteem, for the *former*, are the ash, the sallow, the birch, the hazel: for the *latter*, the alder, the dogwood *(cornus sanguinea)*, the sallow, *(salix caprea)*. Hence, the *oak* ranks low as a coppice wood; being chiefly converted to *fuel*.

The HOOP-RODS, are slit, and shaved up rough, in the woods; and are sent to London, in bundles, of sixty each, and about thirteen feet long, to the hoop-benders; who dress, bend, and sort them; according to the markets, for which they are suitable. The principal part of the Sussex and Surrey hoops, I understand, go to the West Indies; for the binding of sugar casks.

The GUNPOWDER WOOD is invariably peeled; being left standing, for this purpose, until the bark will run;* and is charred, with peculiar care.

* VEGETATION. An experienced woodman has observed, that the shoots, from the stools of wood, felled in this state of growth, are much stronger, than from those, off which the wood has been taken, in the winter months; and accounts for it, by the *wounds* of the latter being exposed, between the cutting and the protrusion

A most ingenious APPARATUS (on the principle of the gun-barrel, it would seem) has lately been set up, in West Sussex (and others, I understand, in different parts of Kent) for CHARRING WOOD, for the use of gunpowder makers, without suffering the atmosphere to communicate with it, during the process.

The *price* of gunpowder wood, in 1791, was twenty shillings, a cord ;* while that of ordinary woods, was only thirteen shillings. The price of full sized wood fagots (four

of the shoots. But the fact is, the shoots are not protruded from the immediate margin of the wounded part; but through the sound, firm bark, below it; and although, even in the winter months, the bark may chap and rise from the wood, a few lines below the top of the stump, this only brings out the shoots, so many lines lower; which is ever favorable to the strength and firmness of the rising sapling. This observation of the woodmen of the Weald of Sussex seems only to corroborate the idea, that the extraordinary shoots of trees and shrub-wood, cut late in the spring, is owing to the previous influence of the atmosphere, on the removed growth. See NORFOLK, MIN: 34, on this subject.

* The WEST SUSSEX cord, or STACK of wood, measures three, three and a half, and twelve; or four, four, and eight; according to the uses, for which the wood is intended.

feet long, and three and a half feet girt) was fifteen shillings a hundred (of five score); that of spray fagots (very light,—used chiefly for lime burning) five shillings, for the same number.

The woodlands of West Sussex are, now, mostly IN HAND; being occupied by their respective proprietors; who employ woodmen, to reap the underwood, and train the seedling tellers.

REMARKS. Selling underwood, on the ground, where timber to be reared from seedling plants is the object, to *dealers*, who have an interest in clearing the ground before them, becomes altogether imprudent. *Tenants* have a still greater interest in preventing the growth of timber. And being at the discretion, and liable to the unfair dealings, of an *inferior class of agents*, is also objectionable; though of the three, the first to be chosen.

AGRICULTURE.

FARMS. In SIZE, the farms of the Weald are of the middle class. They extend from one hundred to three or four hundred acres, each: the larger farms, that include the ordinary admixture of lands, letting (in 1791) from five to ten shillings, an acre; the rents of farms rising from fifty to two hundred pounds, a year: with some few below and above these limits.

The PLAN is generally good. The buildings, are mostly situated within the area of the farm lands: an ordinary circumstance, this, where lands have been laid out into farms, from the forest, woodland, or common state.

The CHARACTERISTIC, as has been intimated, is *arable land*, with the *coppice hedge-rows* that have been mentioned; but with scarcely any *perennial grass lands;* some slips of water formed "brook lands," only

excepted: and this, although the greater part of the lands, the district includes, are more suitable, for wood and herbage, than for arable crops: but most for a due proportion of the three.

The FARMERS, or occupiers, of the Weald lands, are YEOMEN and TENANTS. Many of the former, and a few of the latter, are substantial. But the tenantry, in general, notwithstanding the lowness of their rents, are as poor, weak, and spiritless, as their lands; drawn down, as for ages they have been, with exhausting crops; without a sufficiency of stock, or of extraneous manures, to make up for this endless exhaustion.

With good roads, and a suitable course of practice, there are men who have substance, and spirit enough, to raise the Weald lands to twice their present value.

WORKPEOPLE. In travelling over the vale lands, under view, nothing strikes a person, accustomed to agricultural surveys, more, than the extreme fewness of its inhabitants; even though the whole country may be said to be under a course of arable management! the villages are not only few,

but small; and a man may travel, for miles, without seeing a hamlet, or scarcely a solitary road-side cottage. It is no wonder, that the lands are under worked, and unproductive.

The BEASTS OF DRAFT, in the Weald, are OXEN and HORSES: perhaps, at present, in nearly equal proportions. As hard roads increase, the use of oxen, I am afraid, diminish. Chalk, for lime, is fetched from a considerable distance, to most parts of the District; and unless water carriage should be extended, across the area of these vale lands, it is to be apprehended, that horses, for road teams at least, will increase. Beside, the Weald farmers allege, as a reason for keeping so many expensive horses, that they cannot plow with oxen, in a wet autumn, so well as they can with horses; and so long as they use horses at length, and oxen double, their reasoning is good. But it has no weight with the general question, with respect to horses and oxen, as beasts of labor, for the use of a Weald farmer.

The OXEN are of the middlehorned class, and what is properly called the "Sussex

breed"; which will be particularly mentioned, in the next District.

They are usually worked in *double yokes*, without horses before them (a pair of aged oxen being the usual leaders). I met with one instance, however, in which single yokes, with harness added to them, were in use; the yokes answering the purpose of collars. But this, I believe, cannot be said to make a part of the established practice of the District.

The *age of work*, in 1791, was from three to six or seven years old. But the late extraordinary rise in the price of beef, I understand, has carried off most of the aged oxen; and must, in the ordinary course of its effects, reduce the number of working cattle; or prevent their arriving at an age, at which, only, they can be said to be fit for work.

The HORSES are of the heavy, cart kind: partly, bred in the country: in part, purchased.

The ROAD TEAM of *horses*, is four to six; of *oxen*, six to ten. The PLOW TEAM, of *horses*, three or four, at length; of *oxen*, four to eight. The OX CART is usually

drawn by four. They are driven with the *goad;* and by the Yorkshire language!

MUZZLES are in use, for oxen at work, here, as in the WEALD OF KENT. Here, I have seen, not only *baskets*, as in Kent, but strong *nets*, used in this intention.

IMPLEMENTS. The WAGGONS of the Weald, as of most vale, deep-roaded districts, are tall and large; with a wide grasp, or span, between the wheels; which are, here, frequently made, with fellies, of six inches broad: narrow wheels, nevertheless, are also in use. I have measured the ruts of a broad-wheeled waggon, full six feet, from out to out; or about five feet and a half from middle to middle; which is, perhaps, as good a width, for farm carriages, in general, as can be fixed upon, for a standard.

REMARKS. Broadwheeled waggons, with double shafts, the horses, of course, drawing more or less in the broad ruts, are not uncommon, in some parts of the Weald. These, however, for horses in double shafts, and with wheels only six inches broad, and running six feet wide, are far from convenient. But they aptly suggest the idea,

of adopting broader wheels, running at such a width, that *oxen, in long yokes*, (or in wide shafts), might tread, with freedom, in broad, smooth, firm, RUT-PATHS; without contention; and with little injury to their feet. The practicability of this plan ought to be tried; as it promises much, towards rendering oxen permanently useful, on the road.

In the PLOW of the Weald, I remarked nothing peculiarly excellent. It is a clumsy swing plow; with a foot, or slider; which is used, occasionally, at least.

The PLOW SLEDGE is the only implement, now in use, on these vale lands, which struck me, with any degree of force, or interest. It is one of those simple inventions, which necessity, in the early stages of cultivation, happily struck out. It is merely a forked branch, cut out of the topwood, of a large tree; the two arms of the fork being of equal size, and six or eight inches, in diameter; four to six feet long; and, about the same width, at the points: a triangular frame, of similar dimensions, being *now* raised, a foot or more, above this basement, upon which frame, the plow, or harrows are loaded. The draft is by the stem or

stump of the fork, which is left a foot or more long, and in which a staple, hook, or other draft iron is fixed.

REMARKS. This is not only the most *natural sledge*, but was, in the day of its invention, also a most *simple road maker*, in a soft, deep soiled country. It acts as the snow sledge of NORFOLK; and tends to level and smooth the tracks, and footsteps, of the animals that draw it. And the operations of plowing, and harrowing, being most in use, when the roads of such a country are passing, from their soft to their firm state, this simple implement would give a smooth, level, carriage path, for summer travelling; and, even, at this day, might be useful in smoothing horse paths, side roads, by ways, and roads to grounds; especially in a stiff soiled country.

A ROLLER, with a pole, for oxen, I observed, for the first time, I think, in this District.

The SLIDING YOKE, of the Weald of Sussex, is entitled to a place in these registers; as it may frequently be found highly useful, in other districts, where the soil is tender; and, most especially, in a wet season.

It is used in harrowing narrow ridges, when the soil is too moist, to be trodden, by oxen or horses, drawing upon the land. By means of a long yoke, oxen, abreast, draw in the interfurrows; and, to accommodate the yoke to the varying widths of the ridges, it is formed with two pieces of wood, connected by two large staples, moving in long *sliding mortices*, which pass along the middle of each piece. The crowns of the staples reaching through the mortices, they are secured, in such a manner as to give free play to the sliders, by means of keys, or strong wooden pins; each slider, or distinct part of the yoke, having a draft iron, a few inches from the inner bow hole; with a chain or trace passing from that, to the harrow, or pair of harrows, bending over the ridge of the narrow land, between the oxen.

PLAN OF MANAGEMENT. The OBJECTS, principally held in view, by the Weald farmers, are *corn*, and *rearing cattle;* with some portion of *dairy produce*.

The CROPS are *wheat* and *oats*, with some *barley*, some *turneps*, and many *peas;* but *no beans!* Much foul *ley herbage;* but scarcely any old *grass land*.

In the center of the Weald, where woodland produce is scarce, the *furze* has of late years been cultivated, as a crop in husbandry; for fagots, for burning lime; and is spoken of as a very profitable crop, on the weaker lands.*

The SUCCESSION, which probably has been continued from the first cultivation of the District, is

Fallow,
Wheat,
Oats;—now generally succeeded by
Ley herbage, as long as it will last; then
Oats, fallow, &c. &c. &c.

This is probably the oldest, and is certainly the worst, course of management, now in practice, in this Island: except that, in which three crops of corn are taken, between the cleaning of the land, and leying it, or letting it lay down to grass; a practice which, I believe, is not entirely unknown to the husbandmen of the Weald of Sussex.

* CULTIVATING FURZE. The seed, I understand, is usually sown with oats, on foul exhausted land, at the rate of a gallon, an acre. It is either gathered, by women, in the neighbourhood, or is purchased, at the shops, in London.

TILLAGE. The whole dependence of the Weald farmer rests, in this respect, on the SUMMER FALLOW: and if it were made for oats and ley herbage, instead of wheat, it would be sufficient to keep the Weald lands, in cleanness and tillage.

It is conducted in different ways, and with great disparity of effect: principally owing, it would seem, to the

Time of breaking up; which is either before, or after, the spring seed time; and, in some sort, to

The application of the harrow. In one or more instances, I observed, in the early part of May, six horses and two drivers harrowing, with great difficulty, land that had been broken up, in autumn or winter, crossed presently after spring seedtime, and then lying in large rough clods, *still green from the plow!* thus, by one wrong principle of management, and in one operation, (reckoning the wear and tear, as well as the ordinary expence of the team, and the injury done to the soil) sinking more, probably, than the rent of the land. In other instances, however, I observed, later in the month, fallows of a similar description; but

which (on principle, or through neglect, or by necessity, the weather being dry and the soil hard) still lay in rough clods, with scarcely a green blade left; and which, at seedtime, were clean, as well worked garden grounds: while a much greater number, partly from breaking them up too late, and in part from improper treatment, still remained as foul, and almost as green, as the foul leys, or oat stubbles, which they succeeded:—the difference, in this case, between right and wrong management, being twice or three times the rent of the land.

In DEPOSITING, ridging, or laying up the soil, for a crop, the farmers of the Weald may claim some merit. The land, in general, is seen in *narrow ridges*, mostly of six or eight furrows, some of ten furrows; with suitable cross trenches; so as to keep the land free from surface water: a merit of no light consideration, in a low flat country; where the soil is of a clayey nature, and the subsoil also retentive.

MANURES. The extraneous manure of the Weald is LIME; which is burnt, chiefly from *chalk*, fetched from the adjacent hills;—notwithstanding the *shellstone*, that has been

mentioned to be found in the District: but it is now become difficult and expensive to raise.

The southwest quarter of the Weald is supplied with chalk, in great quantity, from the West Downs of Sussex; partly, by land carriage, of perhaps ten or twelve miles; partly, by the Arun navigation. The north-east quarter has its supply, from the hills of Surrey. The pits, or more properly quarries, of Betchworth, have been worked, time immemorial; the chalk having been, formerly, and is still more or less, used in a raw unburnt state. The quantity which has been removed from these quarries is immense.

Lime kilns are seen, on every common, and in every waste corner, of the District; each considerable farm having its own kiln.

The *fuel* is invariably fagots, of brush-wood, or furze; except on the Arun navigation, where I observed one kiln, for coals. But the lime burnt with coals is, here, as in Kent, considered of an inferior quality.*

REMARKS. The reason given for the distinction, here, is, that it contains a certain

* See DISTRICT OF MAIDSTONE, in Vol. I. p. 88.

quantity of coal ashes; which are not considered, as a profitable manure, on the Weald lands; and, doubtless, they are not of equal value with lime; and, in such proportion as the ashes fill up the bushel (which in measuring stone lime is not considerable) an abatement of price should be made; wood-burnt lime being free from dross.

The method of burning lime with fagots will be described, in the DISTRICT OF PETWORTH; where I had the best opportunity of observing it.

The method of applying this far-fetched, and, in many situations, very costly manure, is disgraceful, to the husbandry of the Weald. The ordinary practice, in the summer months, is to set it across the field, in load heaps, and there to let it remain, naked, as it is thrown down, for weeks, perhaps months; until their surfaces, at least, have returned to the very state of chalk, in which it was painfully fetched, from the distant hills. And, in autumn, presently before wheat seedtime, the practice is yet worse. It is then set on the land, in small heaps; which, having lain naked until the lumps have fallen down into checkers, are spread over

the surface, among the clods; where it lies, for days, or weeks perhaps, until it has returned to its natural state; without attempting to profit by the only advantage obtained in burning it: namely, that of *incorporating it with the soil, in a state of lime in fine powder*. For different methods of applying lime to land, see YORKSHIRE, MIDLAND COUNTIES, and WEST OF ENGLAND: also the DISTRICT OF MAIDSTONE, in these Volumes.

CATTLE. The NUMBER, which the Weald supports, is inconsiderable. In passing through it, in the summer season, scarcely any pasture lands, much less pasturing stock, meet the eye; unless on the commons, where young cattle, and a few mean starvling cows, are seen; as will more fully appear, under the STATE OF HUSBANDRY of the Weald.

The BREED is that of West Sussex; which will be noticed, in the next division of the work, and which is here found in a degenerate state; owing principally, perhaps, to the young stock being chiefly reared on the commons.

In the REARING OF CATTLE, however, there is one point of practice which requires to be noticed; and which, probably, saves the breed from a greater degree of degeneracy, than that in which it is found. *The calves are reared at the teat;*—run loose with the cows: not on the commons, or in the fields, only, but in the farm yards, during the early spring months; the pail being seldom, if ever, used, in the rearing of calves; which are, here, reared, *as lambs:* a practice favorable to breeding; but ruinous to the dairy.

The SIZES OF DAIRIES are small; six or seven cows being a full sized dairy.

The little DAIRY PRODUCE that is collected is *butter;* which, I believe, is wholly consumed within the District, or in the market towns that border upon it. The mystery of *cheesemaking*, is not known, in the Weald of Sussex; highly favorable, as its soils naturally are, to that useful and profitable art.

SHEEP can scarcely be ranked as a species of stock, of the Weald; unless on the wide commons which are found in some parts of it.

The BREED, seen on these commons in summer, and on the stubbles, and ley grounds, in the winter months, resembles that of the mountains, and commons, of Cornwall and Devonshire; except in that their wool appears to be of a coarser nature. They are probably the aboriginal or ancient stock of the adjacent hills; debased in their size, form, and wool, by the baseness of their pasture; which, whether on the commons, or in the inclosures, is ill suited to this delicate, dryland species of domestic animals.

The STATE OF HUSBANDRY. As an apology for passing over many general heads of the arable management, and the culture of individual crops, without notice; as well as for presuming to offer the following hints, for the improvement of a district, in which I have not *resided;* I will, here, bring together a few notices, that I find in my Journals, respecting the prevailing practice, in the year 1791; and which, I fear, has undergone no *radical* alteration, since that time.

March 29. Western parts of the Weald. "The whole country may be said to be in

a state of *arable*, or *wood land;* though much of it is best fitted for *permanent grass.* The commons and wide lanes are in fine sward. How well the whole District is adapted to *breeding*, and the *dairy.* At present, it is disgusting to ride over, and most discouraging to farm in. Even at seven or eight shillings an acre, the farmers remain poor, and their farms under stocked. There is, indeed, little appearance of stock, of any kind, in the country.

April 3. Horsham to Dorking. What an immense tract of land, apparently misapplied. What herds of cattle might be reared, and dairy produce collected, without *perhaps* any diminution of its present produce of corn. At present, there appears to be no stock! The soil is of course tired out, with an endless succession of arable crops; and without any dung to refresh it.

April 30. West end of the Weald. Rode several miles, without seeing a head of stock, or a person to speak to. A few scattered cottages, on commons and in wide lanes; and, here and there, a mean looking farm house. How so much arable land is worked is astonishing; but it is evidently much

underworked. The Weald, at present, is a poor country; but appears to be rich, in natural advantages.

May 2. Towards the center of the Weald. Nine tenths, or nineteen twentieths, of the cleared lands, are occupied by arable crops: mostly corn; but with some cultivated herbage; which is chiefly raygrass; weak, thin, and spindling; yet, poor and thin as it is, the whole is now shut up for mowing! No appearance of a pasture ground, in the the country! except the worst of the weedy leys,—(worn out, by constant mowing),—which are now undergoing the first plowing for fallows. Scarcely a head of stock, in my whole ride. Except a few halfstarved cows, and sheep, on commons! The prevailing crops are oats and raygrass,—for the support of cart horses! And even the value of the little wheat, that is grown, is much of it sunk in the expence of carrying it to market. What a field for improvement!

The roads of the Weald are the worst in the kingdom. Except in some few parts, they remain in their natural state: formed of pure clay,—worn into hollows and

sloughs: roughnesses as high as the horses' knees; and ruts to the axle. With, however, here and there, a few hundred yards of good stone road; which appears to be now under extension. But it goes on so slowly, it may be some ages before it be finished. Not half a load of materials can be dragged to the parts now making. There has been already as many stones, and as much labor, expended, on the road towards Green (not yet a quarter finished) as would have made a broad firm waggon path, the whole way.

May 15. The same. Fallows still breaking up, from crowfoot leys! One instance of cows and calves in a raygrass pasture. The raygrass in full head! The stock, doubtless, starved in the yards, while the grass was spoiling in the field!

May 21. Northwest quarter of the Weald. The crops—wheat, oats, and raygrass; with some peas; much fallow, and some barren leys.—A few small old grass inclosures; and extensive commons. Large tracts of woodlands, and many furze grounds. The only stock observed in the inclosed grounds (in riding ten or twelve miles within the

area of the Weald) was *one* worthless cow and calf! Some young cattle and a few sheep appeared on the commons. Saw not a team at work (except one at some distance) nor scarcely a human face; unless in the village of Kirdford.

June 24. Area of the Weald. Beginning to mow poor thin weedy raygrass leys. Not a quarter of a crop; and that overgrown. Some attempts at perennial ley. The weedy tall rubbish still standing *to be mown!* Two fields, as white as limed fallows, with the full blown flowers of the oxeye daisy. The soil, no doubt, having been fouled and exhausted by corn crops, was laid down, in that foul exhausted state, and has been mown, year after year, ever since. Yet the men of the Weald may argue, from this specimen, that the Weald lands are incapable of being brought to a state of profitable grass.

October 5. Many fields now white with lime,—spread out of small heaps, and lying in coarse granules, unbroken, and unmixed! Dung, in like manner, standing, week after week, in unspread hillocks! and, in some cases, on fallows, now lying in the rough

grassy unworked state, they ought to have appeared in, the latter end of May, or the beginning of June. What an ill managed District. How much unproductive land it contains."

IMPROVEMENTS SUGGESTED. It has been shown, in speaking of the ROADS of this District, that a want of facility, in the work of CARRIAGE, is a great bar to its improvement; rendering the labor of bringing in manure, and carrying out produce, difficult and expensive.

But, in a low, flat, deepsoiled country, destitute, in a manner, of roads, and of materials to form them with, WATER CARRIAGE aptly presents itself; and it has not altogether escaped attention.

In 1791, the NAVIGATION of the ARUN had, then, recently been extended to Newbridge, below the junction of its two principal branches, near the village of Green, towards the center of the *Sussex* part of the Weald. What appeared to be wanting, was a farther extension to Horsham: either by the windings of the eastern branch of the Arun, or across the more central parts of the Vale, by Billingshurst; and from

Horsham, through the *Surrey* part of the Weald, to the chalk quarries of Betchworth, and down the valley of the Mole, to the market of Dorking.

The western branch of the Arun presents another line of extension, equally obvious; to pass through the northwestern quarter of the vale, to Godalmin; there, to join the Wey navigation; thus opening a navigable communication between the Thames and the English Channel.

By means of such easy communication, the entire Vale might be supplied with manure, and its products of corn and timber be carried off, at a moderate expence, to the best markets: besides furnishing a favorable opportunity of bringing road materials, into the interior of the District.

Since 1791, the Earl of Egremont, whose patriotism and benevolence flow in every direction, has made the Rother, which falls into the Arun, near Arundel, navigable to Midhurst; and has it in view, to conduct a canal, from the Rother navigation, by Petworth, and along the western margin of the Weald, to Godalmin. This would render

the water carriage of the Weald, still more complete.

The probable improvements that have occurred to me, in traversing the vale lands now under view, respecting ROADS, are of a fourfold kind; according to the intention of the given road, and the degree of improvement required, to answer that intention.

The present flat lanes are improveable, by two obvious means, without changing the form of their surfaces. These are by doing away the dangerous quicksprings, which frequently occur, on the hangs of hills, by means of UNDER-DRAINS; and removing the deeper sloughs, that occur in the bottoms, by means of trunks, or ARCHES; to convey the surface water, to the nearest drain, or ditch.

The next stage of improvement would be, to gather up a wide ridge, or BARREL ROAD, along the middle of the lane, with the plow; raising it sufficiently at the crown, to shoot off rain water; and smoothing the surface from time to time, especially in the spring, with the harrow and roller: thus obtaining,

at a small expence, an easy SUMMER ROAD, for carriages.

The third stage appears to be that of running a WAGGON PATH, along the middle of the plowed ridge, or barrel; with dilations, or double paths, at the bends of the road, or in the most conspicuous and convenient places, for carriages to pass each other; and with lines of posts on either side, to confine them to the path.

For the more public roads, a firm solid pathway, seven or eight feet wide, and strong enough to bear laden carriages, would be required. But, for private or by roads, a much less expensive work would be found highly beneficial. The method of forming the simple waggon paths, here recommended, is described in the MIDLAND COUNTIES. They consist of three lines of hard materials: one for each wheel; with one, between them, for the horses to draw upon.

Had either of these methods, of forming WINTER ROADS, been adopted; instead of *attempting* to make, *at once*, wide barrel roads, of hard materials, fetched perhaps several miles, the very materials that have

been buried in the mud, in making these attempts, on the outskirts of the District, would have formed sound, firm, waggon paths, across every part of its area ; or, at least, along the most public roads.

If, in the Weald of Sussex, or in any country, where it is desirable to work oxen, on the road, in yokes, or double in harness, the wheels of carriages (as has been already suggested) were made wide enough to form convenient paths, for oxen to tread in, and placed at such distance, from each other, as to make them convenient for oxen abreast, to draw in, the advantage, in a public as well as a private light, might be very great. To accomplish it is an object highly worthy of invention.

The last stage of improvement, of the most public roads, would be that of forming WIDE BARREL ROADS, of hard materials, carried from the quarries, or the canals, *by means of the waggon paths;* beginning with the parts where they were found to be most wanted: thus, advancing progressively, from the lowest to the highest degree of improvement ; without taking one step in vain.

Another *public* improvement, by which

the Weald might profit, is that of INCLOSING THE COMMONABLE LANDS, which now occupy no inconsiderable portion of its surface, and which are mostly of a quality, that will make ample returns, for the expences of inclosing and cultivation.

And another, which is more or less requisite, in every vale district, is a COMMISSION OF SHORES, with INQUESTS, in the several parishes, or districts, which it comprizes; so as to remove every unnecessary obstruction to running waters; and thereby give each individual an opportunity of freeing his lands, in the shortest and speediest manner, from superfluous moisture.

The *private* improvements, of which the Weald of Sussex is evidently capable, are numerous and great: exceeding, I think, those of any cultivated district, I have examined. Indeed it appears to me, that a TOTAL CHANGE of the GENERAL ECONOMY of the District is requisite to its greatest improvement: namely, that of converting the principal part of its arable inclosures, to pasture and woodlands, and its pastured commons, or the more valuable parts of them, to arable inclosures.

To convey my ideas, with respect to the INCLOSED LANDS, in the clearest manner I am able, it will be requisite to divide them, into three classes; namely,

The deeper better soils, which require only *cleaning*, to render them fit to be converted to a state of perennial herbage.

The soils that require to be *deepened* before they can be properly brought to that state. And

The *weak unproductive lands*, that have been mentioned, as having been cleared from the state of woodland, by mistake; or through circumstances that do not now exist.

The method of leying, turfing, or GRASSING arable lands has been so often treated of, in these Registers, that it requires little explanation, here.*

The broad basis, on which its success chiefly depends, is that of cleansing the soil from weeds, through the means of *tillage*; which, at the same time, by exposing it to the atmosphere, will render it friable, and every way fit, to encourage the tender fibrils of infant herbage.

* See YORKSHIRE, GLOCESTERSHIRE, &c.; also the WEALD OF KENT.

The *choice of herbage* depends on the nature of the land. The greater the number of distinct species, provided they are of valuable quality, the better chance there is of quickly obtaining a close turf,—in every season of the year. What I should recommend, for the Weald of Sussex, would be a small quantity, as one to two gallons of clean-winnowed raygrass; a similar quantity of the meadow soft grass *(holcus lanatus)* or Yorkshire hay seeds; and of the dwarf poe, or meadow grass *(poa annua)*, or Suffolk grass; with a like portion of the meadow or tall fescue *(festuca elatior)*, if the seeds of it can be procured: also three to six pounds of white clover; with similar quantities of trefoil, and ribgrass *(plantago lanceolata)*, all of which are to be had at the shops. And besides these, a man who has industry, and the spirit of enterprize in his composition, would collect, and cultivate, such species of valuable herbage, as he sees flourishing, on the best pieces of the few old grass lands, now to be found in the Weald, and add their seeds to the mixture: even though the quantity were small; for if the soil and situation should prove grate-

ful to them, as doubtless they would, their increase would be certain; while those whose seeds were sown, in greater quantity, would dwindle, and give place to them. The chief thing, to be desired, seems to be that of supplying the land with a *variety of species;* in order that such as are best suited, to the soil and situation, may have a fair opportunity of gaining a footing; and this can never be done, with so good effect, as in the first instance; when the soil is wholly unoccupied, and when each has a fair chance, to establish itself.

To do equal justice to the several species, the *manures*, which are used for young herbage, should either be spread on the surface, or be mixed evenly with the soil; and ought not to be buried with the last plowing for the crop. For, in this case, the strong, deep-rooting plants gain an advantage: and a great art, in producing perennial herbage, is to encourage the finer grasses; without which a close turf cannot be obtained.

With the same view, the young plants should be kept *closely pastured*, until the tender species are fully established. One

crop of hay, by encouraging the strong plants, and smothering or checking the weaker species, is capable of doing irreparable injury, for years to come; according to the size of the crop, and the age at which it is cut. Pasturing close, with sheep, from the time of the first shoot in early spring, and with the same, or heavier stock, (after the land will bear them) throughout the summer, during the first three years, appears to me, from many instances of experience, and numberless of observation, essential to common good management.

The proper *stock*, for such young grass grounds, on the tender moist lands of the Weald, would be ewes and lambs, to be fatted in the course of the summer.

At the end of three years, or whenever the required sward shall be fully established, the *dairy* appears to be the most natural object, to be pursued, on a large scale, on the cool moist lands, under notice; which resemble, in soil and situation, the best *cheese* lands of Glocestershire and North Wiltshire, so nearly, that there can be little doubt of their eligibility, in that intention.

See GLOCESTERSHIRE, Vol. II. p. 94.

The SECOND CLASS of the Weald lands are, by far, the most difficult to improve. Their present unproductiveness appears to be owing, chiefly, to a closeness of texture, and a want of depth, in the cultivated mould.

That *tillage*, properly conducted, and long enough pursued, would go a considerable way, towards removing those evils, there is little doubt. *Lime* applied to the fresh raised soil; and any gross vegetable produce, plowed under, would greatly assist. If, by any easy process, part of the soil could be *burnt*, and spread over, and mixed with the rest, it is highly probable the whole might be thereby meliorated.*

The improvement of the THIRD CLASS of Weald lands is obvious, and easy. Clean the soil, by a fallow, broken up in autumn, or early winter, and sow it, the ensuing autumn, with acorns, ashen keys, or any other seeds of trees, more desireable; with or without a crop of corn. Fence securely, and leave the rest to nature,—until the plants require thinning. The success of this summary way of propagating woodlands is

* See YORKSHIRE, Article *Sodburning*.

seen, in the practice of Warwickshire, in the MIDLAND COUNTIES.

The right management of the COMMON LANDS appears, to me, equally obvious. Such as are too weak for corn, or profitable herbage, inclose securely; cut down the brushwood, if any; and plant tree seeds in the vacancies. The rest, bring into a course of arable management, as fast as propriety will allow; for having never produced corn, they would doubtless continue to throw out, under judicious management, abundant crops, for many years. Where trees or strong bushes abound, cut them off, within the surface, and let the land remain, in a state of grass, until they be decayed. For remarks, at length, on RECLAIMING FOREST LANDS; see YORKSHIRE.

These observations, on the improvement of the Weald of Sussex, are the fuller, as they are applicable, not to this particular district, only; but, more or less, to every vale country. I bring them forward, here; because many of them actually rose, in examining the lands that are the present subject of discussion; and there is no other district, in the Island, to which the remarks,

here offered, can be so fully applied. I am of opinion, that, were the alterations, here proposed, *judiciously* carried into effect, the rental value of the lands would be nearly doubled; and this at a small expence, compared with the greatness of the improvement.

THE

DISTRICT

OF

PETWORTH.

BESIDE making the EXCURSIONS, mentioned, in the INTRODUCTORY REMARKS, to the VALLEY OF FARNHAM, I had a favorable opportunity, while I had the honor of residing at PETWORTH, of looking over its environs, and examining the District, which is now the subject of consideration.

The SITUATION of the small tract of country, which I distinguish by the DISTRICT OF PETWORTH, is between the western quarter of the Weald, or Vale Lands, last described, and that part of the Chalk Hills of Sussex, called the West Downs; extending, eastward, to *Pulborough*, and

westward, to MIDHURST; where it meets with the heaths, or morelands of Sussex; and the fertile and beautiful valley, which shoots, further westward, from Midhurst, towards Petersfield; the District, more immediately under view, being chiefly a dilation of the same valley; down which the ROTHER falls, with a gentle current, and joins the ARUN, in the southeastern quarter of the District.

The ELEVATION of the lower part of the valley is inconsiderable; the tide, I believe, flows within the District; and the south side of the river lies altogether low. On the north side, on which PETWORTH stands, the country rises, with an easy ascent, to a desireable elevation; being a chain of uplands, which divide the valley of the Rother, from the vale lands of the Weald.

The LANDS of this District, closely connected as they are with those of the Weald, are very different in their nature. The SOIL, which is most prevalent, and which characterizes the District, is a light sandy loam; resting on a mass of sand, which hardens, as its depth increases; until it assumes the character of a gritstone, or soft sandy

rock; in which a few egg-shaped, or potatoe-form pebbles,—hard smooth stones, of extraordinary size,—are bedded.

REMARK. Similar stones are observable, in other instances of deep sandy substrata;—a circumstance which appears to be entitled to the geologist's attention; and their composition and formation may not be unworthy of philosophical inquiry.

In some parts of the north side of the District, the soil is more consistent, and the subsoil a sandy loam, or brick earth; forming land of a most desireable quality.

On the south side of the river, the lands are less uniform; the substrata being, in some cases, retentive; producing cold weak land; with plots of clayey woodland soil; perfectly resembling the Weald lands; and are doubtless detached parts, that have been torn from them.

At the foot of the chalk hill, which on this side exposes a steep broken cliff, runs a narrow vein of land, of a peculiar nature;—a close, waxey clay; mostly of a dark lead color, while moist; but dries to a lighter, chalky appearance; and is probably a compound of dark blue clay, and chalk. It is

singularly fertile to wheat; in seasons, when it can be properly tilled, and seeded. Its provincial name, in this part of Sussex, is "MAAM": a name which is probably of ancient application. At the foot of *Maamscot Hill*, in Kent, is a similar line of soil; and it is common, perhaps, to situations of a similar nature; as will be shewn, in speaking of the CHALK HILLS of the Southern Counties.

In some parts, this vein of land is so narrow, as to be contained within the width of a single line of fields; but, in a sort of bay, formed by an indenture of the Chalk Hills, including parts of the parishes of Sutton, Bignor, and Bury, it spreads, from half a mile, to near a mile, in width.

The subsoil, or understratum, of this line of soil, is generally a calcareous rock, of varying quality. Nevertheless, the soil is mostly of a retentive nature; requiring to be laid up, in narrow lands; and, when in a state of neglect, is liable to be over-run with coltsfoot *(tussilago farfara:)* a proof of the *coldness* of its nature; owing, perhaps, to the waters, which are absorbed by the Chalk Hills and filtered through them,

being checked, by a bed of clay or silt; as well as by their own retentiveness.

The whole of the District under veiw is in a STATE OF INCLOSURE; except a few small heathlets, and commons; and except a small remnant of common field, on the Maam soil.

The PRESENT PRODUCE of the District is chiefly corn, and other *arable crops;* with some extent of "brook lands," or *marshes*, at the conflux of the two rivers; and a few narrow *meadows*, on the sides of the Rother; but with very little upland sward, or *grass land*. The natural *woodlands* are inconsiderable; but the want of coppice wood is, in some measure, supplied by *cultivated furze grounds*.

A country of this description can, in itself, have little claim to ORNAMENT. The offscape, however, is generally good. The views from Petworth Park,—which equally commands the Weald, the District under notice, the rugged front of the wild broken heaths that have been described, and the strongly featured steeps of the Hills of Sussex and Surrey, lengthening to a very great extent,—though they are seldom beau-

tiful, are frequently grand; well according with the magnificence of the house, and with the extensive domains that attach to it.

In the management of ESTATES, I met with nothing of excellence, in the District under view. And its management of WOODLANDS is similar to that which has been described, in the WEALD. I therefore pass on to

FARMS,

AND THEIR

MANAGEMENT.

THE FARMS are of good SIZE. Many of them below the middle class: some rising to two or three hundred pounds, a year. Their CHARACTERISTIC is arable; except towards the east end of the District, where the marshes are joined with the arable lands.

FARMERS. The District, in general, is occupied by TENANTS; several of whom are wealthy, and intelligent. Nevertheless, there are very few districts of the Island, at this day, in which a larger portion of ill placed prejudice, still remains, than in the northwestern parts of Sussex.

BEASTS OF DRAFT. Opposite as are the natures of the lands of the Weald, and of this District, the species, and proportion, of working stock are the same: namely, HORSES and OXEN, in nearly equal numbers. And the only difference, in the manner of working them, lies in one horse, less, being used in the plow team, here, than in the Weald; except that, here, oxen are more commonly used, in plowing, than they are in the Weald; and, what is inexplicable, as many, or a greater number, are used, to plow light free sandy soil, in the neighbourhood of Petworth, as to plow the strong heavy lands of the Weald! I have seen eight oxen, moving a snail's pace, in *stirring a light loamy fallow*, which any two of them, with a proper implement, might have done, faster, and better.* Four oxen,

* Nov. 27, 1797. Since the above was written,

and two horses, to lead them, I have seen employed, in the same unprofitable manner.

IMPLEMENTS. The WAGGONS run the same most eligible width, here, as in the Weald; namely, five feet and a half, from middle to middle of the ruts. I have seen them in an excellent form: wide, low, convenient, farm carriages.

The PLOW in use, here, is of a singular construction; and is common, if not peculiar, to the west of Sussex: I have seen it used, by individuals, in other districts, particularly in Surrey; but do not recollect to have observed it, in common use, any where but in West Sussex.

It has a rising beam, like that of the Norfolk plow, and the turnwrest plow of Kent; but with only one small wheel; which runs upon the land, or soil to be turned; nearly in a line before the coulter.

An advantage of this plow is that of giving room, under the beam, for stubble or weeds, which may rise before the coulter;

this assertion has been *more* than verified. In a PRIZE PLOWING, held at PETWORTH, a few days ago, two Sussex oxen, plowed an acre of *firm clover ley*, for wheat, a full depth, in less than six hours.

and to a lazy, or an aukward plowman, a wheel is convenient; especially in plowing stubborn or stony lands, or in very shallow soils, where a nice regulation is required, as it frequently is, in Norfolk. But, for the free loamy lands under notice, a light swing plow in the hands of a man who knew how to set and hold it, would, I am of opinion, be more eligible, and more convenient to the plowman, than the tottering unsteady implement, in use. The wheel is liable to be raised, or turned aside, by every clod or protuberance, it meets with; while the top-heaviness, caused by the height of the beam, adds to the unsteadiness. Its best recommendation is the lightness and elegance of its appearance.

The OBJECTS of husbandry are chiefly CORN; and EARLY LAMBS, for the London market.

The CROPS, in cultivation, are *wheat*, and *barley*; with some *oats* and *peas*; many *turneps*, (but *no potatoes*) much *rye* and *tares*, for spring food, as well as for soiling, or verdage, in the stable; and with a portion, but small, of *cultivated herbage*; and this is seldom continued, more than one year.

The SUCCESSION of these crops, with regard to each other, is not reduced to any regular established order; each manager going by his own judgment, and the particular circumstances that occur on his farm: and (as has been already suggested) on a farm, merely arable, without any regular stock establishment, which requires a forecast, beyond the passing year, such fortuitous management is more eligible, than where a fixed number, and a regular succession, of livestock are kept up.

TILLAGE. The unpardonable waste of labor, that is made, in this part of the Sussex management, equal no doubt, in a course of years, to the rent of the lands, has been mentioned; and I have not been able to detect, here, as in Kent, any counterbalance, to make up for the loss.

The only point of management, with respect to tillage, that met my eye, in West Sussex, as being entitled to particular notice, is that of TREADING THE LIGHTER LANDS, WITH THE PLOW HORSES,—when turning the *seed furrow* in a *dry season*. Instead of letting three horses, at length, draw in the last made plow furrow, as is

customary, and in most cases proper, they are made to go by the side of it, and thereby to tread, and compress, the line of soil they are turning.

This simple principle (for such it may be called) though not peculiar to West Sussex, is not sufficiently attended to, in general; but might well be adopted, in every light land district, in a dry season;—the advantage might, in many cases, more than counterbalance, even the expence of an additional horse and a driver, in countries where two horses, abreast, are the ordinary team.

MANURE. The species, and management, of manures are much the same, here, as in the Weald; except that, in the District under view, MARL is more or less used; and except that, in one instance, I saw the MOORY EARTH of a heathy common, burnt, in large heaps, for manure.

The MARL is either an adulterate chalk, found near the foot of the chalky steeps of the West Downs; lying between the chalk rock and the Maam soil; partaking of them both; in truth, a marl of the first quality; —or a sort of blue mud, or clay, dug out of the area of the District; particularly, I

believe, on the south side of the river. This is said to have been set on, with good effect; while the former is spoken of, as of less value: whereas, the white is more than three fourths of it calcareous; while the blue does not contain ten grains, percent, of calcareous matter! *

REMARKS. Surely, the immense mounds of CHALK RUBBISH, which lie, as a nuisance, at the feet of the Houghton quarries (see the SOUTHERN CHALK HILLS) on the immediate brink of the Arun navigation, might be turned to a profitable purpose,—as manure; particularly, on the banks of the navigable rivers, or canals; not only in the District, now under view, but in the Weald.

* ANALYSIS OF MARLS. One hundred grains of the *white* marl of *Duncton* yielded seventysix grains of calcareous matter; leaving twentyfour of an earthy residuum. By other two trials, the proportions were, in one, seventyeight and a half of calcareous matter, with twenty-one and a half of residue; and, in the other, eighty grains of calx, and twenty of residuum.

One hundred grains of the *blue* marl of *Hardham* yielded eight grains and a half of calcareous earth; with ninetyone and a half of grey, smooth, tenacious silt.

In this District, an impure FULLERSEARTH is likewise found: and RED OCHRE of a good quality.

A principal use, some will say the only one, of *burning* chalk, and other calcareous substances, for manure, is that of reducing them to a state of fine powder; in order that they may blend, more intimately, with the soil; and, under this idea, even the harder limestones have been *pounded*, at a great expence, in countries where fuel is scarce. The late Lord KAIMS had a watermill erected, for this purpose, on the banks of Loch Rannoch, in the Highlands of Scotland.

Whether reducing hard limestones, by *mechanic force*, has ever answered the expence, I cannot say. It is, nevertheless, very probable, that chalk would pay, amply, for the operation. The common bark mill—the Herefordshire cider mill—a stone wheel running in a stone trough—would, I apprehend, crush several loads, a day; especially of the broken materials, here spoken of. Two plain cylinders, working against each other, on the principle of the sugar mill, and the oat bruiser, might be found more expeditious and effective. If fixed horizontally, and placed against a rising ground, with a road and shedded platform, on the upper side, to lay up the

dry chalk, and with a pit or vault, below, to receive the reduced materials, there to be skreened, and kept dry, for use, the expence, especially if the cylinders (and perhaps the skreen) were turned by water, or by wind, could scarcely fail of being repaid, by the more immediate, and increased action, of the manure.

This, however, by way of hint, to those who may conceive themselves sufficiently interested, to give the plan a fair trial. The flints, with which chalks more or less abound, appear to be, theoretically, an obstacle to success; and, in moving the rough chalk, they should doubtless be thrown aside. Perhaps, smooth rollers, of a suitable diameter, might reject them; and, if they were set somewhat dipping endway, as an inclined plane, the flints might thus be got rid of: if not, the skreen or sieve might separate them, as well as the uncrushed knobs of chalk, which had passed with them. I am strongly impressed with the idea, that the trial should be made, and therefore make no apology for bringing the subject forward, in this incidental manner; especially, as I know no place, where it

could be made, with a greater prospect of extensive benefit.

LIME. On the demesne farm of PETWORTH, I had a favorable opportunity of attending to the method of *burning chalk with fagots*.

In speaking of the Weald, I mentioned it, as a practice of that District, for every farmer, who holds lands of any considerable extent, to burn his own lime. I have observed no *public* kilns, either in the Weald, or in the District now under view.

The kiln, on which I had the opportunity of making my observations, was the ordinary kiln of the country: not only the form, but the size, of these private kilns being very similar; and probably of long standing. The form is that of a cask. The diameter of the top and bottom eight feet, in the middle nine feet; the depth ten feet. the walls are of stone, lined with bricks, and three feet and a half, in thickness. The floor is irregular. The area is dishing, or hollow, to receive the ashes; a border, or "bench," of strong masonry, about eighteen inches wide, occupying the outer circle; being, in reality, a foundation offset, of that

width; leaving, however, a gap or opening, on one side, for the eye, or mouth, of the kiln; which is two feet and a half, in width, and four feet or upward, in height.

The mystery of burning lime, with fagots, in a kiln of this construction, lies chiefly in "setting the kiln"; which is considered as a thing of so much difficulty, as to render "lime burning" a distinct calling. Ordinary farm laborers have no pretensions to the art. The man, whose practice I saw, was not only a "lime-burner," by trade, but by birth and descent; the art having been practiced, by his forefathers, for four generations; and he himself had passed the middle time of life. These circumstances, alone, prove the antiquity of the practice: indeed, no one, I believe, pretends to ascertain its origin, in this country.

The art may briefly be said to consist, in building an *oven*, with chalk, at the bottom of the kiln; and then filling the upper part of it, judiciously, with the same material.

The workman begins, by setting middle-sized blocks, upon the bench, or foundation offset, above described; carrying up the wall,

nearly perpendicularly, but somewhat leaning inward, three or four feet high. The arch, or crown of the oven, is then turned, with the largest of the blocks (some of them containing, more than a cubical foot of chalk) choosing them, for this purpose, long and narrow, and placing the small ends, inward, or downward; being careful to bind, with small pieces; so as to secure, firmly, each ring of the dome, before the superincumbent ring be attempted: thus forming a flat dome, without a *center*, and without cement.

The dome being secured (at the height of five or six feet from the floor) large blocks are continued to be set, by hand, over the crown of the arch, in the middle parts of the kiln; in order to induce the fire to find its way, upward; the smaller pieces being thrown in, at random, round the outsides; and over the upper surface of the large pieces. But no rubbish, or even fine chalk, is used, to cover up the kiln; as is frequently done, when coals are used, as fuel. In the practice under notice, the top of the kiln is finally covered, with large flat blocks; which, being there only par-

tially burnt, are returned to the kiln, at the next burning.

Each kiln, filled in this open loose manner, takes four large waggon loads of chalk, and employs a man, with a boy or youth as an assistant, one day, to fill, or set it.

The difficulty of the art seems to lie in turning the arch, or dome, strong enough to bear the superincumbent burden, during the intenseness of the heat; yet open enough, to permit the flames, to pass freely upward. If the draught be checked, above, they fly out, unprofitable, at the mouth of the kiln. Hence, the necessity of setting the central parts, over the crown of the dome, with large blocks, and by hand, so as to promote a sufficient draught, without giving too much liberty to the flames; which ought to spread, as equably as possible, to every part of the furnace.

The *fuel*, in the case observed, was small fagots, of furze and broom, which had been stacked up dry, near the kiln. A thousand of these fagots are the ordinary allowance, for burning a kiln, of the size described. They are burnt, as fagots in an oven; the fire being managed, in the same, or a simi-

lar manner. Two men attend the burning; which, usually, is continued about twenty-four hours; more or less, according to criteria, which practice points out.

The established *price*, for setting the kiln and burning, is ten shillings. Reckoning the fagots, at the kiln, to be worth five shillings, a hundred,* the whole expence, of fuel and labor, is three pounds. A kiln, of this size, turns out seven cart loads of lime; estimated at eight chaldrons, of thirty-two bushels each. Hence, on this calculation, the *expence* of *burning* chalk, with fagot wood, is seven shillings and sixpence, a chaldron; or near three pence a bushel. The cost of the *chalk* depends on the distance of the kiln from the quarry,—at which a shilling, each waggon load, is paid to the quarrymen, and sixpence (I think) to the lord of the soil. *The price of lime*, at Petworth, is seven pence, a bushel.†

* The price of fagots, on the ground they grow on, is three shillings and sixpence, the hundred, of five score.

† ANALYSES of the DUNCTON CHALKS. By four separate trials, with "*white chalks*," (which are burnt for *manure*) of different quarries, and taken at different

The shelstone, or marble, of the Weald is burnt (or rather has usually been burnt, very little of it being now raised, for lime) in a similar manner.* The received idea, here, (at least, in the mind of the hereditary lime burner, whose practice I particularly observed) is, that stone lime, however good it may be for grass land, is not equal to chalk lime, for corn; as it "brings weeds and rubbish;" while "chalk lime cleans the land." It is almost needless to add, that *he believes* wood-burnt lime to be incomparably better, for any thing, than lime burnt from the same material, with coals.†

From the foregoing sketch of BURNING LIME WITH FAGOT WOOD, in the Southern

depths, the residua were, from three to six and a half, percent; the upper strata being the purest.

By two trials, with "*grey chalk*," which is burnt for *cement*, the residua were twentyfive and twentyseven grains, percent! Yet the lime burnt from this *foul* chalk is esteemed of an extraordinary quality, by stone masons. The indissoluble matter is an extremely fine tenacious silt.

* SUSSEX MARBLE, or PETWORTH STONE. By the marine acid, an hundred grains yielded ninetytwo grains of calcareous matter, and eight grains of an earthy residuum.

† See DISTRICT OF MAIDSTONE, also the WEALD OF SUSSEX, for similar opinions.

Counties, it is pretty evident, that, notwithstanding the facility with which it is there executed, it would be hazardous to attempt it, in another country, as a new thing, without having a person, practised in the art, to set it on foot. The principle is evident, but the difficulty of turning the dome, to stand with certainty, would seem to require considerable experience.

This difficulty, it is probable, suggested what appears to be a valuable improvement, in the art; and which I had lately an opportunity of examining, in the DISTRICT OF MAIDSTONE.* Instead of *one* capacious *oven*, *two* straight *arches* are turned, in the bottom of the kiln. For this method, there is a "middle bench," as well as the side benches, of the West Sussex kiln. In that I examined, the middle bench was about two and a half feet wide; and the archway, on either side of it, nearly the same width. The arches, (being raised, some two feet above the benches) are turned (part after part, by a man standing in the bottom of the kiln) with three *rough* blocks of chalk, bearing a resemblance (accidentally, or as-

* See Vol. I. page 89.

sisted by a tool) to the ordinary key stone of an arch: a work which is performed with little difficulty; and which the roughest stone mason would, anywhere, easily execute. The filling of the kiln, over the arches, is the same as over the oven: care being taken to spread the fire, equally, through every part; which is more easily and effectually done, by two, than by one, fireplace.

These double-arch kilns may be burnt either with wood, or with coals. That which I saw, near Maidstone, had iron grates thrown across, between the benches; on which coals, brought up the Medway, were burnt.

It is here to be observed, that, in the Weald of Surrey, I have seen *bricks*, and *tiles*, burnt in kilns, of the first description. The oven, or dome, being formed, with chalk, bricks are set upon it, to receive the fiercest heat, and, on these, tiles. The three materials being, by this means, conveniently, and accurately burnt, with fagot wood.

On the other GENERAL HEADS of the ARABLE MANAGEMENT, I collected nothing, in this District, that requires to be noticed,

here. Nor, in the culture of PARTICULAR CROPS, did I find any thing, which is new to these Registers;

Except an instance of sowing WHEAT, after turneps, *without plowing!* This instance occurred in the practice of one of the principal farmers of the District. Part of a piece of turnep ground was plowed, and sowed, in the usual way; the rest was only harrowed, or "dragged;" the seed sown; and covered with fine harrows. The consequence, as related, was a fine crop, and free from smut; while the part, plowed, was not only an inferior crop, but was smutty.

This loosely reported incident, however, only suggests the idea, that *light* and *absorbent* soils, which are *already in a state of cleanness and tilth*, may be injured by a seed plowing; especially in a dry season.

Another instance of practice, however, is well deserving of notice. I saw a very good crop of WHEAT, growing on *very light land.* It was sown in September; the surface immediately dunged; the dung harrowed in, as a top dressing; and afterwards incorporated, still more effectually, with the soil,

by treading it in, with sheep; which not only *fixed* the manure; but assisted in giving the desired texture to the soil; beside being serviceable, in checking the ravages of the sodworm.

If it be right to grow wheat, on very light land, these appear to be eligible means, for obtaining a crop.

The HERBAGE of RYE is, here, a common crop; both for eating upon the ground, and for green forage; but chiefly for ewes and lambs.

In the middle of April, 1791, I saw ewes and lambs feeding on rye, which was then nearly a foot high; but the spring was forward. In the beginning of May, the rye was in ear; yet still sheep were upon it; gathering the tops; and leaving the stubble, the height of the knee.

CULTIVATED HERBAGE. This is chiefly or wholly CLOVER; and this, I believe, is seldom, if ever, suffered to remain in the ground, more than one year.

The reason given, for not keeping the arable lands, longer, in a state of temporary herbage, is, that the sodworms would destroy the wheat crop.

REMARK. If this is really the fact; and no method of preventing their mischiefs, by clean tillage, or otherwise, can be struck out, the present practice may be right. But the soil, itself, is well adapted to the Norfolk practice, of a crop of clover the first year, and a spring crop of raygrass the second; breaking up the second year's ley, as soon as the spring shoot of raygrass is pastured off, and fallowing the soil, through the summer, for wheat. A practice which appears to be peculiarly suited to the District of Petworth; as the spring shoot of raygrass would be found highly serviceable, in the ewe-and-lamb husbandry, which will be mentioned: and the fallowing might be still more advantageous, in destroying the vermin.

SAINFOIN. An instance of sainfoin flourishing on a poor, *uncalcareous*, sandy spot of ground, within the District now under view, being evidenced, in such a manner, as to leave no doubt of the fact, I made a point of examining the field where it grew, and inquiring into the circumstances that accompanied this interesting incident.

The subsoil, at the depth of two feet, is

a sheer sand, perfectly noncalcareous. The bottom of an interfurrow (about a foot below the general surface;—the field then in a state of fallow) was perceptibly calcareous. Among the topsoil, some knobs, and many specks, of chalklike matter appeared; also some flints.

An elderly laborer, who knew the field, and the circumstances attending it, at the time it was in sainfoin, related to me,—that the first year's crop was very good; full two loads an acre; the second year, too, it was good; but not so large as in the first; that the third year, it never rose to the sithe; and the fourth year, it was plowed up; some pasturage being all that was got from it, the two last years.

With respect to the chalky matter, found in the soil, he thinks it proceeds from lime, not from chalk or marl, as he never heard of its being dressed, with either; but the person to whom it then belonged, he says, limed very highly. Nevertheless, some of the knobs I picked up, wear no appearance of their having passed through fire; and the land may, heretofore, have been marled or chalked.

This being as it may, it is sufficiently evident, that the two profitable crops of sainfoin, which this field produced, was not the product of the natural soil; but were thrown out by the calcareous matter, that had been mixed with it. And it is very probable, that all soils, that have been marled, chalked, or repeatedly limed, will give out a few crops of sainfoin; according to the quantity of calcareous matter they have received.

HOPS. There are several small grounds, in the District under view: particularly about the village of BYWORTH, in the neighbourhood of Petworth; and that of LODSWORTH, situated at the point, where the three districts,—the Weald, the Sandy loam, and the Heaths,—may be said to form their junction; and, what is remarkable, this small plot of country exceeds them all in fertility; being singularized by its grass lands, its orchards, and its hop grounds.

In the MANAGEMENT of hop grounds, the Farnham practice is followed: and my chief motive for mentioning them, here, is to show the eastward extent of that practice. See the VALLEY OF FARNHAM.

ORCHARDS. The township of BURY, on the maam-soil lands, abounds with orchard grounds. In a bearing year, several hundred, even a thousand, hogsheads of cider are said to have been made, in this parish only.

The TREES are most noticeable. They are much lower, and stand closer on the ground, even than those of West Devonshire. The filbert bushes of Maidstone, are many of them taller, and stand wider, than the apple bushes of Bury. They are chiefly, I was told, of a singular variety, which grows freely, from cuttings, or rather slips, plucked from the boughs; and that may account for the shrubbiness of their growth. This variety is called, there, the "sweet apple," which may be an object of cultivation, in other places.

An instance occurred to me, in the District under view, of the hardiness of the apple blossom; at least in a season, when there is a sufficient strength of blow. On the twelfth of May, there was ice, as thick as the half-crown piece; many ash trees were much injured, by the frost; yet the blossoms of the apple remained bright, and in full vigor.

HORSES. *In speaking of the management of horses, in* YORKSHIRE, I mentioned an idea, that had been suggested to me, respecting the probable advantage to be gained, by the SPAYING OF MARES; not being apprized, at that time, of its ever having been attempted, to be carried into practice.

In this District, however, it has been carried into effect. I saw a mare, in 1791, then rising five or six years old, which was spayed, at eight days old, by a colt-cutter, in the neighbourhood of Petworth.

She was a well bred mare, and of a size proper for hunting. The farmer, to whom she belonged, asked seventy guineas for her: a proof that, in his esteem, at least, she had not been injured by the operation.

It is proper to be mentioned, here, that the tenants of the PETWORTH ESTATE, who are desirous of breeding hunters, or saddle horses, of a superior quality, have the privilege of sending their mares, to the first blood horses in the kingdom, *gratis;* except the usual fee, to the groom. This is a species of generosity, which brings its own reward; by furnishing the country with

valuable horses; and by their comparatively high prices enriching the estate.

CATTLE. In the WEST OF ENGLAND, I hazarded some general remarks, on the different BREEDS or varieties of cattle, that are at present established in this Island; as well as on their probable origins. The SUSSEX BREED are there considered, as one of the purest branches of the native, or ancient stock of the Island; and as agreeing, in almost every essential character, with the present breeds of DEVONSHIRE, and HEREFORDSHIRE: and I have not, since publishing those remarks, had any reason, to alter that opinion.

In East Sussex, as in North Devonshire, the breed has long possessed the largest size, and, in many respects, the best form; though, on the borders of Kent, as has been already noticed (see WEALD OF KENT) some individuals possess too much of the squareness, and gumminess, of the old short-horned, or Dutch breed. Nevertheless, as has likewise been intimated, there are individuals, in that part of Sussex, and in the Weald of Kent, which are apparently free from that base admixture of blood, and which

are of a size, and in a form, equal to the best of the South Herefordshire cattle. On the contrary, in the West of Sussex, as in the West of Devonshire, a thinness of flesh, and carcass, has been the prevailing character.

LORD MONTAGUE (the predecessor of the late Lord) paid much attention to the breed; and raised it to a degree of excellence. In 1791, I saw the *remains* of the Cowdry stock: among them, eight oxen, in a carriage, which were, I think, the finest and most valuable team of oxen, I have any where seen. In *Sussex*, his Lordship is said to have effected this great improvement, solely, by the means of Sussex cattle, drawn from the eastern parts of the county. But a gentleman of *Devonshire* assured me, that the North Devonshire breed had some share in the improvement. And, judging from the cleanness, color, and form, of some of the individuals I saw, this was probably the case.

Whatever was the real source of the breed of COWDRY, West Sussex has the less to regret, in the loss of it, since LORD EGREMONT is carrying on the patriot work of

improvement, with unequalled zeal; and on a broader basis, than that on which it has, heretofore, been pursued, in any part of the Island; and to the PETWORTH BREED, it is highly probable, the county, and the country at large, will, hereafter, look up for the point of excellence.

His Lordship, having no confined view to direct him, nor any narrow prejudice to warp his intentions, has blunted provincial jealousies, by indiscriminately selecting from the three kindred breeds, of SUSSEX, HEREFORDSHIRE, and DEVON, individuals of the first quality; and breeding, from these, as from one and the same stock: keeping steadily in view, the three essential qualifications of cattle; namely, WORKING, the DAIRY, and GRAZING.

To promote this conflux of the purest blood of the three varieties, and of course their general improvement, his Lordship, a few years ago, instituted EXHIBITIONS of cattle, of these breeds; and distributed REWARDS, to those who produced the most perfect individuals; no matter from which of the three varieties their blood might happen to spring.

The improvement which has been already made (1797) by these truely noble and patriotic exertions, is evident, in the young stock now rearing; and the more PUBLIC SHOWS, which, to forward those exertions, have been appointed to be held, annually, at LEWES, cannot fail, so long as they are conducted, *on the same basis*, and in the same *disinterested, public-spirited manner*, to prove a lasting benefit, to the Southern Counties, and the kingdom at large; there being no other established breed in the Island, equal to those under notice, for the three essential purposes of cattle.

In the GENERAL ECONOMY, or MANAGEMENT of CATTLE, I noticed nothing, in the District under view, that requires a place, here; except the method of

REARING CALVES. In this particular, (as was noticed in the last District) the Sussex practice is singular; essentially differing, I believe, from every other *established* practice of the Island, at the present day. In other parts of England, calves are either reared wholly by hand (not being at all permitted to suck their dams), as in the north of YORKSHIRE; or are suffered to

remain at the teat, a few days, and are then fed with milk, gruel, or other nourishing food, in the pail, for several months; until they are finally turned abroad, to grass and water: the process of rearing calves being, —for an obvious reason, that of collecting dairy produce,—different from the more natural way of rearing every other species of domestic animals. Whereas, in Sussex, horses, cattle, sheep, and swine may be said to be reared, in the same manner.*

Before the invention of pails, this was necessarily the prevailing practice; which would seem to have been handed down, in Sussex, from that time, to the present. In early spring, young calves, as young pigs, are seen loose with their dams, in the yards; and, afterwards, in the field, as foals or lambs! While the calves are young, the cows afford a greater or less surplus of milk; and, after the weaning of the calves, they are brought, wholly, into the dairy.

* In the MIDLAND COUNTIES, and more or less, in other places, it is not unusual to rear bull calves, and perhaps highbred heifers, at the teat; but seldom at their dam's; ordinary cows being bought in, for this particular purpose, and afterward fatted, as grazing stock.

The age of weaning is from ten to twelve weeks; when the calves are put, solely, upon grass; without milk, and without water! Another singular point of practice; which appears to be entitled to attention. The motive assigned, for not allowing them water, is that of preventing their becoming "pig-bellied": and, while they have a full bite of succulent herbage, especially in a moist season, this point of the Sussex practices is probably well founded; and should be tried, with due caution, in other countries.

SHEEP. This is, naturally, a sheep district; and it has not only adopted them, in preference to cattle; but has fallen into a routine of practice, to which, by situation also, it is well adapted: namely, that of providing EARLY GRASS LAMB, or rather FIELD LAMB, for the METROPOLIS: a practice which is the more profitable, as it is confined, I believe, to a few districts. WEST SUSSEX, and the ISLE OF WIGHT are the only ones, in which I have particularly observed it.

The BREED, which are applicable to this species of sheep farming, is the *Dorsetshire*,

or *house lamb* breed: (see WEST OF ENGLAND).

The PLACE OF PURCHASE is principally, or wholly, *Weyhill;* being brought, to the Michaelmas fair, full of lamb, from Devonshire, and the other more Western Counties. (See as above.)

The desired TIME OF LAMBING is about a *month before Christmas.*

Their FOOD is the herbage of the stubbles and leys, from Michaelmas to near the time of lambing; and, from thence, on turneps, tares, rye, and other cultivated herbage.

The TIME OF SALE, I believe, generally commences about the beginning of April; and lasts, during the whole of that month, and part of May; thus supplying the market, until *grass* lamb be ready.

The PLACES OF SALE are *Smithfield,* and the different *markets,* in London; particularly, I understand, *Leadenhall market:* where they are sold by COMMISSION BUTCHERS; who take the charge of them, from the farm; slaughter them; and sell the quarters, to the retail butchers; accounting, to the farmer, for the gross amount of the sale; to-

gether with the sale price of the pelt and offal.

The PRICE which the commission butchers accounted for, in the middle of April, 1791, was seven pence, a pound, for the quarters, with about three shillings a head, for the offal.

But, at present (1797), the early lambs, from this quarter of Sussex, are chiefly, I understand, sold alive, in Smithfield.

The DISPOSAL OF THE EWES is effected in two ways. If a farmer have plenty of food left, after the lambs are sold off, he throws his ewes into a flush of keep, and gives them the ram. I observed ewes (off which lambs had just been taken) with a ram among them, picking off the heads of rye coming into ear, the third of May ; and, urged by this stimulating food, they were expected to receive the ram, in about a week from that time. On the contrary, if his food has been expended, on the lambs, he sells his ewes, to those who have a suitable provision made for them.

Ewes impregnated, at this early season of the year, become valuable to the HOUSE LAMB FARMERS; who either purchase them,

immediately of the field lamb farmer, as his food is exhausted; or of a sort of MIDDLE MEN, who make a business of purchasing the suckling ewes of the latter, as soon as their lambs go off; and, having suitable food prepared for them, procure the early impregnation required; afterwards, supplying the small house lamb farmers, near London, with such lots as they may want.

REMARK. Thus, the practice under notice forms a requisite link, in the chain of rural transactions, which supply the metropolis, with WINTER LAMB. Such ewes, as the West of England sheep farmers cannot send up, forward enough in lamb, for that purpose, (and which is necessarily all those that have *reared* their *last* lambs) are purchased, by the field lamb farmers; who, by *fatting* their produce, early in the spring, gain an opportunity of bringing them forward enough, the ensuing autumn, for the purpose of the house lamb farmer: who continues to use them, as suckling ewes, so long as their milk lasts; and, then, either sells them to the grazier; or sends them back to the middleman; and, by that means,

another produce of early house lamb is obtained.

What renders the District of Petworth favorable to this practice, is not so much its being situated, in some degree, between the West of England and the environs of London, as its being one of the few Districts, in which even the Dorsetshire ewes can be induced to receive the ram, soon enough, for the profitable purpose of producing early winter, or Christmas lamb.

SWINE. Another practice, peculiar, perhaps, to West Sussex, as I have not met with it in any other part of the Island, is that of summering store swine, in marshes; treating them as a species of grass land, or PASTURING STOCK.

This singular practice I observed, on the "brook lands," at the junction of the Arun and the Rother, between Pulborough and Arundel; and on these, principally, I believe, the practice is pursued, on a large scale.

At the time I had an opportunity of observing it (about the middle of April) the season had barely commenced: nevertheless, then, there were many spread over the area of the Marshes, grazing as sheep on commons.

Beside their own stock, the Marsh farmers take in joist, or agistment swine, at the low price of half a crown, a head, for the summer; namely, from the beginning of May, to the middle of September: with, however, one shilling a head, more, to the swine herd, for his care and attention: thus paying, for near twenty weeks, fortytwo pence; or somewhat more than twopence, a head, a week.

Pigs of almost every size, and age, *and of any breed*, are sent to those brook land pastures; but chiefly, I understand, growing store hogs, from three or four, to ten or twelve months old. Even sows in pig are sometimes kept there, until they farrow.

The fences of these Marshes are sewers, or water ditches; which are found sufficient to confine the young hogs; though the older sometimes break away.

From what I gathered on the subject, it appears, that store hogs, which are sent to those Marshes, in tolerable condition, will retain that state, and increase considerably, in size; especially, if the season prove dry. Under these circumstances, the usual improvement is five to ten shillings, a head.

On the contrary, if they are sent in, poor, and a wet summer ensue, many of them die of the rot; and those, which survive, make little improvement.

Upon the whole, it appears to me probable, that swine will not be found, in this Island, a profitable species of pasturing stock: at least, while the valuable breeds of cattle and sheep, which it is at present possessed of, are to be had, in sufficient plenty. As an attendant on the dairy, the farm yard, and the cottage that has a sufficiency of garden ground annexed to it, the hog is a most valuable species of domestic animal.*

* GRASS PORK. I must not, however, omit to mention, here, an interesting experiment, made by my Lord Egremont, on fatting porkers, at grass. This experiment was made, with the "white Chinese," a neat small breed of pigs. They were put, at six or seven months old, into a suite of fatting deer paddocks, in the month of May, and remained, there, until October; when the pork was *firm*, finely flavored, and the color peculiarly delicate. This experiment suggests the idea, that, by allowing grazing hogs a small quantity of corn, to give the flesh the requisite *mellowness*, pork of a superior quality,—and of singular *purity*,—may be produced.

A practice of cottagers, in this part of the Island, with respect to the animal under notice, is well entitled to attention, in every other. During the spring and summer months, every laborer, who has industry, frugality, and conveniency sufficient, to keep a pig, is seen carrying home, in the evening, as he returns from his labor, a bundle of "HOG WEED;"—namely, the *heracleum sphondylium*, or cow parsnep; which is here well known to be a nutritive food of swine. Children, too, are sent out, to collect it, in by roads, and on hedge banks. And there may be other *weeds*, if trial were made, that might be found equally nutritious.*

DEER. Another extraordinary practice of West Sussex remains to be noticed.

In every quarter of the kingdom, it has been prevalent, of late years, to *dispark*, wholly or in part, the deer which had been occupying, unprofitable, no inconsiderable

* COW PARSNEP. The early and rapid growth of this plant has, long ago, and frequently, struck me. Not only swine, but sheep and rabbits, are partial to it. Surely, its cultivation should be attempted. Its seeds are most easily collected. As green forage, for hogs, it could not fail of being profitable.

portion of its lands, for some centuries past; and to supply their places, with sheep: thus rendering the demesne lands of benefit to the public, as well as profitable to their owners.

In Sussex, similar advantages have been obtained through somewhat different means. Here, instead of driving away the deer, and introducing sheep, the former have been converted to profit. And although the public benefit may not be so great, from venison and deer skins, as from mutton and wool, there seems to be no *impropriety* attached to the practice, of sending the former to market; a practice which is here followed, though not by men of the highest rank, yet by men of good fortune, and the first character.

RABBITS. This diminutive, but in many cases profitable, species of farm stock, is not uncommon, in this part of Sussex. But, here, as throughout every part, I believe, of the SOUTHERN COUNTIES, they may be said to remain in a state of nature; without fences to confine them. But, surely, on many of the lighter lands of this District, INCLOSED WARRENS, partially cultivated, as

in the North of England, might be found very advantageous.

STATE OF HUSBANDRY. Seeing the soil of this District, and the peculiar advantage of its situation, with respect to the house lamb breed of sheep, the OUTLINE of management appears to be judicious. But a want of due attention to MINUTIÆ, or particular points of practice, is everywhere evident. In returning to the District, in the autumn of 1791, after having examined, with more or less attention, the several districts between this and the Land's End, the first notice I find in my Journal stands, literally, thus:—"the foulest plot of country I have seen since I left it!" And this, notwithstanding the unnecessary expence that is betowed on its culture.

IMPROVEMENTS. The first and greatest improvement is, obviously, that of RECLAIMING THE LANDS, from their present state of FOULNESS. And, in doing this, to adopt a PLOW TEAM suitable to the soil; and thus reduce the expence of tillage, to little more than half of what it costs, at present. TWO OXEN, of a suitable age, and seasoned to their work, with one man and

a proper implement, are abundantly sufficient, to perform what I have repeatedly seen six, sometimes eight oxen, with a man and a youth, or perhaps two men, employed upon!*

By UNDERDRAINING, much improvement might be made; especially, on the southern side of the District. I observed many instances, in which low moory grounds would pay, five fold, for the operation,—*if properly conducted.*

By WATERING, still more is to be done, on that side of the river. The calcareous brooks and rivulets, that rise, wholly, or in part, at the feet of the Chalk Hills, would pay, amply, for the expence of conducting them over the grass lands, that lie low enough to receive them. In 1791, I observed only one suite of grounds, that benefited, in any sort, by this natural advantage. At that time, however, another smaller plot was undergoing the operation. And numberless other sites were aptly placed, to receive it. Even the waters of the Rother, which receives part of its supply from the same source, would, it is highly pro-

* See BEASTS OF LABOUR, page 171.

bable, be found a profitable, as well as a copious, means of this improvement.

Tenants, however, might with great juness reply, to these proposals—"It would be imprudent, in us, to set about such improvements, unless we had some certainty of reaping the benefit of them:" and, doubtless, the first step towards agricultural improvements,—is that of GRANTING LEASES. Even the ruinous state of foulness, in which the lands of this District remain, may find some excuse, in the uncertainty of the tenancy, under which, I understand, they are principally held.

This FOUNTAIN OF IMPROVEMENTS belongs to PROPRIETORS; and it is ever their interest, independent of all other considerations, to set the example of good will towards men, and to sow the seeds of improvement, upon their estates; that they may take root, grow up, and flourish, with their tenantry; who, on a leased estate, have not only the example before them, but the more powerful motive of their own interest, in view.

The rapid decrease in the value of money, that has been going on, for the last twenty

years (owing to a banefully impolitic influx of circulating paper) and the consequent *nominal rise*, in the rents of lands, has deterred many men of landed property, from granting leases, of a sufficient length, to induce spirited tenants, to lay out their money, in the requisite improvements: thus smothering the very principle, which it is their best interest to cherish.

Twentyone years is the term coveted, by an improving tenant; and, when such improvements, as draining, watering, and marling are required, a shorter term cannot, in itself, indemnify a tenant. Hence, it is indispensably necessary, to the improvement of an estate, on which draining, watering, marling, or any other *permanent*, or *lasting* improvement is to be made, either to grant a term of sufficient length; or to make the requisite improvements at the proprietor's own expence; or to indemnify the tenant, for the *remainder* of such improvement, at the expiration of his term.

Beside, there is one general argument held out, against leases, of any determinate length, and in favor of letting estates remain at will, or from year to year. When

a tenant knows, with certainty, the end of his term, he arranges his plan accordingly, and strives, by every means, to exhaust and impoverish his farm; and, in cases of rancor and ill blood, between landlord and tenant, not unfrequently, at his own cost. Indeed, some cases of this kind have fallen under my observation.

These circumstances led me, many years ago, to a principle of management, which, I conceive, ought to be adopted on every estate, which is under leases, for terms certain: namely, that of coming to a clear understanding, with the tenant, *three years previously to the expiration of his term;* and either to renew his lease, at that time; or, in case of non-agreement, to look closely to his management, during the remainder of his term: for, until within three years of the expiration of the term, the interests of the landlord and the tenant, in the ordinary routine of husbandry, are the same. A tenant, previously to that time, cannot (unless in a few instances) injure his landlord, without, at the same time, injuring himself. But about that time, their interests begin to separate. The farm may be in a sufficient

state of melioration and tillage, to last out the term, with little addition of labor or manure; and it is a matter of indifference, to him, in what state of foulness and sterility, it is left; provided his interest, on the whole, has been benefited. The consequence is, the farm is worth less, to an incoming occupier, than it would have been, if it had gone on, in the regular course of husbandry.

But obviously true, as this is, it never struck me, until lately, that a RUNNING LEASE might be advantageously formed, on these principles.

Finding, however, an insuperable objection to long leases becoming, more and more prevalent; yet, seeing the sort of necessity, which there is, for giving tenants, on every estate, more than six months' certainty of their holdings; I was led to apply the principle, in a way, which, I conceive, may become of general utility.

On the two estates, on which I have had opportunities of proposing this species of tenancy, it has been *adopted*; and, on one of them, has been already carried into effect.

The outline is simply this. A term is granted for SIX YEARS CERTAIN (or a greater number, as NINE YEARS, according to circumstances), and, thence, from THREE YEARS to THREE YEARS, so long as both parties shall agree. That is to say, if, at or before the end of three years, neither party do give notice to the other, to quit, at the expiration of the term of six years, the term becomes lengthened to NINE YEARS; and if, at the end of six years, no such notice is given, then it is further prolonged to TWELVE YEARS; and so on, CONTINUALLY, until one of the parties shall give the required notice. And, with the still farther security to the tenant, that, at the final termination of the holding, he shall be ALLOWED for the REMAINDER of such IMPROVEMENTS, as are of a permanent or durable nature, whatever three REFEREES shall deem such particular improvements to be worth, to the succeeding occupier: the general state of improvement resting, of course, with the estate.

The ADVANTAGES of a lease of this nature are so obvious, as scarcely to require to be particularly pointed out. On the part of

the *tenant*, they are so evident, that even the most illiterate and unenlightened, to which it has been offered, has embraced it, without hesitation. He has always from three to six years certainty, before him. At the close of every three years, he has, in effect, a new lease, of six years, granted him: and this without any anxiety, or wavering of conduct, on the score of uncertainty; without any time being lost, in meetings, attendance, and consultations; and, what is gratifying to a farmer, without the expence of a fresh pair of leases.

On the part of the *proprietor*, the advantages are equal. His estate (except such parts as may happen to be under notice to quit) is in the hands of men, who have an interest in cultivating it, to the best of their abilities: yet it is ever so far under his command, that, in the course of a few years, he can regain possession; whether for the purpose of sale, exchange, laying out his estate to advantage, or to increase his rent roll. If, in the latter case, the tenant, on notice given, agree to the required rise, the course of management, and the prosperity of the estate, proceed, uninterrupted.

The COVENANTS of a lease, on this principle, ought, of course, to be governed, by the given circumstances of the estate;—its soils, situation, and established course of management. In any case, it is evident, that the *ordinary restrictions*, which a lease of this nature requires, are comparatively few: but that *extraordinary regulations*, to take place after notice given, should not only be entered into, but diligently enforced; so that the farm, during the last three years of the term, may be brought into the most desireable SUCCESSION OF CROPS; with suitable FALLOWS: and be left, at the expiration of the term, in such a state of CLEANNESS and TILLAGE, that the succeeding occupier may be able, without difficulty or extraordinary cost, to crop and stock it, immediately, and in like manner, as if he had himself occupied it, during the three preceding years, agreeably to the best practice of the country it lies in.

Every department or district requires, and every estate may adopt, a separate CODE OF REGULATIONS, suitable to given circumstances. One which I conceive to be adapted to the WEST of ENGLAND, and

particularly to my LORD HEATHFIELD'S ESTATE, in EAST DEVONSHIRE, I have drawn up with attention.

My motive for bringing the subject forward, in this place, is not solely for the purpose of recommending this species of tenancy, to the proprietors of West Sussex; but to embrace the first favorable opportunity of bringing it before the public: as I know no estate, on which it may not be profitably adopted.

THE SEA COAST OF SUSSEX.

THE SITUATION, of this extraordinary passage of country, is between the southern division of the Chalk Hills, and the English Channel: extending, eastward, with a narrow point, to near Brighthelmston; and, westward, to near Portsmouth: comprizing the Isle of Selsey, and other islands and peninsulæ, towards the western extremity.

The INFORMATION, which I am possessed of, respecting this fertile District, was gained in three different views of it: first, in tracing it lengthway from Brighthelmston, by Shoreham and Arundel, to

Chichester, in the wane of April, 1791: next, in an excursion from Petworth, through the more central parts of it, in the middle of May: and, lastly, in a circuit, from Chichester, by Bracklesome, to the Isle of Selsey, and thence to Chichester and Portsmouth (on my leaving Sussex, for the Isle of Wight and Devonshire), in the early part of October, in the same year.

The EXTENT, or superficial contents, cannot be readily estimated. The length is about forty miles; and the width, in some parts, three or four, in others, five or six miles; but, to the east of the Arun, it is narrow; and much of the western part is occupied by water. The main body of the District lies, between Arundel and Emsworth, distant about seventeen miles; and the medium width, of this part, may be reckoned at five miles; so that this, alone, contains upwards of eighty square miles; and the whole may be estimated at more than a hundred square miles.

Its ELEVATION, above the surface of the sea, is inconsiderable. Indeed, some parts of it still lie below the level of high water. Much of the arable land does not

appear to lie, more than three feet, above high water mark; and scarcely any part of the sixtyfour thousand acres under view, rises more than five or six feet, above the level of spring tides. Water is seen stagnant, in the ditches and sewers, to near the surface of the cultivated lands, in almost every part of the District; the center of the Isle of Selsey excepted.*

The ATMOSPHERE of this District, immediately connected, as it is, with that of the ocean, on one side, and of the Chalk Hills, on the other, (both of them proverbially pure) is unwholesome: occasioned, probably, by the stagnant waters that intersect its area. Agues are prevalent. To agriculture, however, the climature is favorable: the harvest is forward, and the crops abundant: owing principally, no doubt, to

* The ISLE OF SELSEY. This, doubtless, has once been an island; but is, at present, attached, by a narrow isthmus, to the main land. Nevertheless, during high spring tides, the water which filters through the gravelly beach, that defends the flat country, to the west of the island, makes its way, across the isthmus, into the inlet or estuary, on the north and east sides of the island. This circumstance I had an opportunity of observing,

the soil; but may not the same putrescent effluvia which are injurious to animal health, be serviceable to vegetation?

The surplus WATERS that fall on the area, and overflow the ditches, either find their way, into the brooks and estuaries, or are let out, immediately into the sea, at the sluices, formed in the sea fence, which will be mentioned.

The SOIL of this productive flat of land is, invariably, a deep, rich loam; except at the immediate foot of the Chalk Hills, where it is lighter and less fertile; a mixture of sand and gravel; and, in some parts, mere "beach," or sheer flinty gravel.

The SUBSOIL is more various. At a short distance from the feet of the hills, west of the Arun, the flinty gravel dips, and is covered with the loamy soil, just mentioned. Still more towards the sea, the top-soil rests on a paler colored loam; and, on the coast, the soil, there three or four feet deep, lies on a bed of marl or chalk; which, at a small distance from the shore, breaks out into the sea; and probably, is the prevailing SUBSTRUCTURE, of the entire flat.

GEOLOGICAL REMARKS. It is impossible to view a passage of country, like this, which wears so many marks of its being a creation of the *present world*,—of its having been formed, since the surface of the earth received its present configuration,—without suffering the mind to make some attempts towards discovering the means, by which nature's laws have formed so valuable a production. The levelness of surface, the *beach* found at the foot of the hills, and the superincumbent silt, mud, or loam (similar to that of sea marshes) and the immediate vicinity of the sea,—all show it to be the production of that powerful artist: who (a poetic mind might feign) having repented of his work, is now demolishing it. It has probably been of much greater extent, than it is at present. In 1791, the churchyard of Middleton was nearly torn away, and the church itself in danger; being then, but a few yards out of the reach of the waves. At Selsey and Bracklesome, similar depredations were going on; the highest grounds, by giving the greatest resistance, suffer the most.

It also belongs to these remarks, to notice a natural phenomenon, which takes place, near the foot of the chalk hill, above Walberton: where, a number of dimples, dry basons, provincially "dell holes," have been formed, and are still forming, by some invisible agent: doubtless, by the waters, absorbed by the chalk, and, falling down to the base of the hill, there finding a subterranean passage, to the sea; carrying with it, of course, what loose matter it meets with. And, if observations were made, it would probably be found, that the sinking of the surface happens, about the time that the *bourns* of chalk hills usually break out; the phenomenon, under notice, being probably caused, by a SUBTERRANEAN BOURN, that break out, into the sea, at the same season.

SEA FENCE. The great PUBLIC WORK of this District is the sea fence, which, in some parts, may be said to preserve its existence, as a culturable country. In the parts, above noticed, where the sea is tearing away the highest and best lands, no fence I believe is attempted; the water, there, being deep, by reason of the reflux

of the waves, on having met with resistance. And, even could "grynes" be formed, the recoil would prevent the requisite accumulation of materials, to form the fence.

In some parts, as that mentioned to the west of Selsey, a NATURAL FENCE is thrown up, by the sea. There are not, at least, any signs, at present, of art having been used. This fence consists of a high narrow ridge of flinty gravel; showing a steep face on the land side, of ten or more feet in height; the side, towards the sea, being less steep;—shelving with a gentle slope, under deep water.* The sea rises, of course, to the top of the bank (the gravel having been thrown up by it), and, in tempestuous weather, doubtless, breaks over it. I rode upon it, during a high tide, and a strong southerly wind, when the water rose, to within three feet of the top; while the eye, when riding at the foot of the bank, on the margin of the marshes, could not perceive the waves:

* Resembling, in a striking manner, the artificial bank or "sea wall" of Romney Marsh! The bold undertaker of that great work having, perhaps, copied the beach banks, in its neighbourhood.

even, then, it was four or five feet above the level of the marshes.

REMARKS. The natural law, by which these gravel banks, or natural sea walls, are formed, appears to be, simply, that of an impelling force, without recoil, or counteraction. The loose gravel, deposited at the bottom of the ocean, is forced up, by the violence of the waves; which, meeting with no resistance, spend themselves, and return leisurely; leaving the gravel thrown up, in the place, or nearly in the place, where they lodged it; every succeeding wave impelling it forward, until it reach the extent of their force; and, of course, has been raised to a height, which cannot be overtopped, but by an effort, equal, or nearly equal, to that which raised it.

In the early stages of *growth*, of a bank of this nature, every high tide, and every tempestuous wave, breaks over it; and, in this state, it is injurious, rather than useful, to the lands that lie behind it; the waters rushing upon them with double force. Hence, probably, the low flat of marshes, behind the line of beach under notice: the soil and subsoil having probably been torn

away, by this means, and carried into the estuary, to the eastward of the island.

In this view of the formation of beach banks, it is evident, that no other material, than gravel, or small stones, can be employed. It must be of such a nature, that the waves can move it, with freedom; yet heavy enough to lie firmly where it is lodged; until it be impelled forward, by another wave. It must neither be of a perishable, nor a volatile nature; but such as neither wind, nor water (unless in a violently agitated state) can move. Sand is capable of being forced up, by the sea, as gravel, into banks or ridges; but, in that state, it only becomes more liable to the sport of the winds, than it is on a level surface. And unless it be arrested, by natural or artificial means, it is presently blown back into the sea, or scattered over the adjoining lands.*

On that part of the coast, under notice, where marl and loam form the shore, or margin of the sea, an ARTIFICIAL FENCE is

* For an account of the MARRAM BANKS, or natural sea walls of the Coast of NORFOLK, see the Rural Economy of that County, Vol. II. MIN: 106. See also ROMNEY MARSH, in Vol. I. p. 392.

obliged to be made, at a great expence; to catch what little gravel, or hard materials, are thrown up by the waves. This is effected by two lines of strong dwarf paling, placed a few feet from each other; forming cases, provincially "grines," to retain whatever is thrown into them; and, it is possible, that the beach banks, above described, may have had their origin, in a similar expedient.* This, however, being as it may, the artificial fences are not yet sufficient, to prevent very high tides from overflowing them, to the damage of the country. I saw a fine piece of wheat very much injured—in part destroyed—by the sea having broke in upon it.

Perhaps Marram *(arundo arenaria)* or some other marine plant, might assist in

* These banks reach, from the Isle of Selsey, to Bracklesome, where a Roman causeway commences: and it may have been originally formed, to prevent the flat country, between the landing place and Chichester, from being inundated.

Tradition, however, relates, that, during a violent gale of wind, a gap was torn, in this beach bank; and that, after every human endeavor had been employed, in vain, to repair the breach, another tempest made good the defect. This renders it probable, that it is, originally, a work of the waves.

raising the beach, in these parts, more rapidly, and firmly, than the grines alone.

TIDE MILLS. The inlets and creeks, with which the western quarter of the District, in particular, abounds, are frequently turned to a valuable purpose; by which innumerable situations, of a similar kind, on every coast of the kingdom, might profit. Yet the tides continue to flow into them, in vain; while *river mills* are suffered to destroy, or injure, land of the first quality; and prevent the improvement of still more, that might be made highly valuable to society. On the contrary, tide mills, instead of wasting land, tend to create it.

The method of obtaining a tide mill is, merely, that of running a dam, across the branch of an inlet, or estuary; leaving a narrow passage, generally near one end, and, at this gap or opening, to place the mill. A quantity of water being forced, by the tide, to the upper side of the dam, through valved sluices, made for this purpose, a mill pool is formed; and, with the water thus pent up, the mill is worked, until the return of the tide; when the pool, in a few hours, is again replenished.

The foul water, forced up by the tide, being kept long in a stagnant state, has time to depósit its foulness; and thus tends, eventually, to convert the mill pool, into a marsh, or meadow ground.

REMARKS. I do not mean to speak of tide mills, as being peculiar to this part of Sussex; having observed them, in different parts of the Island. But, perhaps, there are ten opportunities of erecting them neglected, for one embraced: indeed, in many parts of the kingdom, they are unknown: and every means of *lessening the number of* RIVER MILLS; especially of those turned by brooks, and rivulets, in rich vale districts; ought not only to be universally known, but to be forthwith applied. The interests of agriculture, and the welfare of the country, demand it.

For WATER CARRIAGE, the District is singularly well situated. Each creek has its landing place. At Ford, near the mouth of the Arun, is a commodious wharf: and Chichester has its port or key, within a few miles of it.

And, in ROADS, it is equally well accommodated. Flinty gravel, the first of

road materials, is almost everywhere abundant. But, in the excess of this abundance, a new road, or one recently mended, is almost as difficult to travel on, as the beach banks, thrown up by the tide. If a thinner coat were laid on; or some strong loam spread over the surface, in such manner, as to induce the gravel to bind, the traveller, at least, would find an advantage.

The TOWNSHIPS are below the middle size. This is a strong circumstantial evidence, that the lands of the District were not only brought to their present *form*, but *cultivated*, before the laying out of townships. It is probably one of those rich plots of country, that were early cultivated, and full of inhabitants, while the mountains, swamps, and less genial soils, remained in a state of nature.

STATE OF INCLOSURE. The District, in general, is divided into well sized inclosures, with straight fences: mostly live hedges. In the Isle of Selsey, I observed some common field land: also about Chichester. And, below it, some open commons; part of which were then (1791) under inclosure.

CONDUCTING PUBLIC INCLOSURES. The intended *fields* and *lanes* on Birdham common were, then, (in October) *marked out*, and the *roads made:* a good plan of proceeding. The road materials were got on, in summer, without cutting up the lands, or disturbing the unfinished road: and, in winter, and spring, when fencing materials were wanting, there would be a firm road, to convey them upon, to the respective allotments.

The PRESENT PRODUCTIONS of the District are, principally, ARABLE CROPS; with some rich GRAZING GROUNDS and MARSH LANDS, towards the eastern side of the main division, on the banks of the Arun; as well as on those of the Adur, opposite Shoreham; but with very little WOOD; except what the hedges produce; and these in many parts, are well stored with *timber trees;* chiefly oak and elm.

The richness and luxuriance of growth, which all its productions wear, give this District, perhaps, more intrinsic ORNAMENT, than any other unbroken flat, of equal extent, can claim: and very few indeed, can equal it, in the picturable effect

of its surrounding objects. The beautifully broken and wooded scenery of the Downs, rises full to the eye, in every part. And, on the other hand, the sea; which, to the south, is open and unbounded; while to the west, it is diversified by islands and headlands, and finely distanced, by the Isle of Wight: furnishing scenery of singular grandeur, from particular points of view.

AGRICULTURE.

FARMS. In SIZE, they are of the middle cast. I observed few very small ones. And those of two or three hundred pounds, a year, though not unfrequent, are esteemed of a large size. Hence, in this particular, the favored District, under view, is fortunately circumstanced.

The leading CHARACTERISTIC, of farms in general, is *arable;* except towards the banks of the estuaries, where *grazing* forms a joint character.

Upon the whole, perhaps, it may be said, that, the climate apart, there are few situations more to be desired, by a professional man, than the Sea Coast of Sussex.

FARMERS. Besides the tenantry of the farms, above mentioned; there are, I understand, many substantial yeomen, and some few gentlemen, who cultivate their own lands, in the higher, more healthy, parts of the District.

SERVANTS. The TIME OF CHANGING servants, here, as throughout the SOUTHERN COUNTIES, I believe, is *Michaelmas*. On the 10th of October, the day I went over the western part of the District, the roads were crowded, with farm servants, leaving their places, and hying to the fair. It was a complete holiday: not a team to be seen; or a stroke of work going forward: notwithstanding every exertion was, at that time required, to accelerate the wheat sowing.

This evil of changing servants, at Michaelmas, will again be noticed in the ISLE OF WIGHT; also in the MINUTES IN SURREY.

BEASTS OF LABOR. Entirely horses, of the heavy sorts; and fat enough for the butcher! Not an ox to be seen, at work;

not even in the more grassland parts of the District. But breeding is not, here, an object: and buying in grown oxen, to work a few years, previously to their being fatted, has not yet gained a footing.

IMPLEMENTS. WAGGONS, here, run full six feet, from middle to middle of the ruts!

The ordinary PLOW of the District is the one-wheeled plow of West Sussex.

The OBJECTS and PLAN OF HUSBANDRY, here, appear to be similar to those of the DISTRICT OF PETWORTH. CORN is the chief dependence: EARLY LAMB the next: with some FATTING SHEEP and BULLOCKS, in the more grazing parts of the District; and PASTURING SWINE, in every part.

The CROPS are WHEAT, OATS, PEAS, TURNEPS, TARES, CLOVER, and some FLAX; with a portion of BARLEY: but the soils of the District are said to be unfavorable to this crop; growing it, perhaps, too rank and thick-skinned. Wheat is the prevalent and profitable crop. Yet no beans, on this powerful wheat land!

TILLAGE. The usual PLOW TEAM is four horses. But this is the more excuseable, as what plowing, I particularly ob-

served, was done with a deep, clean, well turned furrow; and the land, in general, wears the appearance of being in a good state of cultivation.

In barley seed time, three horses, at length, or two and one, were a common plow team; and in some instances, only two, but with drivers. How suitable a District for whip-rein plows.

The LANDS, or BEDS of plowed grounds, are well proportioned, in width, to the absorbency of the given subsoil. Over the gravel, they are wide flat beds;—but where the subsoil is of a more retentive nature, as strong loam, the lands are narrow: a discrimination and accuracy of management, which does credit to the District.

MANURE. In another instance of practice, however, an extraordinary want of discernment has, lately, been made evident. Formerly, and until within the last fourteen years, it was the invariable practice of the District, to fetch chalk, from the quarries of Houghton, or other distant pits, and fagots, from the hills, to burn LIME, in the area of the flat; even to the verge of the sea: and had it not been through the for-

tuitous, but fortunate circumstance, of a London tradesman turning farmer, the District might still have been toiling on, in its old track.

This "sky farmer," (and such he was aptly named, for had he really dropped from the skies he could not well have brought a greater blessing to the country) seeing the same looking sort of material, as that which he procured at a great expence, exposed on the sea shore, and even showing itself, at the bottoms of his ditches, he collected some of the "white sea stones," and threw them into his lime kiln, by way of *experiment*. The result was, they came out, in the same valuable state of manure, as that which he was obtaining, at a much greater cost, from "chalk."

Again, observing that this white marine fossil fell, or broke down, on being exposed to the atmosphere, he carted some upon his land, as MARL; and the effect was such, as to draw the eyes of his neighbours: who have, ever since, been striving who shall collect the greatest quantity of this "famous sea marl." Those who live near the coast, collect it off the beach, at low water:

those whose lands lie, at a greater distance from the sea, dig pits in their fields; and, at not more, perhaps, than three or four feet deep, find the treasure, which had lain, there for ages; and which might have remained, there, for ages to come, had not an EXPERIMENT discovered its value.

REMARK. This extraordinary discovery shows, not only the utility of MAKING EXPERIMENTS, but the use of NATURAL and CHEMICAL KNOWLEDGE, with respect to FOSSILS: for no man, possessed of even a small share of these, could have passed this calcareous substance unnoticed. If tenants cannot be supposed to enter into the mysteries of nature and science, surely, in proprietors, or their agents, a sufficient knowledge of these things might reasonably be exerted. Indeed, unless in cases where long leases are granted, researches of this kind belong to the managers of estates, solely. And, in every case, the advantage, eventually, rests with proprietors.

A striking instance of the great improvement that may be made, on the value of land, by attentions of this nature, occurs in another part of the District under view; where the light barren lands, that have been

mentioned to lie, near the feet of the Chalk Hills, and which, a few years ago, were not worth five shillings, an acre; being chiefly over run with furze; now bear abundant crops of corn, and wear the appearance of being worth three times their former rent. This improvement had been made, and (in 1791) was continued to be made, by means of MARL, or SOFT CHALK, dug out of the foot of the hill, of the same nature, and perhaps part of the same stratum, that breaks out at the sea shore.

WHEAT. On enumerating the OBJECTS of agriculture, it has been remarked, that wheat is the prevailing crop. In May, one third of the lands, even in the more grass-land quarter of the District, appeared to be covered with rank luxuriant wheat. And, in October, near half the lands, of the more western quarter, appeared to be, then, under preparation for this crop; which, throughout the District, may be said to occupy the arable lands, every second year; and, alternately, with any other crop! as wheat, oats, wheat: wheat, clover, wheat: wheat, turneps, wheat: wheat, fallow, wheat.

Nevertheless the PRODUCE, which is said to be reaped, is almost incredible. Five quarters, an acre, is deemed an ordinary crop: six or seven are spoken of familiarly.

Indeed, from what fell under my own observation, in the transient views I took of it, this District appears to comprize the most good wheat land, and to be, on the whole, the most valuable arable district, of equal extent, in the Island. There are districts of rich fen, or carse land, that, in a favorable season, may equal it in productiveness; but there are few seasons, I apprehend, in which wheat, at least, may not be sown, with a degree of certainty, on the lands of the Sea Coast of Sussex.

GRASSLANDS. Of these a four fold distinction may be made. The rich upperland GRAZING GROUNDS, in the eastern quarter of the main body of the District: the cooler, less productive MARSHES, and COMMONS, towards the western extremity: the "BROOKLANDS" or embanked salt marshes, by the sides and at the mouths of the estuaries: and the "SLIPES," or open marshes, liable to be overflowed, by every high tide, or extraordinary swell of the sea.

The GRAZING GROUNDS are of a singularly fertile nature. Some of them wear evident vestiges of culture: others appear, as if they had never been broken up, by the plow.

Some of these old grasslands have, of late years, been subjected to aration; the tenants paying a valuable consideration, for the privilege of plowing them.

The SLIPES are literally *saltmarshes*. The pools of water, that stand in the troughs and dimples, are salt to the taste: yet the herbage is highly saccharine. It consists, chiefly, of a short, rigid, bristly grass, like the hard and sheep's fescues. Being, at the time I saw it, short, without seed stems, thin on the ground, and standing erect, the surface looked bald, and brown, almost, as a fallow. Nevertheless, these lands are said to carry about two sheep, an acre; to fat them very fast; and, in no case, to taint them with the rot.

This last is a fact which ought to be duly estimated, by every one, who attempts to explain the nature of that fatal disorder.

CATTLE. This is not a breeding district. The few DAIRY COWS, I observed, were of various BREEDS; as Alderney, Welch,

Sussex. Of the last, however, I saw few. So that the middle-horned variety is confined, between the two lines of Chalk Hills. See WEALD OF KENT, Vol. I. page 350.

The FATTING CATTLE, which I saw, on the western bank of the Arun, were likewise of different breeds; but, in general, of a superior quality: as East Sussex oxen of the largest and best mold; worth to the grazier, as lean cattle, fifteen to eighteen pounds, a bullock, in 1791: also Pembrokeshire oxen of the first description; with some "West Country" oxen—apparently of Somersetshire—of a good quality.

These bullocks are chiefly purchased, and many of them sold when fatted, at fairs or stock markets, held every fortnight in the grazing season, at Chichester, and Arundel.

Of the SHEEP of this District I saw little. When I went over it, in May, the LAMBS were gone to market; and, in the beginning of October, the fresh stock of EWES had not arrived. The practice, with respect to early lambs, I understand, is nearly the same, here, as in the DISTRICT OF PETWORTH.

The sheep which I saw, in the GRAZING GROUNDS, were chiefly wedders, of the West-

Down breed. There are none, I believe, reared within the District.

SWINE. The BREED, which I observed most prevalent, here, is the mottled one, that is common to Berkshire, Hampshire, and Surrey; with a mixture of the Chinese, or other Oriental breed.

The only circumstance, that drew my notice, to this species of livestock, in the passage of country under view, was that of seeing them, in the middle of May, scattered over its area, in herds, away from habitations, feeding on clover, tares, or other herbage, as a SPECIES of PASTURE STOCK. Here, sows not only farrow, in the fields, but are *said* to rear their fares, there, on herbage and water alone!

REMARKS. Possibly, there is something in the nature of these rich lands, peculiarly favorable to this species of stock. And the practice of treating them, as mere graminivorous animals, having gained an establishment, here, proceeded by degrees, along the banks of the Arun, until it reached the district last treated of; where, meeting with a less fertile soil, it is confined to the brook-lands. See page 203.

STATE OF HUSBANDRY. In the foregoing sketch, the management of this District appears, in a favorable point of view; and, I believe, in its true light. The lands, in every part, that I more particularly observed, were free from offensive foulness, and appeared to be in a good state of tillage: yet the QUANTITY of TILLAGE given, I understand, is not great.

REMARKS. The husbandly state, in which this District, in general lies, is probably owing to the *absorbency of the soils*, and the *depth of plowing*, which appears to be common to the District, and which serves to increase their absorbency; as well as to the *rankness of the crops* it bears. The soil, it is said, is "*not given to couch.*" It certainly is peculiarly free, from this pest of arable land. And even couch grass, though present, may not flourish, in a soil which bears a rank, close, thickset crop, every year, or whenever it is not undergoing a course of tillage, or cleansing crop. It is thin, weak crops, which give encouragement to couch. Nevertheless, there may be something in these *marine* lands, that is unfriendly to this weed.

IMPROVEMENT. There are very few Districts, in which I have seen less to mend, than in the highly favored District under view. Measuring it by common rules, there is evidently a want of grass land, of natural or cultivated herbage, in the area of the principal flat. But a country capable of bearing five quarters of wheat, an acre, every second year, may require its own plan of management. Nevertheless, I am of opinion, that were more land kept in a state of HERBAGE; and, in consequence, a greater number of LIVESTOCK maintained, the natural fertility of the soil might be rendered more durable, than it probably will be, by the present exhausting course of management.

This being as it may, there is one great and evident improvement, to be made, on this passage of country: that of rendering it HEALTHY.

I do not mean to represent the Sea Coast of Sussex, as being very unhealthy. It is but common policy, in those who occupy its lands, to speak of it, as being so. But there are, in reality perhaps, few *arable* dis-

tricts, of equal extent, that do not enjoy a better air.

It has been suggested, that the degree of insalubrity which belongs to it, be it more or less, proceeds from the stagnant waters, that are suffered to remain, within its area. These waters, not only encourage the production of insects, and reptiles, whose putrid remains pollute the air, in summer; but they tend to load it with chilling vapors, in the cooler months. If these are not the sole causes of its present unwholesomeness, no one will deny that they contribute to it.

To do away entirely, every appearance of stagnant water, from so flat a surface, might be found difficult. Yet, I am of opinion, that, by pursuing evident and known principles, every difficulty might be so far overcome, as to render the entire District freer from surface water, than vale districts, in general, are.

An ACT OF DRAINAGE, with COMMISSIONERS to see it executed, would, in course, be the first step to be taken.* If merely

* Since these remarks were written, I have been informed that such commissioners are already empowered.

scowering the brooks and the rivulets, from the estuary or the sluice, up to the ditches and water furrows of the plowed lands, were found insufficient, to draw off the surplus of the water, which falls on the surface, DRAINING MILLS should be employed, to quicken the draught. Tide mills, of a simple construction, might be employed to empty the receiving canals (if necessary) into the estuaries, and the ordinary wind mill of the Eastern Counties* might be made to throw it, with equal facility, into those receptacles; if such should be found necessary.

Filling up the present water fences, and every other unnecessary lodgement, and by these means, giving a free current to rain water, from the interfurrows in which it is collected, to the sea, would be the ultimate object, and the completion of the undertaking.

The cost of this improvement, even supposing it to require two sets of mills, would be inconsiderable, compared with the rental value of this plot of rich country. Even humanity, towards the lower class of inha-

* See NORFOLK, Vol. II. p. 282.

bitants, *who, by the laws of their country, are bound to abide by it*, is a sufficient inducement, to effect it. And the increase of the rents of lands might repay the cost, with tenfold interest. Perhaps, one set of mills, to raise the waters, at the sluices, and throw it into the estuaries, or the sea, would be found abundantly sufficient to effect the required improvement.

THE ISLE

OF

W I G H T.

IN THE MONTH of October, 1791, in my way from Sussex to Devonshire, I spent a week, on the Isle of Wight; and not only saw, but literally traversed, almost every square mile of its surface; by the following routes. From Ryde, by Wotton Bridge, to Newport. Newport to St. Catherine's, Nighton, St. Laurence (under Cliff;) back, by Appuldurcomb and Godshill, to Newport. Newport, by Atherton and Ashey Downs, to Brading; back (on the opposite side of the valley) by Sandown Marshes and Fort, Lake, Shanklin (parish,) and Atherton, to Newport. Newport, by Caersbrook and along the Downs, to near Freshwater; back by Thorley (near Yarmouth) Wellow,

Green, Shafleet, Newtown, and across the forest, to Newport. Newport, by Gatcomb, and Chale (at "the Back of the Island") Athersfield, Brixton, &c.; and back across Brixton Downs, by Idlecomb and Caersbrook, to Newport. And, beside these lengthened rides, I examined, more leisurely, the neighbourhood of Newport; finally, tracing the line of country, between Newport and Cowes.

The SITUATION of the ISLE OF WIGHT is so well known, as not to require description, here. It is, pretty evidently, a fragment, torn from the main land, in some violent struggle of contending elements. Not only the outlines, but the lands, on either side of the narrow sea which now separates them, answer to each other.

At present, it forms part of the county of Southampton; to which it has long been joined, politically, and to which, by situation, it naturally belongs.

The EXTENT, supposing it equal to a circle of fifteen miles in diameter, is one hundred and seventyfive square miles; or one hundred and ten thousand acres.

In ELEVATION, the Isle of Wight exceeds most, or all, the British Isles, of

equal extent. The chalk cliffs of Freshwater, and the rocky heights of St. Catherine, vie with the cliffs of Dover. Nevertheless, the north side of the Island, towards the main land, is comparatively low ground. But it is, and ever has been, out of the water's way; except at the eastern extremity, about Brading, where there are some waterformed marsh lands.

Its SURFACE is strongly featured; but no where broken, or rugged; excepting the sea cliffs, to the south and west; and excepting some grotesque sandy hillocks, in the valley between Sandown and Newport. There is, nevertheless, peculiar variety, in the configuration of this valuable little fragment: a fair specimen of Albion's fair self. It might, with little latitude, be said to possess every distinguishing character of the parent Island: bearing its very semblance, in the species and variety of its surface, its soils, and their productions.

What gives greater variety, to the face of this little Island, is a natural bisection; occasioned by a deep narrow valley, which divides it, into two nearly equal parts.

Through the middle of the western division runs a range of chalk hills, terminating

in the Freshwater or Needle Cliffs. The north side of this "hog's back," or ridge of naked downs, shelves, with an easy slope, to a flat vale country; resembling the vale lands of Kent, Sussex, and various parts of England.

To the south of these hills, lies a singular plot of country, called "the Back of the Island:" comprizing about ten square miles of sandy lands; lying in two stages. The upper stage, at the immediate skirts of the Chalk Hills, has a billowy, varied surface, with a weak unproductive soil; the lower, is a flat of rich productive sandy loam. Yet, even this, lies twenty, thirty, or in some places, perhaps, forty feet above the tide: exposing a steep broken cliff; liable to be worn away, by tempestuous seas.

The eastern division is still more diversified. The center is occupied by a chalk swell, (Ashey Down): but it is of small extent, and tame, comparatively with the western heights. To the north of this, is a weak cold woodland district; varying however in soil and surface; much resembling the upland parts of the wild of Kent and Sussex. See Vol. I. p. 336.

To the south of Ashey Down, lies the Valley of Sandown, or Brading, which has been noticed, and which reaches from near the center, to the eastern extremity of the Island; where it terminates in a barren gravelly flat, round Sandown fort, with marshes and mudbanks below Brading. Thence, along the coast, by St. Helen's, to Ryde, is an upland, well soiled line of country.

On the south of Sandown Valley, the face of the country rises, with a bold ascent, to the heights of St. Chatherine; or rather a chain of heights, which reach from thence to Dunnose; appearing with strong mountain features; large rotund knolls, separated, by deep sunk vallies, and coombs; and, towards the sea, by gashes of an extraordinary kind;—provincially "chines";—resembling the fissures, or dingles, of mountain scenery; and, like these, probably, have been worn by the waters of heavy rains, rushing headlong down the steeps.

This range of heights is cut off, towards the sea, by a line of high perpendicular cliff; at whose feet lies an extraordinary passage of country: a narrow slip, it is true; but of sufficient extent, to have en-

gaged ecclesiastic attention; the church of St. Laurence standing on this peculiar site.

Judging from the ruggedness of the surface, and the want of soil, or sediment of superincumbent foul waters, on some of its protuberating rocky parts; as well as the height, which it rises above the tide, and which varies from ten to thirty or forty feet; seeing, likewise, the height of the cliffs, above it; perhaps two hundred feet;* and the materials of which they are formed; namely rock; and apparently of a similar nature with the large fragments which lie at their feet;—there can be little doubt of its having been formed, by the fracture and fall of the face of the cliff;—the sea having, in all human probability, first un-

* This estimate may be too high. The eye is liable to be deceived, by an ASSOCIATION OF OBJECTS, and to be led astray, as well as to be set right, by COMPARISON. This Islet being small, its hills and its vallies are comparatively large. The hill of St. Catherine seen from the environs of Newport, appears a very mountain rising to the clouds; yet the ascent to it is easy, and it is surmounted without difficulty; and is, in truth, a mere hillock, compared with the interior hills of *England*.

dermined it; by washing out an earthy stratum, at the base.

This being as it may, I have no where observed, so great a variety of fossil, and vegetable productions, within so small a compass. The rock is of varied quality, and seamed with earths of different appearances. In a dry wall, which had recently been built, with the fragments of the dispersed rock, scarcely two stones appeared to possess the same component parts; the variety seemed endless. Out of the face of the cliff, shrubs and herbaceous plants are seen, in great abundance; and, to the eye glancing over them, the species appear numerous. In the cryptogamia tribes, this passage seems equally prolific. The rupture would, of course, disclose many seeds, that had been locked up from the atmosphere, from the day the present surface of the earth was formed, to the time of the fracture; and, add to this, not only the marine plants, natural to the shore, but other plants, partially irrigated with the spray of salt water, may increase the variety. So that the passage of surface, under

view, is not only interesting to the GEOLOGIST, but is worthy of the more minute researches of the NATURALIST.

The CLIMATURE, from what information I gathered, is forward; and appears genial to vegetation; except to that of trees, on the more exposed heights, and on the south side of the Island; where the few that are seen, are shorn, in a remarkable manner, by the southwest winds. On the Back of the Island (which lies fully exposed to these winds) even the hedges are cut, and in great part *perished*.

It is nevertheless observable, that a shrubbery, containing exotic plants, on the border of Sandown flat, and fully exposed to the sea, appeared to be in a luxuriant state of growth. But Sandown Cottage (the late Mr. Wilkes's) like Mount Edgecumbe, has a skreen of high land, on the southwest; and it is not, I apprehend, *sea* air, so much as an unbroken, unabating *current*, which is unfriendly to vegetation. See the WEST OF ENGLAND, Vol. II. page 35.

The surface WATERS are collected, chiefly, by two small rivers, or well sized brooks; both of them rising out of the

rocky heights of St. Catherine. One of them passes down the sandy valley, to Brading, at the eastern extremity of the Island; the other, down the valley which bisects it, by Newport, to Cowes; between which, it takes the form of a winding, riverlike estuary.

SOILS and SUBSTRATA. A general idea, of the soils of this Island, has been conveyed, in speaking of its SURFACE. The particulars will best appear, in the following extracts from my Journal.

*Ryde Ferry to Newport.** On the coast, and in the vallies about Wotton Bridge, &c. the SOIL is apparently strong: good wheat land. But, towards Newport, it is a thinner, leaner, woodland soil. The SUBSOIL, in some parts, gravel: in others, a light-colored stone rises to near the surface; large quarries being now worked; apparently, for building materials.

Newport to St. Catherine's, under Cliff, &c. The soils, in this ride, are as various, as the casts of surface. On the brink of the cliff, near Nighton, half the cultivated stratum is stones; a sort of impure flints; and the

* See the different routes, in page 248.

higher swells, in general, seem to be of a calcareous nature; though little chalk appears, in this quarter of the Island. Black Down, on the contrary, is a direct heath: black vegetable mold, on sand or gravel: a plot of the morelands of Yorkshire, or of the heaths of Surrey, thrown in, here, as it were to show from whence the Isle was taken: this being, I believe, the only plot of heath land it contains.

Newport to Brading (along Ashey Down.) The SOIL and SUBSOIL, the *very* same, as those of every other light, thin-soiled, chalky down, in the kingdom.

Sandown to Newport. The whole way, eight or ten miles (and perhaps three or four miles in width) exhibits a light-sandy soil. To the eastward, very barren, but not heathy. Towards Newport, it is more fertile: tolerably good turnep and barley land. The SUBSOIL, to the east, a thirsty, hungry sand: to the west, a flinty gravel.

Newport to Freshwater. An uninterrupted covering of calcareous loam; mostly of a pale chalky quality; excepting a few plots, of a stronger texture, and darker

color; as is seen on the uppermost swells of most, or all, chalk hills!

Freshwater, by Newtown, to Newport. The SOIL, almost everywhere throughout the flat, is *cold* and ungenial. Immediately at the feet of the hills, towards Yarmouth, it is singularly so. The ley grounds are overgrown with coltsfoot, horsetail, and other cold-soil weeds; with scarcely a blade or leaf of profitable herbage. Nevertheless, the soil itself has a fertile appearance: to the eye, the very coomb of the District of Maidstone! And though analysis might detect differential qualities, its extreme infertility is doubtless occasioned, by the SUBSOIL, on which it rests;—a bed of clay.

Newport to the Back of the Island. The finest township of land I have passed through is that of *Gatcomb* (in the valley above Newport): much powerful generous land, productive of corn or grass. The sea-coast flat, is uniformly sand; except a plot, below Brixton; a strong retentive soil: the sand, too, varies in fertility. Some of the rising grounds appear to be light, and unproductive; while other parts, about Athersfield and Brixton, if one may judge,

from the wheat stubbles, now upon them, are of a desireable quality;—charming arable land. The SUBSTRATA of this flat, as seen from the sea shore, are various. The immediate subsoil is uniformly sand, or light sandy loam;—in most places, reaching three or four feet deep. Below this, in one place, that I more particularly examined, are strata of stones, and colored earths; in another, a deep bed of blue clay. The whole liable to be torn away by the waves; the several strata now appearing fresh and distinct, in the face of a perpendicular cliff, ten to thirty or more feet high.

Eastward of Newport. How various the soil. The hang of the swell, towards the town, is a rich unctuous clay; the top of the hill, cold, pale, gluey, and unproductive. The slope, to the eastward, especially towards the bottom, a light, sandy, gravelly soil; but with a cold retentive base; the last a characteristic, which seems pretty common, to the northeast quarter of the Island.

Newport to Cowes and its environs. Mostly a gravelly loam; the lower lands, apparently, of a stout productive nature: but

the rising grounds, above Cowes, are weaker; partaking more of the cold Weald lands, of the northwestern quarter. The substratum mostly gravel; in some places, eight or ten feet deep of clean road gravel.

In this detail, we see the diversity of lands, which occupy the surface of this Isle, and are enabled to form some judgment of their separate and average values. In the neighbourhood of Newport, in the valley above it, and in the flat of the southern coast; also on some of the hills or uplands, particularly those of Nighton, and in different parts of the northeast quarter, we find lands of the first quality. But these make only a small portion of the lands of the Island; and are far exceeded, in quantity, by those which are weak, and under-productive. The quantity of *barren* land, however, is inconsiderable. On the whole, it may be said, that there are few *cultivated* districts, in England, of equal extent, whose lands, collectively, are not of equal, or superior fertility, to those of the Isle of Wight.

INHABITANTS. Those who may have attended to the exports of corn, from the Isle of Wight, may doubt the accuracy of

the above statement, respecting the productiveness of its soils. But its surplus produce is to be accounted for, in the fewness of its inhabitants, proportionably to the *quantity* of its arable lands. There is no manufactory, of any extent, in the Isle: nor any place of commerce; except Cowes; which, as such, is inconsiderable. The town of Newport may be considered, merely, as the residence of tradespeople, to supply the country with extraneous products: and, in traversing the country itself, it everywhere appears to be thinly inhabited; the villages small, and widely scattered: except at the Back of the Island, which has been, and indeed still is, fully inhabited; though its inhabitants may, lately, have considerably decreased.*

Seeing this, it naturally occurs to an agricultural mind, to inquire, how its harvests are got in? the answer is, by the assistance of "miners," from the West of England.

* BACK OF THE ISLAND. The notice on my Journal, respecting the population of this passage, stands as follows. "*Inhabitants*:—seemingly few: large farms, and small villages: Kingston is a mere hamlet. *Townships*:—yet, if one may judge from the number of town-

The PRESENT INHABITANTS, of this delightful little morsel of earth, are most respectable. There are several residences of gentlemen; and some very old families, that have long been rooted, here. The yeomanry, the larger farmers, and the middle class, throughout, are superior to those of most parts of England, in their appearance, and manners. I had a good opportunity of seeing a large proportion of them collected, at Newport, on one of these occasions, which must, in the nature of curiosity and fashion, bring the whole Island together,—a play. The lower orders, too, are well personed, intelligent, and decent in their manners. Those of the Back of the Island, perhaps, are least so. Indeed, they are spoken of, by their more refined neighbours, as a distinct race; as the simple inhabitants of the back settlements; who

ships, this plot of country has once been populous: there being, still, six churches in it: and it has, probably, had several more; as Walham, Athersfield, Sutton, Barnes, Yexford, &c. This recluse and easily culturable spot, was probably cultivated, early; and heretofore, perhaps, supported many times the number of its present inhabitants."

live chiefly among themselves; seldom making their appearance, even at the capital; and rarely setting a foot off the Island.

The TOWNSHIPS are unequal, in size; or the churches are unequally distributed: the Back of the Island, and the western flat towards Yarmouth, containing not more than twenty square miles of surface, comprize near half the parishes of the Island, which contains near ten times that extent. The Downs, however, which separate them, are probably laid to these lowland townships.

The TOWNS of *Newport* and *Cowes* have been noticed. The former is a respectable market town, and happily situated: on good land, in the center of the Island, yet within the reach of the tide: the latter a mean sea port. The town of *Yarmouth*, which I approached, but did not enter, appears to be little more than a village, or fishing town; and that of *Newtown* (another *borough!*) is a mere hamlet; the ruins of the church lying on a narrow headland, between two creeks, in a low, damp, dirty situation; which was probably chosen, while the flat in which it lies, was in a wild woody state, by pirates,

or freebooters; and which is of course deserted, in a state of civilized society.

ROADS. In 1791, they lay in their *natural*, flat state: there was not a turnpike, or a raised road, in the Island; unless between Newport and Cowes. Nevertheless, the cross-country roads were travelable, with carriages: though it has been but of late years, they have been made so. A middle-aged man remembered there being only one chaise, and that for a single horse, in the Island! Now, even quartering carriages are common.

The wayreeves of the Isle of Wight have hit upon a simple, and cheap method, of FORMING QUARTERINGS, in hollow ways, and difficult places, where there was only one narrow waggon track. In these cases, they have merely pared away the bank, on one side, about two feet wide; so as to form a horse track, for one of the quartering horses to tread; the other taking the beaten middle path of the waggon track. By this ready alteration; by filling in the ruts, and horse tracks, with hard materials; and paying some attention to the offlets of water; the roads, in general, are kept in a state, fit to

be travelled, by carriages of every kind; without toll; and without excessive cost to the country.

STATE OF INCLOSURE. The CHALK HILLS are, here, as they are almost everywhere, open. I observed only one break, or large inclosure, upon the West Downs. But the lower margins, or skirts, towards Caersbrook, are inclosed.

The STONEY HEIGHTS appear to be mostly divided, into large inclosures; except the rich uplands of Nighton, which lie in a state of open field.

The rest of the Island is inclosed; and mostly in well sized fields; except "THE FOREST," an extensive tract of wild lands, in the northwest quarter; and except a suite of COMMONS, in the northeast division, between Newport and Wotton Bridge; and these were, in 1791, progressively undergoing the profitable change, from a state of rough, unproductive, wet, unhealthy commons, to that of drained and cultivated inclosures: not, however, by calling in the costly aid of Parliament; but by general consent: a strong evidence of the happy state of society, which this little Island enjoys.

The FENCES of these inclosures are mostly, or have been, of live shrubs. Many of them are old, as if they had originated in the natural brushwood of the wild lands, and are now wearing out ; requiring to be plashed and pruned, to prolong their duration. At the Back of the Island, most of the fences are mere earth walls, or narrow mounds, covered with brambles ; the perennial shrubs, if ever present, having been cut off, entirely, by the southwest winds (to which they are fully exposed) ; probably for want of being kept down, in a low, thick, bushy state.

In the eastern division of the Island, there are many young hedges ; some of recent inclosures ; the woods mostly hawthorn ; but, in a few instances, privet *(ligustrum vulgare,*—the North-American hedgewood) which, if kept pruned down, low, and dwarfish, makes a close, tolerably secure, and sightly fence.

In one or more instances, I observed, on the most barren sandy lands, the furze, kept down, in a low brushy form, with good effect.

On the more bleakly exposed sites, I saw the elder flourishing in the character of a

hedge wood; as I have heretofore seen it, on the high wolds of YORKSHIRE.

In most parts of the Island, the hedges of lanes are kept down, to the proper fence height, and, in many places, the hedges, between farm inclosures, are treated in a similar manner.

At the Back of the Island, where this precaution is most wanted, it seems to be the most neglected. PERHAPS, sloes, dibbled on the tops, and sides, of the naked moundlets, of that District, would grow, bind the banks together, and give a perpetual fence at a small cost.

The ordinary FIELD GATE, of the Island, is merely a strong bar hurdle; with a stout stake at either end, by way of posts. This is a cheap means of communication. But it is not sightly, nor can it be secure, against resolute stock.

The PRESENT PRODUCTIONS are, chiefly, CULTIVATED CROPS, and SHEEP PASTURE; with a portion of WOODLANDS; some FURZE GROUNDS; and an extent of ROUGH COMMONABLE LANDS; but with very little lowland pasture, or meadow land; except in the environs of Cowes and New-

port. And the marsh and fen lands, at the east end of the Island, are of small extent.

The WOODLANDS are chiefly confined, to the northeast quarter of the Island: of which near one third, I apprehend, is in a state of wood: the vallies are mostly filled with timber oaks; but, in general, they are mossy and of a stinted growth. In the northwest quarter, which is equally, or better adapted, to the growth of oak timber, trees are still more affected, by the cold unbroken blasts from the sea; and this may account for the comparative smallness of quantity, in this oakland part. Over the rest of the Island, there are few, if any *woodlands*, unless about the larger residences, and very little *hedgerow timber*. On the upper grounds, or even on the flat at the Back of the Island, there is scarcely a tree; except a few decrepit, half-perished elms, about villages, or the larger farmsteads.

VIEWS. From the latter part of this description, it may be conceived, that the Isle of Wight is destitute of picturable effect; and, in some parts, it certainly is so: no extent of country is uniformly beautiful.

But, whether the Isle of Wight be considered, as a passage, interesting in itself, or as a place of view, commanding distant scenery; it is capable of conveying,—to the mind of an Englishman, whose taste is not so far vitiated, as to render him incapable of being gratified, by the beautiful assemblage of features which may frequently be caught in the face of his own country,—a high degree of gratification.

The internal beauties of the Isle are chiefly commanded (or might be) from a single point of view: the summit of the knoll, which rises to the east of Newport. The entire circle is highly interesting. The finely surfaced and wooded quarter, to the northeast, with Spithead in the first distance, and the hills of Hampshire and Sussex, in the offscape, form a broad, but nevertheless, a rich and beautiful view. More to the right, the valley of Brading, with its rugged hillocks, skreened, on the right, by the heights of St. Catherine, with the grounds of Appuldurcomb, hanging on their steep and strongly featured surface, and distanced by the sea, compose a charming picture. Further to the right, the valley of

Gatcomb affords a sweet home view; and still further, the well featured rising grounds, the environs of Caersbrook, with the remains of its castle, are finely picturable.

The remaining compartment of the circle is filled with a broader view; less adapted, perhaps, to the pencil; but more capable of expanding, and filling with grateful and liberal sentiments, the mind of him who contemplates it. The near ground, of this view, is the steep-sided valley, below Newport; with its river-form estuary, serpentining, in a happy manner, to its conflux with the narrow sea, that separates it from the New Forest: which, with the estuary of Southampton, fill the center of the view; the hills of Winchester rising in the distance. The rich and varied country, on either hand, spread their fair and ample surfaces; without intruding side skreens, to abridge the view; and rob the eye of its enjoyments.

In the deep narrow dells, and folding ridges, of the southern heights, much interesting scenery may be caught, and more might be induced. And, in the chines and rocky cliffs, of these heights, those who

delight in the deformities and mutilations of nature (for they can scarcely be called nature's own productions) may gratify the eye, and find employment for the pencil.

Of wider views, there are two remarkable points; one in the east, the other in the western division of the Island. The foot of the land mark, on Ashey Down, affords the first. From this point, the anchorings of St. Helen's and Spithead, with the singular intermixture of land and water, in the neighbourhood of Portsmouth, backed by the Hampshire and Sussex Downs, are well commanded.

The other point is on Brixton Down;—a little above the barrow, in whose bowels an ingenious shepherd has found a snug retreat. From this point the entire Island is overlooked: the eye ranging with freedom, over almost every part of its surface: while, on one hand, a boundless sea view, or bounded only by its own convexity, presents itself; and, on the other hand, landscapes, whose boundaries also are left, for the imagination to fix. The principal part of Dorsetshire, part of Wiltshire, and the entire southern declivities of Hampshire and

Sussex, with the distant Isles of Selsey and Portland, are delineated, in a vast map; drawn by Nature's unerring pencil; and communicating to the mind sensations, and impressions, which all the maps and landscapes, of men's making, are unable to produce.

Remarks. I have here detailed the more striking views of the Isle of Wight: not merely on account of their beauty or sublimity, abstractedly considered; but also because they are capable of being rendered useful, to the great end, for which I have long been laboring.—The permanent improvement, and lasting prosperity of the country.

The occupiers of lands, as men of every other profession and rank in life, require relaxation. And although the needy husbandman, borne down, perhaps, by an excessive rent, exorbitant tithe and taxes, and a numerous family, may be doomed to constant labor, and unremitted attention, there is a class of men,—by whom the major part of the lands of this kingdom are, at present, occupied,—to whom its improved state of agriculture is owing,—and in whose exertions,

properly directed, the country has to look for farther melioration,—who are entitled to recreation,—who do, and will, partake of amusements; and it becomes those who are desirous to promote the public welfare, to direct them to such objects, as will at once amuse and instruct.

A man who has never crossed the bounds of his native parish, unless in his way to market, may manage well enough, according to the established practice of his neighbourhood. But little hope of *improvement* can be placed in him. His *mind* requires first to be improved. And this cannot be more readily, and effectually done, than by conducting him beyond the sphere of his education; and there showing him that the same end is obtainable by different means: thus leading him insensibly to consider, whether his own means are the best; or whether those which he has seen, are preferable: and out of the comparison may possibly arise those which are more eligible than either. Indeed, it is scarcely possible, that a professional man, who has been early initiated in the habits of cultivation, should view an extent of cultivated

country, without receiving some profitable impression,—without having his conception enlarged, his judgment strengthened, his emulation roused, and his mind bent towards the improvement of his native practice.

AGRICULTURE.

FARMS. The CHARACTERISTIC of farms, here, is *arable;* with *sheep down*, to those which lie contiguous to the Chalk Hills.

The SIZE is large. Many capital farms are seen, in different parts of the Island. And, in no part, except perhaps in the Yarmouth quarter, are small ones observable: even the Back of the Island, which, within memory, had numerous small holdings, is now laid into those of a large size: many a poor man having only the *title* of farmer left.

This, however, in a public light, might be right, were not the principle over-stretched: farms of a moderate size, doubtless, send more produce to market, than the

same land could, in small holdings, in the hands of the indigent. Principles, in general, are good or bad, as they are properly, or improperly applied. In this, and other parts of the Island, farms have not only been enlarged, by an aggregation of small ones; but such as were already of sufficient size, and which had suitable buildings, and arrangements, for men of capital and spirit, to exert them, are no longer the respectable residences of such men; but are either wholly deserted, or some corner of the buildings is fitted up, for a bailiff, or upper servant.

REMARKS. A plurality of farms, as of livings, is bad. One man, holding three or four well sized farms, as some men in this Island, I understand, do, and as many men, in different parts of the kingdom, certainly do, and these, perhaps, lying at a distance from each other, cannot pay due attention to the whole. It may answer the purpose of an individual, as there is only one, instead of three or four families, to be supported, by the same extent of land; but, in the deficiency and waste of produce, which, in the nature of the rural profession, will

unavoidably take place, the community become losers.

SERVANTS. The same inconveniency, and the serious evil to the community, which may sometimes result from it, is observable, here, as in Sussex. When I went over the Island, the wheat sowing was nearly at a stand; though the season was unusually favorable, for this important operation; with which the price of bread is nearly connected. Surely, the custom of CHANGING FARM SERVANTS, at MICHAELMAS, might be broken through; especially in the Isle of Wight, where a principal part of them are employed, by so few individuals.

BEASTS OF DRAFT. Mostly HORSES. A few OXEN are worked; but chiefly, I believe, by gentlemen, or improving farmers; and not in the ordinary practice of the Isle. The plea, for not using them, is a want of grass: not being aware, that working oxen, at least, should be fed in their stalls, with cultivated herbage, green or dry, the year round; or whenever they are in full work.*

The PLOW TEAM is four heavy horses:—even on the lighter lands! in a state of fal-

* See MINUTES of AGRICULTURE, in SURREY.

low!! An *unsufferable* practice, which may be said to be common to the SOUTHERN COUNTIES.

The ROAD TEAM is of five horses. I saw near twenty teams of this length, collected together, at Newport market. Mostly thick, good horses, in high condition.

IMPLEMENTS. The PLOW of the Isle of Wight appears to be uniform, throughout the Island; and corresponds, nearly, or exactly, with that of the Hampshire and Wiltshire hills, which will be noticed, in the next district. It has two wheels of different sizes; that which runs in the furrow being the highest. Its coulter is crooked; has a bend, below the beam; that its blade may range (as it ought) with the sheath, breast, or stem of the plow; and its plate, or moldboard, instead of being convex, or bulging forward, like that of the Yorkshire, or modern plow, is every way hollow! How infinitely various, at present, is the construction of this most valuable of human inventions!

Its WAGGON, too, is that of the WESTERN DIVISION of the CHALK HILLS. It is large, and runs wide; five feet nine inches being

the common distance, I believe, between the middles of the ruts.

OBJECTS OF HUSBANDRY. The two principal articles of marketable produce are CORN and SHEEP. CATTLE and DAIRY PRODUCE are subordinate objects. SWINE, however, appear to be in great number. And, on the stoney heights, some RABBITS are seen. Also a few breeding HORSES, on the appropriated lands; with wild ponies, in the forest.

CROPS in CULTIVATION. The chief MARKETABLE CROP is *wheat*. In the middle of October, an extraordinary proportion was sown; or the ground was, then, prepared for the operation; and, chiefly, by fallowing. *Barley*, also, judging from the quantity in rick, and the reports of informants, is a prevailing crop; except on the cold lands, on the north side of the Island. Of *oats* I saw less appearance; of *peas* only one small rick; and of *beans*, only one stubble. But others might have been then broken up, and in fallow, or escaped notice.

Of EXPENDING CROPS, for the support of farm stock, the herbage of *sheep downs* is not the least considerable. These are mostly

in clean fine turf; except on the summits of some of the higher swells; which are fouled with furze, and a little heath; in the same manner, as those of Wiltshire and Yorkshire! Owing, perhaps, to their being capped with the same cold weak soil, as the tops of other chalk hills.

Turneps may be considered, as the next object of farm expenditure. In 1791, there appeared a large proportion of this crop; but, mostly, under vile management.

Of *clover*, also, some considerable proportion appeared; but of *temporary ley grounds* very few, indeed; and of *lowland grass*, either in a state of pasture, or of mowing ground, the proportion, as has been said, is very small.

As a substitute for pasture lands, and especially as green stable food, for working horses, *tares*, I understand, are cultivated in great quantity. Even in the middle of October, I observed (at a distance) some tall green herbage (apparently oats) cutting; and doubtless for this purpose. An instance of sowing winter tares, with *black oats*, as supporters, occurred to me: and the reason given for sowing black, in pre-

ference to white, oats was, that they are less liable to be cut off, by frosts: and this may be a fact.

The most extraordinary circumstance, which arose, in examining the crops of the Isle of Wight, is that not an acre, nor even a plant, of *sainfoin* met the eye! even on the whole extent of calcareous lands, that I traversed! I do not mean to assert, that there is no one instance of sainfoin being grown, in the Island. But, from the inquiries made, I learnt that there was, in 1791, very little, *if any*, then growing!! and the reason given, for this neglect of it, was, that "it soon goes off": an extraordinary circumstance, (seeing the nature of the soil) which is only to be explained, in the calcareous lands of this Island having been repeatedly cropped, with this valuable plant; or by some impropriety, in the management of the growing crop. See GLOCESTERSHIRE,—DISTRICT OF MAIDSTONE, &c.

With respect to PARTICULARS OF MANAGEMENT, though I find many on my Journal, I am not prepared with a DETAIL: nor may the practice of the ISLE OF WIGHT require one. Its *weald lands* re-

semble, in soil and management, those of the WEALDS of KENT and SUSSEX; its *sandy loams*, and *sheep economy*, those of the DISTRICT OF PETWORTH, and the SEA COAST OF SUSSEX; and its *Chalk Hills*, as well as the principal *implements* in use, throughout the Island, are the same as those of the HILLS of WILTSHIRE, and HAMPSHIRE; and will be particularized, in the next part of this Volume;—the WESTERN DIVISION of the CHALK HILLS.

Therefore, all I shall offer further, in this part, will be a few notices, respecting CATTLE, and SHEEP: with a general view of the PRESENT STATE OF HUSBANDRY; and such few suggestions of IMPROVEMENT, as aptly rise out of it.

CATTLE. The BREED of the Isle of Wight (if it can be said to have one) is a compleat medley. Its original stamina, or bases, are evidently the Alderney, Norman, or FRENCH BREED, and the Devonshire, West Country, or ENGLISH BREED; and a few undebased individuals, of each of these breeds, are seen; having doubtless been *imported*: for those which are bred in the Island are of the first description. I saw several small

parcels of young stock, in different parts of the vale districts, on the north side of the Isle; and all of them were of base blood; mongrels of low degeneracy. In one herd, the sire appeared, in all the deformity, which crossing, with distinct and widely estranged varieties, is capable of producing.

REMARKS ON BREEDING. The cattle of this Island strongly evince the impropriety of *mixing alien varieties*. The first produce of distinct varieties, as of distinct species, is frequently a valuable MULE. But though the mules of varieties are permitted to *propagate*, and in this differ from the mules of distinct species; yet, judging from the observations which I have made, in different parts of the kingdom, as well as from the meager, ill formed creatures, that are seen in the Island under view, they propagate a degenerate race.

The DESCRIPTIONS of cattle, seen in the Isle of Wight, beside the few *oxen* that are worked, are *dairy cows*,—some *rearing cattle* (as has been mentioned) and, in the marshes, at the east end of the Island, I observed a few *fatting cattle*. But, on the whole, the number is evidently small; and out of pro-

portion, with the arable lands. The waste of straw must, in course, be great.

The DAIRY PRODUCE of the Island is *butter;* for Portsmouth, and its own markets; and *skim cheese;* for the laboring class.

This part of the Wightish practice has, evidently, grown out of the circumstance of locality, with respect to a market; and is of course proper. Yet, notwithstanding the market, for dairy produce, and the want of cattle to consume the straw of the Island, I was well assured, that the number of cows, on the south side or Back of the Island, have greatly decreased, within memory; I was told, as ten to one: but if, as three to one, the decrease, on ten square miles of surface, must be great; owing to the recent aggregation of farms.

It is to be remarked, however, that the lands, as well as the situation, of that quarter of the Island, are better adapted to sheep, than to cattle; and, it is probable, that as the cows decreased, the number of sheep has been augmented.

But the vale lands, on the north side of the Island, are adapted to cows, rearing cattle, and dairy produce; yet, here, I observed at

least one large flock of sheep; with but few cattle, or grasslands to maintain them.

SHEEP. There are two BREEDS and DESCRIPTIONS of sheep, in this Isle: one of them belonging to the Downs; the other to the lower lands.

The first are BREEDING FLOCKS, of the *Hampshire* variety: but, from what I saw of them, they are a degenerate kind; smaller, and worse formed, than the true Hampshire breed: owing, no doubt, to the principles of breeding being less understood, or less attended to: as well, perhaps, as to a want of meadows, to force them in the spring.

In 1791, the *South Down* breed had made its entry, into the Isle of Wight. I observed one large flock, on the Western Downs, which was a motley mixture of the two breeds; and a good South Down ram, among a flock of Hampshire ewes: animals as little alike, in their present states, as the horse and the ass: nevertheless, being, in all human probability, offsprings from the same root, their blood may the sooner, and better assimilate.*

* See WEST OF ENGLAND, Section SHEEP. Also

The other description of sheep are DORSETSHIRE EWES, bought in, for the purpose of providing EARLY FAT LAMBS, for the London market; agreeably to the practice of the DISTRICT OF PETWORTH, described aforegoing. These are common to the Island; appearing in numbers, everywhere; except on the higher Downs; and constitute the principal part of its livestock.

The *time of lambing*, here, as in West Sussex, is Christmas, or a little after. In the middle of October, I saw a large flock, then full of lamb; folding off turneps, for wheat, on the vale lands, east of Newport.

In the *management* of these flocks, I met with nothing, either from observation or inquiry, which differs, materially, from the practice above referred to.

Of FOLDING I observed several instances; a few of them being on fallow, or broken ground; but more on turnep ground; both of them, doubtless, intended for wheat.

STATE OF HUSBANDRY. Under this general head, I will draw together such

the SOUTHERN DIVISION of the CHALK HILLS, in this Volume.

notices, relating to this subject, as occurred, in each day's excursion; and which have not already found a place, in the foregoing particulars.

*Southeast quarter of the Island.** Much foul bad farming, in this ride; and several of the bottoms, and lower hangs of the hills, are cold, and rough skinned, for want of underdraining. The higher slopes are many of them formed into flat stages, with steeps between them, of perhaps eight, ten, or more feet in height. How has the surface been moulded into this form?† Observed several instances of raftering, or ribbing, fallowed or broken grounds. The manure, now setting on for wheat, is dung. Saw no appearance of lime being used, in this intention.

Newport to Brading, along Ashey Down. The state of husbandry is similar to that of other chalky districts!

Brading to Newport, up the sandy valley. The turnep crop is shamefully managed, in this Island: not one acre, of ten, appears

* For the different routes, see page 248.

† For remarks on these extraordinary works of former times, see the next division of this Volume.

to have been hoed. Today, I saw a waggon load of charlock, an acre, where turneps, doubtless, were intended: and, yesterday, not a less burden of the corn bugloss! —*(lycopsis arvensis)*. The extraneous manure is chalk: large excavations appear on the sides of the Chalk Hills; and the sandy soils of the valley appear full of knobs, or checkers of chalk. Formerly, much chalk, (I was told by a professional man) was burnt into lime; but, now, it is mostly or wholly set on, raw. Surely, a *chalk mill* might be invented.* Four heavy horses are the ordinary plow team, on this light land passage! What a crime! The ricks, everywhere, as round as footballs: very globes: turned with great accuracy, and neatness. Through this ride, too, much foul land is seen: the turnep culture is unpardonable; and the breed of cattle wretched.†

* See DISTRICT OF PETWORTH, page 176.

† The judgment, it has already been said, is liable to be misled, through an association of objects; as well as by unobliterated impressions. The temperament of the mind itself, too, may bias the judgment. I passed to the Isle of Wight, immediately from the Sea Coast of Sussex, whose management is above par; and this

Newport, to the west end of the Island, along the northern hang of the Chalk Downs. Nothing, in the general management of these hills, struck me, either to commend, or condemn; it being similar to that of other chalk hills!

From near Yarmouth, to Newport, over the vale lands, of the northwest quarter. Much dung setting on fallows, for wheat; and mostly in a middle state as to ripeness: but some of it fresh from the stable: in a long strawy state! One field thickly chalked. Many of the wheat fallows are clean, and in fine tilth: indeed, the season has been singularly favorable to fallows. But the oat stubbles, and ley grounds,—if such they may be called,—appear foul and weak. This, it is true, is a difficult and dishearten-

might lower the estimation of that of the Island. But my passage, from Portsmouth to Ryde, was pleasant, I had a commodious chaise, from thence to Newport, and a comfortable bed, at the Bugle: so that spleen or disappointment could have no share, in the above remarks.

I do not mention these circumstances, lightly, or with the vain thought of entertaining my readers; but to deal candidly with them; and to awaken the attention of those who may hereafter have occasion, to pass sentence on the rural management of a country.

ing soil, to farm on. Fallowing for wheat, instead of spring corn and ley herbage, appears to be the great error, in its management.

Back of the Island. Here, the extraneous manure is "marl,"—an impure chalk,—which is dug out of the sides of the hills; where extraordinary excavations appear; as if it had been in use, for centuries past. The state of the soil, as to cleanness and tilth, is above par. Observed, on two or three different farms, clean ley grounds. For wheat, the soil is laid up, in narrow ridges; even on the light lands of this flat. But it appears to be the common practice of the Isle, without regard to soil; as it is throughout the WEST OF ENGLAND. On the whole, this part of the Island is in a tolerably good state of cultivation: owing, perhaps, to its being chiefly in the hands of large farmers; of men who have capital, and judgment, to manage it.

The vale lands, to the northeast of Newport. The arable lands, in general, are unpardonably foul. Very few good farmers.

Beside the particulars, here adduced, a deficiency, or total want, of sainfoin, and

water meadows, (no instance of which *occurred* to me) in a chalk hill country, requires especial mention.

The IMPROVEMENTS, which rise more prominently, out of the foregoing statements, are some alterations in the GENERAL ECONOMY, or present PLAN OF MANAGEMENT, of the Island at large, by reducing the quantity of arable lands, and increasing the number of livestock. Thus, on the cold vale lands, increase the quantity of permanent grassland,* and the number of cows and rearing cattle: on the sandy loams, increase the proportion of ley herbage; on the calcareous soils try, at least, to grow sainfoin†; and on the sides of the calcareous rivulets, form water meadows: by these means, en-

* For remarks on this process, see WEALD OF SUSSEX, page 158. In the Isle of Wight, I saw an instance, on a large scale, in the Valley of Gatcomb, of arable lands being converted into perennial herbage, with success; being used as grazing ground: of which there is little, in the Isle. And the vale lands, which are worked at a great expence, and with much uncertainty, compared with the lands of Gatcomb, would doubtless pay better for the change.

† For the Cotswold practice, see GLOCESTERSHIRE. For that of Kent, see DISTRICT OF MAIDSTONE in Vol. I. page 155.

abling the uplands to carry more stock; and this, perhaps, without any reduction in the present quantity of corn. For, though the number of acres might be less, the increase of manure, and the comparative *freshness* of the lands, with respect to corn crops, might make up, for the deficiency; and the advantages, arising from the livestock, be so much clear gain.

The present loss of produce, to the community, and of profit, to the occupiers, or the proprietors of the lands of this Isle, by the *unsufferable* practice of PLOWING the light loamy soils, WITH FOUR costly, high-fed HORSES, call loudly for improvement. If the superior practice of cultivating such lands, with TWO OXEN, cannot readily be established, that of plowing them with TWO HORSES, agreeably to the practice of half the main land, should forthwith be adopted.

In its COURSE OF HUSBANDRY, an obvious improvement is to be made. Instead of fallowing the vale lands, and growing foul turneps, on the uplands, for wheat, let the ground, in every situation, be *thoroughly cleaned*, for spring corn and ley herbage;

and sow wheat, after clover; or after pulse, cultivated in rows, with wide intervals, in the Kentish manner.

And in BREEDING, too, much improvement is to be effected; both in cattle and sheep.

Why not propagate the ENGLISH BREED OF CATTLE, pure, and unmixed with foreign blood? The French cow may produce an agreeable variety in park scenery, and furnish rich viands for a fashionable table; but from my own experience of this breed, in Surrey, they are of a tender nature; requiring indulgent treatment, to keep them in condition: and they appear to be altogether unfit, for the cold, weak, vale lands of the Isle of Wight; whatever they may be, for its richer, warmer grounds.

The proper breed of SHEEP, for the heights of the Island, is evidently the South-Down: not mixed, however, with the degenerate breed in possession;—provided ewe lambs, or aged offcast ewes, of the true breed, can be procured, fast enough, from Sussex.

THE

CHALK HILLS

OF THE MORE

SOUTHERN COUNTIES.

THESE HILLS stretch out, in different directions, and spread, with irregular outlines, through that part of the Island, which forms the subject of the present Volumes ;— reaching, from east to west, near two hundred miles.

In so great an extent of country, variations in practice are to be expected. These variations have arisen, not altogether out of the circumstances that might attend their first settlement, and the incidents of long continued practice ; but, in some measure, from the varying nature of their soils. For although there is a striking similarity of soil, on every range of Chalk Hills, in the kingdom, where the Chalk rises nearly to

the surface; yet, in several parts of the hills of Kent and Surrey, the Chalk, especially on the tops of the higher swells, is deeply covered with a strong tenacious soil;—in some places, three or four feet in depth.

This circumstance, which I have not *observed*, on any other part of the Hills under view (unless partially, and in a slighter degree, in the north of Hampshire, and the southwestern quarter of Wiltshire), added to that of the Kentish and Surrey Downs, being entirely separated from the more southern and western hills, by the barren Heaths of Surrey and Hampshire, render them a distinct object of examination. And the Downs of Sussex, though they agree in soil, with the Hampshire and Wiltshire hills, and are contiguous to the former, differ much with respect to management. The Dorsetshire Hills appear, from what I have seen of them, to be similar to those of Wiltshire. A threefold division, therefore, is all that is requisite: namely,

The Western Division; comprizing the Downs of Wiltshire and Hampshire:

The Southern Division; containing the West and South Downs of Sussex: and

The Eastern Division; including those of Surrey and Kent.

THE

WESTERN DIVISION

OF THE

CHALK HILLS.

Prefatory Observations.

THIS BEING the largest Division, and the one that I have examined with the most attention, I shall speak of it, in detail; and confine myself, in mentioning the other Divisions, to the few differential practices that have struck me.

It may be right to notice the SOURCES of INFORMATION, which circumstances threw in my way, with respect to this Division. My first view of it occurred, in travelling from London to Devonshire, in the early part of July, 1791,—by the way of Basingstoke, and Stockbridge, to Salisbury; where I staid a few days, to examine the country, round this finely situated place; and from thence, by Blandford, and Dorchester, to Bridport. The next line I made

across it was, in the middle of September, in the same year, from Mere to Salisbury, and thence, as before, to Basingstoke. The third was in the middle of October, 1791, from Rumsey to Salisbury, and thence to Bridport. The fourth, in the wane of the same year, from Bridport by Salisbury, to Basingstoke. The fifth, the same road, in 1793. The sixth, in April, 1794, from Pewsey, down the bourn, or valley, of Amesbury; thence across the Downs, by Orcheston and Heytesbury, to Warminster: and thence, by the Deverells and Knoyle, to Shaftsbury. Lastly, from Devizes, by Everley, Ludgershall, and Andover, to Basingstoke. And, beside these lengthened lines, I made a shorter excursion, in June 1791, from Petersfield, by Alton, &c. to Farnham.

GENERAL VIEW

OF THIS

DISTRICT.

In giving a brief account of this wide tract of country, I shall pursue the same plan, I have followed, on former occasions.

SITUATION. Its northern boundary is formed, by the rich lands of Berkshire, and the vale, or broken valley, of Pewsey, which separates it from the Marlborough Hills: its western, by the broken grounds of Somersetshire, &c.: its southern, by the New Forest; its eastern by the Heaths of Surrey and Hampshire, and the West Downs of Sussex.

The EXTENT of this Division, from east to west, is near sixty miles; from north to south, twenty to twentyfive; comprizing twelve to fifteen hundred square miles of surface.

ELEVATION. It is a striking fact, that the Chalk Hills of Yorkshire, of Norfolk, of Buckinghamshire, and of the several divisions of the Southern Counties, are of a similar height; all of them rising to upland elevations, some of them to what are emphatically termed heights; but none of them are mountainous: their mean elevations, above the sea, being, to common observation, nearly the same.

SURFACE. It is equally observable, that, in the formation of the areas, or interior surfaces, of all chalky hills, there is a striking likeness: rotund knolls, or more lengthened ridges, divided by smoothly sided vallies, of various depths. And in almost every range I have examined, the rise on one side is sudden, and abrupt,—showing a broken

steep or cliff,—from the top of which the hills sink, in irregular gradation; at length shelving, smoothly, and often gently, into an extended flat; frequently of rich soil.

These circumstances are more distinguishable, where the range of hill is narrow—*single*—than where a congeries of such ranges are crowded together, disorderly; as they are in the instance more particularly under notice; whose varied surface will best appear, in the following extracts from my Journals.

BASINGSTOKE TO SALISBURY. The Chalk Hills begin, with a gentle rise, a few miles before Basingstoke, and continue rising, with an easy ascent, and with intervening dips, for ten or twelve miles, to Popham Beacon; thence falling, with an almost regular descent, and for nearly the same length of ground, into the Valley of Stockbridge; leaving, however, some broken high lands, on the left.

The Valley of Stockbridge is narrow; and, on the west side, the Chalk rises abruptly, and reaches to a height, greater, perhaps, than that which has been passed. From those second heights, which divide the counties of Hants and Wilts, the road, for another distance of ten or twelve miles, sinks gradually to Salisbury;—leaving, as before, some bold high lands, to the left.

The ENVIRONS OF SALISBURY. Smooth rotund eminences are seen from every point

of view ; the town being happily situated, in a wide shallow bason, in the midst of them ; at the conflux of three brooks ; each having its accompanying dell ; forming one river, and one broad, well wooded valley, below the town. From the lofty site of the castle of Old Sarum is a very extensive circle of views : a still wider sea of chalky waves.

AMESBURY TO WARMINSTER. Ascend the downs behind Amesbury Park : extensive naked views, smooth and beautiful. Enter the *plain*, or more level part of the downs, at Stone Henge. The surface gently flowing ; tamer even than the high wolds of Yorkshire, and more extensive. Cross a gentle dip at Orcheston, and leave a fine valley, on the left, below Chiltern. Surmount another plain : the surface gently waving, as before. Descend, abruptly, into the vale, or broken bason, of Heytesbury and Warminster ; leaving high rugged hills to the right.

WARMINSTER AND TO SHAFTSBURY. From the summit of one of these heights, a striking suite of views are commanded. One of Somersetshire is extensive ; the others are circumscribed, by the steep and lofty Chalk Hills, which here form a fertile bay of *silty* soil ; in which this and other detached hillocks rise, as islands ; and diversify the surface in a singular manner.

Leave the broken environs of Warmin-

ster; ascend the downs, by a gentle rise; and reach the summit. Most extensive prospects! an ocean view: free on every side. Dorsetshire, Somersetshire, and Wiltshire, are overlooked, to an extraordinary extent. The surface of these downs boldly swelling. Descend to a lower stage; and still lower. Leave the Chalk Hills, and drop, abruptly, into the Valley of Knoyle: the very Weald of Kent or Sussex.

DEVIZES TO LUDGERSHALL. The Chalk Hills are seen on the right; lofty, and in some parts rugged, but not uniformly broken into steep cliffs. Much cultivation appears on their sides, and towards their feet, in flat artificial stages, with steep "linshets" between them. Reach the foot of the hill, and leave the Vale of Pewsey; entering the "bourn" or valley of Amesbury; a chalk-hill valley of the largest size. Mount the eastern bank of the valley; overlooking in the ascent, a sequestered arable dip, or branch valley, on the left, and gain the top of the grassy down: another wavy plain, shelving gently southward, to Everley and Sudbury Hill; a high rugged eminence of a nature dissimilar to the surrounding heights; standing between the vallies of Amesbury and Winterbourn, which sink, steeply, on either side of it.

LUDGERSHALL TO BASINGSTOKE. The country being inclosed and wooded, the sur-

face is the less discriminable: it appears to be a succession of tame upland swells, divided by dips and shallow vallies.

PETERSFIELD TO FARNHAM. The steep face of the Downs, on this side, makes an angle; changing from a westward to a northward direction; appearing to terminate, abruptly, to the north of Petersfield, in a rugged promontory. From the brink of this range of cliff, the surface shelves gently, westward, into a spacious dip, above Alton; sinking, by degrees, into the valley of Farnham.

REMARKS. The ARTIFICIAL SURFACE which meets the eye, in different parts of these hills, forcibly arrests the attention. It occurs on the steeper slopes; which are formed into stages, or platforms, with grassy steeps, provincially "LINCHETS," between them.

This form of surface must have been produced, at great expence, in the first instance, or by great length of time, in constantly turning the furrows, downward of the slope. But as the turnwrest plow has never, perhaps, had a footing, on this division of the Chalk Hills, it is probable, that the stages under notice were formed, by hand; at some period, when manual labor, either through an excess of population, or through the means of feudal services, was easily obtained. And the advantages, arising from the ope-

ration, have no doubt repaid the first cost, with ample interest. The stages, or platforms, are equally commodious for implements of tillage, as for carriages; beside retaining moisture, better than sloping surfaces; while the grassy steeps, between the arable stages, afford no inconsiderable supply of herbage; on which horses are teddered, or tended, while corn is on the ground; and which give pasturage to sheep, at other seasons.*

This sort of artificial surface is common, in different parts of the Island; and the antiquary might be less profitably employed, than in tracing its origin.

CLIMATURE. The harvests of these hills are late. In the first week of July, 1791, the hay harvest was barely begun: the season, however, was backward. In the middle of September, barley harvest, from Mere to Basingstoke, was at its height: the Downs strowed with harvest waggons: some barley in swath, and some uncut. But the weather had been unsettled.

* In going over the extraordinary site of the CASTLE OF OLD SARUM, I had an opportunity of observing the great facility with which SHEEP are enabled to graze very steep surfaces; by a faculty, which nature has furnished them with, as MOUNTAIN ANIMALS, of shortening or lengthening their legs, with respect to their bodies, at pleasure: a natural faculty that enables them *to stand sideway to the slope;* and, in that posture, to feed, with apparent ease, on almost perpendicular steeps.

WATERS. These hills are, in a manner, free from surface water. That of rain is imbibed, as fast as it descends. In the deeper vallies, where the mass of chalk is broken, and cleft perhaps to its foundation, the waters, which the hills have absorbed, being checked, by some less permeable stratum, rise in profusion; forming copious brooks of limpid calcareous water,—whose fertilizing qualities will be shown.

SOIL. No portion of the earth's surface affords the geologist more interesting matter, for his discussion, than the class of lands, now under consideration. The soils of chalk hills, where the chalk has no other superincumbent load, than the cultured mold, are every where very similar. They are of a loamy nature, pale-colored, and of a depth proportioned to the elevation and surface of the bases, on which they rest. The summits of the hills are, in general, thinly covered, are, in some instances, almost naked of soil; while the lower stages, and the flatter parts, are furnished with soils of a middle depth; and while the feet of the hills enjoy a deep, rich, and generally friable, sandy loam: such deep rich soils occurring, not only on the smooth or shelving side of the range of hill, but at the foot of the broken cliff; and, what is most observable, where the cliff is of great height, a line of rich, variously colored,

clayey soil intervenes, between the chalk and the sandy loam.*

BASINGSTOKE TO SALISBURY. The soil of these hills varies. Basingstoke to Popham Lane, and the lower stages in general, enjoy a free good loam, which stands, with considerable firmness, the present dry season. The higher swells are of a thinner, less fertile soil; some of them, between Stockbridge and Salisbury, appearing to be almost barren.

ENVIRONS OF SALISBURY. The soil, on the tops of the hills, is mostly thin; but, on the gentler slopes, and towards the vallies, it is chiefly a productive loam; fine crops of wheat, barley, and peas.

The VALLEY OF AMESBURY. Where the base of the valley dilates, a dark, moory mold has formed; now converted to rich water meadows (of which hereafter); the skirts of the hills having a deep, rich, absorbent soil. Below Netherhaven, the road leaves the bottom of the valley, and leads along the first stage of hill: well soiled, charming arable land.

AMESBURY TO WARMINSTER. The lower skirts of the plain are covered with a deep, highly colored soil: good corn land; and

* See the DISTRICT OF PETWORTH, p. 167. Also the SOUTHERN CHALK HILLS.

only wants shelter to render it highly proper, for mixed cultivation.

WARMINSTER, AND TOWARDS SHAFTSBURY. Strong pale-colored clay, at the feet of the hillocks near Warminster: charming wheat, beans, and clover, on this soil: though (the 26th April) hard baked with drought! The area of the bason or bay of Warminster, is a silt, or very fine sand, similar to that of the Vale of Pewsey; resembling much the sea silt, or mud, of which the road across the marshlands of Norfolk is formed.

Much of the Downs, in this quarter, is furzey, rough, and forestlike, with wooded hills to the left: part of the higher downs, arable: the soil, apparently, cool and retentive. The lower stages of the Down (on the southside) pale loam, on chalky rubble: a sainfoin soil.

EVERLEY DOWNS. The soil, of the gentler slopes and hollows, is deep dark-colored loam;—upon the steeper sides of the swells, thin, loose, and flinty. The top of Sudbury Hill is a bed of round smooth, *waterworn flints*.

LUDGERSHALL TO ANDOVER. An inclosed country. The soil nine or ten inches deep, on chalk, producing good thorn hedges; and hedgerow oaks.

ANDOVER TO BASINGSTOKE. Here, an unusual species of chalk-hill soil covers some extent of surface: a sort of red rubble, or

gravelly earth: sometimes appearing at the surface; at others, forming a subsoil to a lighter colored loam.

SUBSOIL. The ordinary bed of the cultivated soil is a soft broken chalk, or rubble, of various depths: sometimes pure, sometimes mixed with colored earths. In many places, however, soil of a tolerable quality lies on a mass of close chalk, or with very little loose matter intervening.

The subsoil of the meadows is frequently a bed of flints, and not uncommonly a seam of white earth, from one to three feet deep; having the appearance of pipe clay; or a deposit of dirty chalk; washed, probably, from the hills, before their surfaces were covered by vegetation.

The SUBSTRUCTURE of these hills is, doubtless, in chief part, chalk. Little else appears, in the faces of the broken steeps; until the stratum of rich clay, that has been mentioned, is reached. There are wells, in different parts of the Chalk Hills south of the Thames, of three hundred feet in depth, which pass entirely (it is said) through masses of chalk.

Hence the almost only FOSSIL PRODUCTION of these hills is chalk: interspersed, however, in some places, with flints; or flinty gravel.

The softer chalks are used, as manure, in their natural state: the harder are burnt into lime.

WRITING CHALK. Out of the foot of Sudbury Hill, chalk of a singularly fine quality, of an even soft texture, and purely white color, is raised. Considerable quantities of it, I understand, are taken westward, in back carriage, by those who bring coals into the neighbourhood of this hill, to supply the shops of the West of England with writing chalk.

By the *marine acid*, one hundred grains yielded (by two separate trials) ninetyseven and a half grains of calcareous matter; leaving two grains and a half of tenacious residuum,—a brown, slime-like matter.

TOWNSHIPS. In laying out the lands most immediately under notice, the principle of the plan may be said to have been given. The almost only eligible sites, for towns and villages, were in the deeper vallies: not so much on account of the shelter they afford, as the water they furnish. And the lines of demarcation were drawn across the vallies; to give each township its proportionate share of high and low, of fertile, and infertile lands: or, where a twofold range of townships occurs, as in the Valley of Amesbury, the brook or midway of the valley is the boundary line between them.

The judgment that has been used, in fixing the sites of villages, is apparent in the Valley of Amesbury. Where the base of the valley dilates, or widens, there we find

a village; as Chissenbury, Enford, Fittleton, Netherhaven; and, in the widest of these dilations is situated the market town of Amesbury: while Salisbury, the county town, occupies a conflux of similar dilations: the only instance of the kind, the county affords.

The ROADS are everywhere good: even though they only lead to villages. The public roads are in general excellent. Flints *set* in chalk are the first of road materials.

STATE OF INCLOSURE. This I shall be the best enabled to convey, by extracts from my Journals.

BASINGSTOKE TO SALISBURY. The state of inclosure varies. To the eastward, the country is mostly inclosed; much of it in large, square, regular, inclosures. More westward, it is entirely open; as are the tops of the higher hills, throughout. Extensive views, with no other *break*, than what is given by corn, or flocks; fallows, or the sheepfold.

ENVIRONS OF SALISBURY. To the southward of the town, there are some well sized, square fields, with good live hedges (at least on three sides) apparently of forty or fifty years growth; yet, extraordinary as it is, many of these fields lie open to the roads! the fences on the sides next to the lanes lying in a state of neglect. And, to the north of the Avon, the country, for many

miles every way, lies open; unless about villages and hamlets, and along the narrow bottoms of the watered vallies. To the eastward of Salisbury, an attempt has been made at inclosure; the ruins of the hedges being still evident: broken banks, with here and there a hawthorn. And similar instances are observable, in other parts of these Downs.

REMARK. Are we to infer, from hence, that chalk-down lands are not proper to be kept in a state of inclosure? Or that, where sheep are tended in flocks, and few cattle are kept, fences are not requisite? Or is the foliage of shrubs a *natural* and favorite food of sheep, and hence, in a country entirely naked of shrubs, and chiefly stocked with sheep, it is difficult to preserve a live hedge from destruction?*

LUDGERSHALL TO BASINGSTOKE. The country is wholly inclosed; excepting a few plots, on the right, towards the higher open downs; mostly in large square fields; doubtless from a state of open down; the hedges, in general, of a middle age: some instances of recent inclosure.

With respect to the present STATE OF APPROPRIATION of this tract of country, the mere traveller is liable to be deceived. From the more public roads, the whole appears

* See Vol. I. page 326: *Note.*

to be in a state of divided property. But, on closer examination, much of it is found in a state of commonage. In the immediate environs of Salisbury, there are evident remains of a common field; lying in narrow slips, intermixed, in the South-of-England manner; and, not far from it, a common cow pasture, and a common meadow. About Mere, I observed the same appearances. In the Valley of Amesbury, much of the land remains, I understand, under similar circumstances; though they do not so evidently appear, in the arable lands; which, by aggregation of estates or of farms, or by exchanges among landlords, or their tenants, lie mostly in well sized pieces. But the after eatage, whether of the stubbles or the meadows, is enjoyed in common. And the grass downs of the common-field townships are in a state of common pasture, the year round; being stinted by the arable lands.

PRESENT PRODUCTIONS. Time and experience appear to have assigned, with considerable accuracy, the products suitable to the different soils and their situations. Where the soil is of a sufficient depth, and of a nature, and in a situation, suitable to arable crops, we find these crops prevail: while the higher thinner soils are in a state of perennial sheep walk: and, where the chalk is covered with a cool

tenacious soil, we see plots of woodland; as between Ludgershall and Basingstoke; Warminster and Shaftsbury: and, on some of the higher, cool-soiled hills of Hampshire, coppices are prevalent.

ORNAMENTAL APPEARANCE. A great similarity of view is observable, in all the chalky districts of the Island. The visual effect, of open naked downs, bears some affinity, to that produced, by broad sea views: the first sight is the most interesting. Nevertheless, the grandeur, that not unfrequently rises, from extensiveness, and the beauty which, almost everywhere, appears in the nearer views, prevent a satiety: beside, there are few minds, that are not exhilarated, if not enlarged, by extensive prospects.

It must, however, be some particular and chosen point, from whence nothing but an extensive billowy surface appears: broken wooded offscapes are generally seen; giving character, and distinction, to the views. And there are few, in which nearer objects do not enter; as featured eminences, woods, villages, mills, sheep in scattered flocks; and, in the summer months, plots of corn, waving perhaps with the wind, and giving a sort of animation, as well as variety, to the scenery.

In describing the SURFACE of this tract of country, its ornamental appearance has

been, in some part, conveyed. The more striking places of view, that I find noticed in my Journals, are the higher eminences of the Hampshire hills; from whence the heights of Farnham, and the interior hills of Hampshire, are seen, on the one hand; and, on the other, the high lands of Buckinghamshire, and the Marlborough hills; with extensive front views of the Wiltshire Downs; while the nearer grounds are, in some points, extremely beautiful: soft billowy surfaces, broken by irregular masses of woodland, and smaller coppices; hanging, perhaps, on the brows and sides of the hills; with which, in magnitude, they often happily correspond. Again, Sudbury hill (near Amesbury) commands a circle of interesting views. That to the eastward is rich and extensive; terminating, perhaps, with the Buckinghamshire heights. And, from the upper part of Everley Downs, a still more extensive circle is commanded. To the westward, a lengthened view of the vale lands of Wiltshire, distanced by the hills of Somersetshire, and skreened, on the north, by the Marlborough heights, at hand: with Salisbury plains, and the entire range of the Wiltshire hills, towards the south; distanced by the woodlands of Hampshire; which, with a clear horizon, are probably seen backed by the Isle of Wight. But, at the time I passed this extraordinary point

of view, a haziness obscured the farthest distances.

It is almost needless to add, that it would be in vain to look for the picturesque, in the interior of these uplands: nor do I even find one passage noted, as being highly picturable. Nevertheless, on their margins, especially on their western border, where they blend with the broken grounds of Somersetshire and Dorset, and form the natural boundary of the WEST OF ENGLAND, the country becomes interesting in the detail, and abounds with picturable scenery.

MANAGEMENT OF ESTATES.

MY NOTES, on this subject, are necessarily few: they relate to

Farm buildings,
Field fences.

FARM BUILDINGS. In this division of the Chalk Hills, we see the practices of the West of England, and of the lower lands

of the Southern Counties, mixing with each other. On the larger farms, the DWELLING HOUSE is usually of bricks and plain tiles,—the BARNS, and other OFFICES, of weather-boarding and thatch; agreeably to the Berkshire and Surrey practice. While smaller farmeries, and some I have observed of considerable size, are entirely of mud and straw,—the West of England cob;—of which YARD FENCES are, almost invariably, and universally formed: their tops being secured with thatch, as the ridge of a roof. COTTAGES, also, are commonly of the same material, throughout the country. In the upper part of the Valley of Amesbury, I observed several new buildings, formed with blocks of hard chalk: a material which appears (there at least) to be coming into use.

In the plan and construction of farm buildings, the only particular that struck me, as being entitled to especial notice, is the practice of setting BARNS UPON PILLARS, in the manner in which granaries are usually set. I have observed, and not unfrequently, barns of a full size raised, entirely from the ground, in this way: a practice which has probably originated, in the abundance of rats, with which the bourns, or watered vallies, are infested. Watered meadows are nurseries of them. They not only afford sweet roots and herbage, for their food;

but the sides of the trenches are convenient places, for their lodgement.

REMARKS. In point of expence, the difference between pillars and caps, and a brick foundation wall, may not be great; and the perfect dryness obtained, may repay the extraordinary expence of sills and flooring. Indeed, in the thrashing floor, there is doubtless, in a course of years, a considerable saving; beside the refuge which a barn of this kind must afford, to swine at all times; and to poultry, in wet weather.

FIELD FENCES. Some of the OLD HEDGES, in the north of Hampshire stand on mounds; and have a mixture of the euonymus and other shrubs; and, like those on the hills of Surrey and Kent, are frequently injured, by the travellers joy *(clematis vitalba)*: a powerful enemy to hedges.

The MODERN LIVE HEDGE is of hawthorn; and those of a middle age are mostly clean, and full of growth.

The only GUARDS of YOUNG HEDGES are two lines of *very low* rodded hedge; which, against sheep that are folded, by night, and *carefully* tended, by day, may be sufficient; but must expose the young plants, to numerous accidents.

On the lower stages of the hills, young hedges appear to be raised, without much difficulty, but on the higher more exposed sites, the hawthorn, perhaps, does not rise,

quick enough, to get out of the way of enemies; nor furnish itself, sufficiently, to give the required shelter, in such situations.

REMARK. If it be right, to inclose the more exposed heights, the BEECH, I am of opinion, would be found a most eligible hedgewood. In the Highlands of Scotland, I have seen beechen hedges equal, as fences, to brick walls; and, being kept pruned on their sides, are perhaps superior to them in point of shelter.

The DEAD FENCE, principally, or solely, in use, is a hedge made with naked hazel rods, interwoven among stakes, in the wattle manner. Many thousand rods of this fence are seen, in travelling across the country: notwithstanding the materials, to some parts, are to be fetched many miles; the expence of making considerable; and the duration short. Two such hedges, with a line of young beeches, set between them, would be a fence, in perpetuity.

The HEDGEROW TIMBER of this tract of country is, of course, inconsiderable. The recently planted, and middle-aged hedges are free from it. In the north of Hampshire, some oaks are seen, in the hedgerows; and, in the vallies, elms are common: also willow pollards; not only in the hedgerows, but by the sides of the main conduits, in the areas of the meadows.

In a country, destitute of coppices, WILLOW POLLARDS must be found highly useful; as furnishing a supply of stakes, and of rods, and rails, for various purposes of husbandry.

WOODLANDS AND PLANTING.

THE NORTH of Hampshire is well wooded. Mostly in a state of COPPICE, for fuel, hurdles, and dead hedges. Some oak timber is observable, on the lower red-soiled lands, and, even on the higher grounds, stooping stunted oaks are seen; but in situations altogether improper for them. If it be right to attempt to grow TIMBER, in these situations, the beech, would, undoubtedly, be found preferable to the oak.

With respect to PLANTING, the Wolds of Wiltshire and Hampshire remain in the same state, in which the Wolds of Yorkshire were, twenty or thirty years ago. From Everley Downs, I observed some ragged clumps of stunted firs; the almost only attempts at planting, I did observe: unless about places, with a view to ornament: and except an instance or two, between

Salisbury and Basingstoke, of recently formed belts, or skreen plantations, in which the beech appeared conspicuous.

REMARK. This appears, to me, the most eligible kind of plantation, for these bleak naked hills; especially those in the more central parts of Wiltshire, where coppice wood, and coals, are equally far to be fetched; where wood may be said to be the *natural* fuel of the country; yet, at present, without a coppice wood, to supply its wants. In Salisbury, there is a spacious place called the "wood market": and, formerly, every township must *necessarily* have had its woodland.

AGRICULTURE.

FARMS. The PLAN of farms, as of townships, is in some measure given, in the nature of the country. Under the present system of management, every farm requires a portion of arable land, of sheep walk, and of meadow. The great inconveniency, of this distribution of the lands, is the situation of the farmery; which is necessarily placed, on one side of the arable lands; and that side the lowest.

To obviate, in some degree, this inconveniency, barns have been scattered, on the higher Downs, where these are in a state of aration; to prevent the length of carriage, of corn and manure, which is otherwise requisite. I have observed sheep ponds, near these barns, which, with their sheltered yards, are capable of being rendered serviceable to sheep, in severe weather.

REMARK. On every extensive estate, it is highly probable, sites, eligible for HILL FARMS, might be found. See ISLE OF THANET, in page 41.

The SIZES of farms are extremely various. Many large ones are seen, in every quarter of the tract of country under examination. Nevertheless, in every "bourn," small farmeries are observable. Where perennial sheep walk, and the fold, make essential parts of the plan of management, farms of sufficient size, to maintain flocks large enough to employ distinct shepherds, are doubtless most eligible. But, in speaking of SHEEP, it will be shown, that such is the power of invention, when urged by natural necessity, that even the lowest class of farmers are enabled to keep sheep, and fold their arable lands, with a degree of propriety.

Upon the whole, this division of the Chalk Hills may be deemed a most desireable country, to farm in. Sound sheep walks; arable

lands, that may be worked, in almost any season; meadowy vallies; and calcareous water!

BEASTS OF LABOR. HORSES are universally the animals of draft. Mostly valuable young horses, bred in the Midland Counties, and enured to moderate work, here, to prepare them for the London market. See MIDLAND COUNTIES, Section HORSES.

It is no wonder, therefore, that plows are seen moving with sluggard pace; or that, in consequence, a sluggish gait, and slowness in every movement, should characterize those who, from their early youth, have been habituated to the snail's pace of fat fen horses. See NORFOLK; MINUTE 100. Also DISTRICT OF MAIDSTONE, in Vol. I. page 56.

The ordinary PLOW TEAM is four horses, double. I have seen three (drawn two and one) scratching the surface of a loose fallow, three inches deep, and moving, at the rate of a mile and a half an hour. In one instance, however, on the lower part of Everley Downs, I saw five two-horse plow-teams, at work: some of them with, some without, drivers.

IMPLEMENTS. The WEST COUNTRY WAGGON is common, on these hills. It differs from that of the COTSWOLDS (see GLOCESTERSHIRE) in having no insection, in the

body, to receive the fore wheels, in turning. In an open country, there is less occasion, for such mode of construction, than in narrow inclosures; and the body is not only more roomy, and commodious, but is stronger, by continuing the side pieces, throughout, from end to end. And for the road, where heavy loads and long journies are required, whole bodies have their advantage. But, for harvest waggons, in an inclosed country, insections are highly useful.

The Wiltshire waggons run remarkably wide: full five feet and a half from middle to middle of the ruts; I have measured one near six feet, from out to out: far exceeding, in this respect, the waggons of most other parts of the kingdom: they are peculiarly well adapted to a *side-hill* country; and are, on the whole, well suited to the country, in which they are employed.

One PLOW, likewise, is common to this division of the Chalk Hills, and is, perhaps, peculiar to them, and the ISLE OF WIGHT. About Alton, on the eastern margin of Hampshire, I perceived the singlewheeled plow of Sussex, changing to the two wheels and high bolster, of Hampshire; and, in leaving the Vale of Pewsey, and entering the Valley of Amesbury, a similar change was observable.

It would be a difficult task, to describe this plow; and, when gone through, would

be labor lost. It has the general appearance, at some distance, of the Norfolk, or the Kentish plow; and is, in size, between the two; but approaches the unwieldiness of the latter.

The part that marks the Wiltshire, or rather the Hampshire plow, most discriminately, is the form of the share; which consists of a long narrow point, or spike, resembling the point of a small iron crow, to which a long narrow *fin* is welded, a few inches from the point; standing out almost square, but receding somewhat backward, resembling, much, in figure and position, the pectoral fin, of some species of fish; and hence, probably, the term *fin*, which is common to some districts; being very different, in shape and appearance, to the *wing* of the ordinary plow-share.

Another implement, common to these hills, is the "DRAG PLOW." I observed it, first, in the Alton quarter, and afterwards found it common, in Wiltshire. It resembles the subplow, or tormentor, of West Devonshire (see WEST OF ENGLAND, District SOUTH HAMS) except in the construction of the operative parts; which, in those that I have examined, are mere coulters, or strong tines, bent in the lower part, with an obtuse angle; the points shooting forward; the upper part being splayed out, wide and hollow, behind.

This implement is used, and has, I understand, long been used, by common farmers, in forming channels, or seed seams, in the surface of the soil, over which seed wheat is intended to be sown. I have observed six horses dragging one of those implements; with two men standing upon it, to increase its effect.

The outline of the frame of the woodwork forms a triangle; which is drawn by the sharpest angle; and has cross bars, towards the opposite side, in which the coulters are fixed; and with a low wheel, at each corner, to regulate their depth.

The ORIGIN, and progress, of this invention would be interesting, in a history of the agriculture of the Island.

MARKETS. This part of the Island abounds with good markets. SALISBURY, WARMINSTER, DEVIZES, ANDOVER, and BASINGSTOKE take off the CORN, grown on the lands more particularly under notice. And the fair of WEYHILL, situated between Ludgershall and Andover, is the mart for SHEEP. Although the situation of these hills is, in a degree, remote, they may be said to be well placed, with respect to markets; having Bath and Bristol, on one hand, with the metropolis, on the other; and Portsmouth within reach.

PLAN OF MANAGEMENT. The rise of the present practice does not evidently

appear. It is probably of ancient date: as it does not, even yet, I understand, deviate far, from the old common field system of management.

The leading OBJECTS of the chalk-hill farmers appear, in a great measure, in what has been said, respecting the present PRODUCTIONS, of these hills. *Corn* and *sheep* are their chief market products. Some cows are kept, and small quantities of *cheese* are sent to market. But this is a secondary object.

The ARABLE CROPS are *wheat, barley, oats, peas, tares, rye, rape, turneps, temporary ley grasses, and sainfoin;* with a wide extent of *perennial sheep down;* and with *meadow herbage;* especially where water can be commanded.

The OUTLINE of management of the ARABLE LANDS appears to be that of rendering them equally productive of grain and herbage; of corn and sheep; appropriating them, pretty equally, to these purposes: namely, to wheat, barley, oats, peas, as grain; and to cultivated herbage, rye, tares, rape, and turneps, as food for sheep; especially lambs, which form the main object of the flock: the first care of the chalk-hill shepherds being that of growing them to the greatest possible size, as STORE LAMBS.

The plain COURSE OF PRACTICE, on the appropriated lands, where any regular suc-

cession of crops is observed,—appears to be —wheat ;—barley, or other spring corn ;— succeeded by cultivated herbage, two years; the first year's crop being usually mown, the second eaten with sheep: or, in some instances, I understood, the crops of both years are applied to sheep ; the first, more particularly, to suckling ewes; in order to push on the lambs, and raise them to the greatest growth, to which the scanty summer feedage of these hills are capable of raising them, for the autumnal market.

This four years' course was probably in use, before the cultivation of grasses and legumes took place ; and hence, perhaps, the imperfect tillage, which is still given, for the wheat and barley crops ; and which was well calculated to preserve the natural grasses in the ground ; to form a temporary sheep pasture, while the land was recovering its strength, to throw out two more crops of corn. The last year's ley is usually dunged, or folded upon, or both, for wheat in rotation: the other crops, mentioned above, being thrown in, as occasion requires.*

SOIL PROCESS. The TILLAGE, which these lands receive, is inconsiderable. For

* I speak here, of the *area*, or more *central parts* of this division of the Chalk Hills ; or, in other words, of the District itself: not of its *western margin*.

wheat, the ley ground is usually broken, by a half plowing, ricebalking, or rafter-ing; and the seed sown over one clean plowing, given across the rice-balks; or, at most, the plits of the clean plowing being reduced, with the harrow, the surface is raised into inequalities, with the drag plow, to receive the seed. And the usual barley fallow, I understand, is two plowings of the wheat stubble. The extraordinary foulness of the ley grounds, and stubbles, is a necessary consequence.

The practice of SODBURNING is probably of ancient date, on these hills; over every quarter of which it is, now, more or less observable. But it appears, from what fell under my observation, to be confined, chiefly, to the higher lands.

In the ancient husbandry of these hills, it is probable, these distant lands were *forced*, by this practice, to bear, occasionally, as many corn crops, as they were able; and, were then suffered to rest, until time had renewed their strength, and enabled them to bear another succession of corn crops; agreeably to the practice of Scotland: the produce of these *outfield* lands being expended on the *infields*, or lower grounds. Now, as has been said, barns are placed, on these remote lands, and a crop of rape herbage, for sheep food, usually succeeds

the burning. Two very valuable improvements.

MANURES. The SPECIES, in ordinary use, are farmyard dung, the sheepfold, and the ashes of burnt sward. In the Andover quarter, I observed an instance of the red gravelly loam, that has been noticed, being thickly covered with chalk. But I saw no appearance of lime, or lime kilns, on any part of the area of these hills.

Nevertheless, on the western margin, at the foot of one of the hillocks, near Warminster, I met with some lime kilns; and these of an extraordinary construction. The body, or cavity of the kiln, resembles a well; measuring four feet and a half in diameter, at the top, and not less than thirty feet deep; the *shaft* widening, somewhat, downward; but did not appear to be more than five or six feet, in diameter, in the widest part. The material hard chalk: the fuel coals.

REMARK. How various are the forms of the lime furnace. Are they severally adapted, to the given material, and fuel; or is there, generally, much improvement to be made in its construction?

The MANAGEMENT OF DUNG, throughout this division of the Chalk Hills, is very singular. When it is used, on ley ground, for wheat, (to which purpose it appears to be chiefly applied,) it is carried out of the

yard, in a long strawy state, and spread upon the land, without any previous digestion. I have observed hundreds, probably thousands, of acres *covered*, apparently, with *straw:* some of it strowed on sward, some on the broken surface: in either case, tall thistles being usually seen, rearing their heads, above the straw. In the course of the summer, and autumn (even if not folded upon), the sheep flatten it down, at least, or tread it into the soil.

REMARK. Nothing can appear, to a stranger, more slovenly, than this practice. This, however, is no proof of its being wrong. How far it may be right, to work undigested straw, into *light* chalky land, can only be decided, by comparative experiments, repeatedly tried. For although there is a cleanness, and apparent *lightness* in chalky soils, there is at the same time a degree of *coolness*.

WHEAT. The SUCCESSION,—TILLAGE,—and MELIORATION, in use for the wheat crop, appear under the general heads, aforegoing.

The TIME OF SOWING is early: but not equally so, here, as on the Cotswold Hills (see GLOCESTERSHIRE). The 22d and 23d of September, 1794, much wheat was sown, and some up. Much also then remained unsown: some of the land lying in a state of ricebalk; others under the operation of

drag-plowing. The 13th October, 1791, some was green; others then sowing.

Here, too, as on the Cotswold Hills, it is not unusual, to run the FOLD over the wheat ground, between the sowing and the coming up; or to drive the flock over it repeatedly, at that juncture; in order to give firmness to the soil, and greater stability to the crop, on land which is, naturally, too loose in its texture, for the profitable production of wheat.

It were impossible to pass over this country, in the winter and spring months, without admiring the number, size, and symmetry of its WHEAT RICKS; which here, as in the Isle of Wight, are constructed in a masterly manner.

SAINFOIN. Seeing the nature of the SOILS of these hills, and remarking, in different parts, the texture and quality of the SUBSOIL,—a loose calcareous rubble,—in some places of considerable depth,—it becomes a matter of astonishment and regret, to find so inconsiderable a portion of this valuable crop, in cultivation. In every line, in which I have crossed them, this deficiency is observable.

REMARK. Has the whole country been repeatedly cropped with sainfoin? and is its favorite pabulum exhausted? (see GLOCESTERSHIRE, District COTSWOLDS, Section, SAINFOIN). Or does some impropriety in

the management of this delicate plant (see as above) render it unprofitable? It is scarcely possible, that the value of a full crop of sainfoin should not be well understood, on the Chalk Hills of Wiltshire and Hampshire. See, also, the next Division.

SHEEP DOWNS. A very large portion, of these hills, is in a state of PERENNIAL SHEEP WALK;—close-bitten turf;—in which state some of it has doubtless remained, for centuries: on much of it, there are no evident vestiges of the plow; though on other parts of it, there are. Between Chiltern and Heytesbury, part of the Downs, which now are covered with fine turf, appear, from the marks that still remain unobliterated on the surface, to have been, once, in a state of common field. But the higher Downs, probably, have been reclaimed, from a state of woodland, or heath, merely by being hard stocked with sheep; and have not passed through any intermediate state.

Some of the lower Downs are now covered, with beautifully fine thickset turf: while others (probably the common cow downs) are set with myriads of small ant hills; occupying a considerable portion of the surface; and while the upper swells are variegated, with plots of heath; and, in some few parts, with furze, and other shrubs: perfectly resembling the high wolds of York-

shire: so much do the different ranges of Chalk Hills, in England, resemble each other.

WATER MEADOWS. To gain a general idea of the watered grounds, of this quarter of the Island, was the principal motive for my stopping, to examine the environs of Salisbury, in the summer of 1791; and for my passing through the Valley of Amesbury, as well as of viewing the celebrated meads of Orcheston, in the spring of 1794.

I cannot convey the information, which I received on this subject, more intelligibly, than by transcribing the notes of my Journals. It is not my intention to treat the subject, analytically, in this place. Were I even prepared for the task, Mr. DAVIS's REPORT, of the practice of WILTSHIRE, to the BOARD OF AGRICULTURE, would, in some measure, preclude the necessity of performing it.

Previously to the detail, it may be proper to observe, that the most accurate practice is found, where the country lies open; and where the prevailing soil, of the upper grounds, is of a dry, absorbent quality; and unfriendly to natural herbage; and, of course, where permanent grass grounds, or meadow lands, are confined to the narrow bases of the vallies. In the north of Hampshire, where a cooler more retentive soil is

not unfrequent, the meadowy bottoms of vallies are mostly suffered to remain, in their natural flat state. For, here, the extraordinary expence of forming them properly, so as to give water its full effect, was not *necessary;* and, therefore, they lie, in an unprofitable state: frequently occupied by flags, and other coarse aquatics: the produce being not of one fourth of the value, of that of the best formed meadows, in the environs of Salisbury, and in the Valley of Amesbury.

Between BASINGSTOKE and SALISBURY.

1791. *July* 4. The vallies that wind among these hills are deep, and their bases narrow; but mostly flat, and meadowy: some of them in a state of neglected swamp; occupied by sedges, and other aquatics. But, more generally, they are firm; and are watered, with limpid brooks!

1793. *March* 29. Throughout Dorsetshire, and more particularly through Wiltshire and Hampshire, the vallies between the Chalk Hills are watered, with the sheer brooks, that severally belong to them. The effect, now, fully appears, and is far beyond any thing I had conceived: superior, even to the best effect of the slate waters of Devonshire. The appearance, at this time,

not of a few particular plots, but of entire vallies, is that of rank wheat, in the spring. The grass, now, beginning to be folded off, with sheep; as rye, in Surrey or Sussex!

The soil is mostly thrown into ridge and furrow; with *deep* floating trenches, on the tops of all the ridges; whether long or short. Query, does the water, retained in these deep trenches, convey nutriment to the soil, and substrata? or give them, more readily, a plenitude of moisture? or whence their *apparently* unnecessary dimensions?

Environs of Salisbury.

1791. *July 5. Walk up the bourn, to Stratford.* The meadows are less than a quarter of a mile, in width: lying every way flat; and, towards the town, very *low:* in some parts, a mere swamp: the water level with the flat surface of the ground. The herbage mostly coarse aquatics: even the bog bean *(menyanthes trifoliata)* is abundant. On the sides of the drains, the flote fescue luxuriates. But the produce, on the whole, is of little value.

To these fenny grounds, succeeds a common stinted cow pasture: very much neglected: the surface occupied by rushes.

But, above this, are some charming watered grounds: all lying in ridge and

furrow: evidently artificial. Large deep floating trenches, on the ridges; narrow drains, in the furrows. One of them is a common meadow—"Lammas land."

Many of these meadows are still unmown: the water is now on one of them; stealing its way, unseen, among the grass.

Willow pollards are numerous, in all these meadows.

Walk down the valley of the Avon, below the town, to Ivychurch. A rich flat of land: nearly, I apprehend, a mile in width: evidently water-formed: level from side to side: and with little descent, down the valley; the Avon serpentining through it: with lateral branches, natural or artificial, spreading the water, so as to irrigate,—provincially "drown,"—the entire flat. Almost every fence ditch is a conductor: and others of considerable size, as six to eight feet wide, cross the areas of the inclosures. From these, by means of small lifting floodgates, the acting trenches are filled.

The whole valley may be said to be thrown into convex beds; about ten yards in width. Some pasture grounds are less regularly acclivated; but every thing, within the level, appears to be more or less watered.

The natural herbage, on the margin of the valley, above the level of the water, is short, and of a harsh nature: that of the

watered ground, soft, long, and apparently of a rich quality.

The herbage of the watered beds is various, in species; as raygrass, the meadow poe, the marsh and other bent grasses, and the meadow fescues; the *loliacea* and the *pratensis*, here putting on very different appearances. On the sides of the trenches, and ditches, the flote fescue, reed canary grass (*phalaris arundinacea*) and the water poe (*poa aquatica*) are common: also the meadow rue (*thalictrum flavum*) and the water dock. One meadow I observed was almost shaded over, with the common dock; which appears to be a prevailing weed of the well formed grounds; and almost the only one.

The soil is mostly a deep loam; the subsoil, in the lower part of the walk, a flinty gravel.

Not one third of these meadows are yet mown: the water now on some of the unmown grounds.

At what an excessive cost must these lands have been brought into their present state. Raising dams, and setting floodgates (provincially "hatches") across the river; embanking the river, above these obstructions; cutting lateral branches, and common conduits; and forming the surface of the grounds. When, and in what manner,

was so great and spirited a public work executed?

The meadows of the Avon, above the town. The valley still continues wide. The whole watered; and, mostly, in high, wide, convex beds; now loaded with luxuriant herbage. Scarcely any yet cut! The entire flat forms one great machine of water-work: pools, floodgates, and water-courses of various dimensions.

Valley of Amesbury.

1794. *April* 26. The upper part of the valley lies open to the downs; except a narrow slip of "dry grounds"—old grass inclosures: no watered meadows; the banks of the river, here, lying high above its channel. But might not the slopes be watered, in the Devonshire manner?

The base of the valley widens, at Chisenbury; where watered grounds begin. At Enford, a dilation of the valley is filled with "water meads." Large flocks of ewes and lambs are now in them. The grass mostly folded off: some yet untouched.

Willow pollards are common in all these meads.

Near Netherhaven, observed some very wide, high, watermeadow beds: formed, doubtless, at a great expence.

Pass Durrington: numbers of sheep are now seen, in the meadows of this valley.

Environs of Amesbury. An extensive flat of fine meadows near the town.

Raygrass, now, the predominant herbage: the prevailing weed, the dock. Not a marigold, nor a cardamine, to be detected: a proof of the *soundness* of these grounds.

The soil, a lightish-brown loam,—the subsoil, white earth; from one to two and a half feet deep.

The beds are very irregular: from five to thirty yards wide; and not often parallel. The smallest of the floating trenches measure nine inches deep, and twelve inches wide, at the bottom.

The river is, now, pent up, almost level with the surface of the meadows. A main conduit runs on the outside of the flat of water-formed land; conveying water not only to the meadows of Amesbury, but to those of the valley, below. On the inner side of this main conduit, a smaller channel is cut, to feed the working trenches, of the particular meadow through which it passes. Other conductors pass down the middle, or wind through the area of the flat, to supply the interior parts. The whole a SYSTEM OF CIRCULATION,—very much resembling that of the animal system: see MIDLAND COUNTIES, article WATERING MEADOWS.

REMARKS. The meadows of AMESBURY, as well as those of the AVON, are proper subjects of study. It should be recollected, however, that the waters of chalk hills are *tractable*,—are not so liable to high floods, as ordinary brooks; which would not so well admit of "hatches, mains, and carriers," —would tear the works asunder; unless guarded with extraordinary care. How advantageous, where calcareous water is thus under command! And how long the advantage has been reaped, in this division of the Chalk Hills; and in this, only.

The "LONG-GRASS MEADS" of ORCHESTON.

It will be right to premise, that my visit to these meadows, at so early a season,—the 26 April (1794) was a matter of circumstance, rather than of choice; and all, I expected to gain by it, was a general idea of their situation, their soil, and the formation of their surface, or the manner in which the water is applied to them; with little hope of ascertaining the herbage. But I happened to find them, in a peculiar state; and a sketch of what struck me, in the cursory view I took of them, may be useful, to those who shall hereafter examine them, at a more favourable season.

The *situation* of these grounds is a gentle dip, or shallow valley, formed by smooth easy swells of the Downs ;—such a passage, as is frequently seen, towards the heads of vallies, in every chalk-hill district.

The *soil*, too, is a pale-brown loam ; similar to the soils usually found, in the bottoms, between such chalky swells. It was, at the time I saw it, as firm and dry, as the Downs on either side of it.

The *surface* remains as nature left it : no artificial formation, whatever, appears to have taken place. The part, which receives the benefit of the water, is merely a dilation of the base of the valley ; which, above and below this expansion, contracts, so as to give no width of space, for the water to lodge upon ; the sides of the valley shelving down, immediately, to the channel of the rivulet : whereas, the surface of the meadowy part is level, or inconsiderably dishing.

This open part of the valley, containing some four or five acres, is cut into four compartments, by cross fences. The uppermost includes, merely, a narrowing point of the dilation ; and appears to be used as a pasture ground. The lowermost has, formerly, been inclosed ; but the hedges having been neglected, it now, in effect, lies open to the downs. It nevertheless appears to be still used, as a mowing ground. The two middle divisions, containing only two or three

acres, are those of which fame has long spoken in mystic language.

The *water*, by which such wonders have been wrought, is one of those periodical springs, that appear to be common to the chalk hills of this Island: similar to the GYPSIES of Yorkshire, and the BOURNS of Surrey and Kent.

The water of Orcheston usually breaks out (at some distance above these meadows) about Christmas: but, in 1794, not until within a few weeks before I saw them; and, then, the supply must have been inconsiderable; as it only entered the middle meadows, with a feeble stream, the day I went over them; when a narrow slip of the uppermost ground, was deeply covered, with pale-colored, chalky water; as we frequently see similar hollows, in times of floods. The three lower grounds had lain, entirely dry, until that time: a circumstance which had not, I was told by an elderly laborer, who has frequently mown in these grounds, been known within memory.

The *herbage*, at that time, and under these circumstances, was as follows.

It varied in the different compartments, and appeared, throughout, in irregular plots.

Much of the lowest meadow, (and some small parts of the other) was thickly covered with a species of *alopecurus*, or fox-

tail; which, in stature, resembled the *pratensis*, or meadow foxtail; but, in the manner of its growth, the *geniculatus*, or marsh, or flote foxtail. Some of this grass was then in head,—a few individuals in blow, and from two to two and a half feet high. Much of that which had not yet shot up its spikes, was from twelve to fifteen inches high: having the appearance, at some distance, of a very full crop of grass,—at this early season!

In the middle meadows, a soft open-bladed grass prevailed; apparently an *agrostis*, or bent grass; but not having then sent up its panicle, its particular species did not appear.* This grew in small upright bunches, without any apparent aptitude to trail. The next most prevailing plant, in this compartment, was the mild, or creeping crowfoot *(ranunculus repens)* with some plants of the common crowfoot *(ranunculus acris)* then very tall and luxuriant.

The interspaces, of these tall plants and bunches of herbage, were in a manner bare; saving some scattered plants of nettles, comfrey, scorpion weed *(myosotis scorpioides)*,

* In 1797,—By the information of a person, who went to gather specimens of the herbage of these meadows, presently before hay harvest,—"the springs did not rise, as usual"; and he found them in a state of pasturage; "the grass not being good enough to mow". The season dry.

and groundivy :—the last is a natural inhabitant of dry banks ; and is a strong symptom of the absorbency of the *subsoil.*

These grounds, I was told, are mown every year : sometimes twice. My informant has cut three loads, an acre. The herbage hangs together, as wool :—" hard work to mow it ;—very long, Sir ;—five feet high ;—fourteen feet long." But he spoke in the tone of enthusiasm ; and probably by rote.

To gain full information respecting these extraordinary grounds (for such they doubtless are) they should have a day's examination, presently before they are mown. The occupiers should be apprized,—proper tools be provided, to search beneath the surface, —and ample specimens of the subsoil, the soil, and the herbage should be taken. A specimen of the water, taken at the season, when it is known to be most beneficial, would likewise be requisite, for the purpose of analysis.

REMARKS. By far the most important part of the information, that my transient view of these celebrated grounds afforded me, is the manner in which they are watered. No art appears to be used ; except that of diverting the rivulet, from its narrow channel, on one side of the meadow, and spreading it over the area, in one continuous pool of STAGNANT WATER ! Not on the

scientific principle of CIRCULATION; but on the more simple and natural one of FLOODING; agreeably to the obsolete practice of FLOATING UPWARDS:* a practice which, it is highly probable, was once prevalent, in this part of the Island. The term "DROWNING", which is now inaptly applied to the modern practice, strongly corroborates this suggestion. Seeing the natural flatness, of the vallies of these hills, little art is wanted, to produce the required stagnation. And it may be further conceived, that, where the substrata were open, and suffered the remaining moisture (after the body of the water was let off) to drain away, quickly, from the roots of the herbage, so as to permit them to act, presently after the water was discharged, vegetation was rapid: whereas, in places, where the subsoil retained the water, in the soil, it not only prevented a quickness of vegetation, but chilled the roots of the better herbage; and brought aquatic weeds in their stead.

These circumstances would naturally lead to some expedient, for getting rid of the superfluous moisture of the soil, as quickly as possible; and none was more apt, or more easily obtained, than that of throwing the soil into ridges, in the manner in which it now lies. Indeed, where the substrata are

* See MIDLAND COUNTIES, MIN: 27.

retentive, this expedient seems essentially necessary, to the advantageous operation of water. The steep sides of hills are benefited, in a similar way. See WEST OF ENGLAND.

But where the substrata are sufficiently permeable, to suffer the superfluous water of the soil, to pass off quickly, so as to allow the roots of the herbage immediate power of action, such an expedient, if we may judge from the single instance before us, may not be necessary: may even be injurious.

A brief SKETCH of the GENERAL MANAGEMENT of the WATERED GROUNDS of WILTSHIRE.

The principal SEASON OF WATERING is the latter part of autumn, and the early part of winter. It begins soon after Michaelmas, and continues until between Candlemas, and Ladyday,—when the meadows are laid dry, for the EWES AND LAMBS; which continue in them, till about "George's tide"; the latter end of April.

The meadows are then shut up, for HAY; and occasionally watered, as the season may require. They are always mown once, and sometimes twice, for hay.

The AFTERGRASS is invariably expended on COWS: it being an universally received

opinion, which is probably founded on experience, that water meads, though they are highly salubrious to SHEEP, in early spring, are dangerous to them in the summer months. A remarkable fact: if such it is. The cows remain in the meadow, until the season of watering.

SHEEP. The myriads of sheep, that are observable, on these hills, in the summer months, and, in the vallies, in the spring, cannot fail to interest the agricultural traveller. The NUMBER is immense; and, by reason of the nakedness of the country, they are all *seen*.

The BREED, which has, perhaps, for centuries, been in full possession of this Division of the Chalk Hills, appears, evidently, to be a variety of the horned sheep, of the western mountains. See WEST OF ENGLAND, Section SHEEP.

They are distinguishable, from the other varieties of this breed of horned sheep, in their size, and particularly in their height; being of the tallest sheep in the Island. They are also to be distinguished by the closeness of their horns, and the uniformity of their heads; as well as by the nakedness of their barrels; the under part being free from wool; having only a thin covering of short silvery hair.

They are remarkable for an evenness of form; which, in the best flocks, is, even

now, above mediocrity; fifty years ago, they were, doubtless, the highest bred sheep, in the Island. They are not only well formed, and well fleshed, but are able to travel far to their food, and to bear the fold. Their wool, too, is of a good quality. Their color is uniformly white;—or some very few, wholly black!*

The principal objection to this breed of sheep, on thin-soiled high lands, is their size. Were it not for the watered grounds, they could not have been so long supported; nor could they, perhaps, without them, have ever been brought to their present size.

The *Southdown* breed (which will be mentioned under the next Division of the Chalk Hills) are, at present, contending for the possession of these enviable heights; and there is little doubt, I believe, of their being singularly entitled to them.

The FLOCKS are chiefly of *breeding ewes;* it having been long the practice of the west-

* COLOR OF SHEEP. It is a striking fact, in natural history, that of the different breeds of *English* sheep, though the male and female are *perfectly white*, and their ancestry the same, perhaps, for several generations, they are liable to produce a lamb that is *entirely black*. Whereas, in most or all other species of animals, the color of the offspring usually partakes of that of the sire and that of the dam, jointly; being mottled, or of a shade between them. And, with respect to the faces and legs of English sheep, this is generally the case; while the fleeces are wholly white, or wholly black.

ern Division of the Chalk Hills, to furnish the eastern Division with wedder lambs; as will appear in speaking of that Division: into which, also, the Southdown breed, is now making its entrance: so that the long established breed of Wiltshire and Hampshire are routed, in every quarter; and may soon be extinct.

On the MANAGEMENT of SHEEP, a cursory view of a country cannot afford full information. Nevertheless, one who has a knowledge of the general subject, and who is accustomed to make observations, catches many particulars of practice, which a mere traveller is liable to miss. By observing the Wiltshire flocks, at different seasons, and by conversing with intelligent shepherds, who occasionally fell in my way, I have gained, I find, sufficient information, to give a sketch of

The ECONOMY of the EWE FLOCK. The rams are admitted, in October; with the intent of giving the lambs the full advantage of the water meads; that they may acquire an early luxuriance of growth: not altogether, through a flush of milk, from the ewes; but by being permitted to partake of the choicest morsels, of the rich herbage, which these watered grounds afford; especially the flote fescue, which grows by the sides of the trenches, and the raygrass,

with which the whole abounds: it being customary to suffer them, to run before the ewes; by leaving narrow passes, between the hurdles, to permit the lambs, and restrain the ewes.

At night, they are folded, on the arable lands, in the neighbourhood of the meadows; the ewes having hay given to them, in the fold; to correct the succulency of the herbage: while the warmth of the fold, *at this early season*, is probably of advantage to the lambs.

During summer, the ewes and lambs have the best of the cultivated herbage, of the leys that have been mentioned; with tares, or other green food, in the fold, at night: every endeavor being used, to force the lambs, forward, to the greatest size possible, for the autumnal FAIR of WEYHILL (held at Michaelmas) where the wedder lambs are mostly sold. With this view, they are suffered to suck the ewes, all the summer; being weaned only a few weeks, before Michaelmas; when the best of them are put to rape, or other forcing food, to fill them out, for market: the worst being kept on, for store wedders; and are put out to winter feedage, in the low grounds, with the ewe lambs, the first winter, at the high price, I understand, of six or seven shillings, a head, from Michaelmas to Ladyday.

The culled or offcast ewes go chiefly, I believe, into Somersetshire; to be fatted on the "moors," or marshes, of that county.

The young ewes are kept on the higher downs, the year round; hay stacks being seen scattered, on the hills, for their relief, in winter.

The SHEEPFOLD of this country is set out very large; especially, perhaps, for ewes and lambs. One, for seven hundred ewes, or large lambs (or three hundred and fifty couples, in July) measured fiftyseven yards, by fortytwo; which give more than three square yards, to each, or near seven, to a couple. And being usually fed, in these spacious folds, they probably experience little, if any, inconveniency, either from the confinement, or the want of food, during the time they are thus beneficially employed, in fertilizing the land.

The SHEEP RACK, made use of, in these large folds, is simple and eligible. Its form is nearly that of half a hollow cylinder, of about eighteen inches in diameter, and six or eight feet long. It is formed, either of rods, or of laths, bent in the manner of a waggon tilt, or awning; spaces being left for the sheep to get at the food, which rests on the ground,—its natural basis; where it is effectually protected, from waste, by this simple guard. Several of these racks are placed, in different parts of the fold, pre-

viously to the sheep being admitted. They are cheap, readily filled (by turning them on their backs) and easily removed.

In the COMMON-FIELD TOWNSHIPS, where the farms are many of them small, and the lands lie intermixed,—and where it would be in a degree impracticable, for individuals to keep separate flocks, and graze and fold their own lands,—"TOWN FLOCKS" have been established.

To these, each occupier has the right of contributing a number of sheep, proportioned to the land he occupies: and the joint flock of each township are placed under the care of one principal shepherd; who, with respect to his flock, considers the entire township as one farm; depasturing, with them, the downs, the lower grounds, and the meadow lands, in common; and folding them, on every man's land, according to his right, or agreeably to the established regulations of the township.

Theory may suggest, that endless difficulties, and disputes, must necessarily arise, from individual properties, and separate interests, being intermixed and rendered common. But the long established practice, under notice, serves to show, that, where a common compact is requisite, to secure the interests of individuals, men's minds, seeing the reason and fitness of the regulation, become reconciled to small difficulties, and

are satisfied to give and receive, reciprocally, as circumstances require.

CATTLE. The cows, observable in this District, are mostly of the long-horned BREED; and those of the larger farmers are, some of them, good of this sort. But a great mixture and diversity are seen; few of them being bred in the country. Those of the smaller farmers, are many of them very mean.

They are kept on the downs, in COMMON HERDS; each township, or hamlet, having its cow-herd; who drives them to the downs, tends them there, and brings them back, in the evening, to be milked; distributing them among their respective owners, who take the charge of them during the night; the herdsman collecting them, in the morning, by sound of horn: a custom, probably, of many centuries standing. I have seen a hundred head, at least, in one of these "town herds."

In summer, when the weather is sultry, the cows remain in the house or yard, and are fed, there, with grass and weeds, collected for them;—or are suffered to drop their dung unprofitably, in lanes or other shady places,—during the heat of the day; and are driven to the down, in the cool of the evening.

STATE OF HUSBANDRY. The OUTLINE of management appears to be well

suited, to the soil, the climature, and the present state of inclosure; and, in some instances, the EXECUTION is highly commendable;—the soil clean, and in good condition: while, in many others, it is equally reprehensible; the leys occupied by weeds; with but little nutritious herbage, to support the flocks, that are pining away upon land, which, under proper culture, would afford them an ample maintenance. The wheat stubbles, too, are often seen, in a state of extreme foulness: and this, notwithstanding the crops of wheat, on the ground, generally look well: the dung and the fold, both of which are mostly expended on this crop, more especially the former, enable it to surmount all difficulties, of foulness in the soil. But the crop removed, the land reverts to its former state of unproductiveness.

The IMPROVEMENT, which strikes most forcibly, in a cursory view of these hills, is that of CLEAN TILLAGE; which, perhaps, can only be effected, by a change of the present unwieldy PLOW, and extravagant PLOW TEAM. There is little if any land, I apprehend, *within* the District now under consideration, that might not be perfectly well plowed, with two horses, and a proper plow: I mean, after it is once reclaimed from its present state of foulness.

If the loose nature of the Chalk-Hill soils

require that they should be bound together, with roots, to secure the wheat crop, let them not be the roots of couchgrass; but those of raygrass, white clover, trefoil, or some other useful plant; in the manner, light sandy lands are held together, for that crop, in NORFOLK. Dibbling the seed, into the whole furrow of clean raygrass and clover leys, either by hand, or by a dibbling roller, ought to be tried, with attention.

BREAKING UP the higher DOWNS, that have been, time immemorial, in a state of pasturage, especially those which are now partially overgrown with heath and coarse herbage, would strike most observers, as an obvious improvement.

This, however, appears, to me, too important a subject, to be decided upon, without very mature consideration: and the propriety, or impropriety, of doing it, in any case, may depend on a variety of circumstances.

There are, doubtless, tracts of land, on these hills, that ought to be changed, from their present unproductive state. The one, which struck me most, lies between Petersfield and Alton, in the eastern quarter of the Hampshire Downs. It is of considerable extent. The soil a deep loam, on gravel,—on chalk! Its present produce is heath and bushes. By cultivation, it might be rendered of three times its present value,

to the community. And there may be other tracts of a similar nature.

Even on the more ordinary Downs of Wiltshire, especially on the higher swells, there are lands that might, in much probability, be *improved;* particularly those, on which a light, black, spungy, vegetable mold prevails: not however by *tillage*, I apprehend; but by singing off the heath, and other rubbish, which at present occupy much of the surface; and, then, by LIME and HEAVY ROLLING. A trial, at least, ought to be made.

But, in regard to the firm, clean, productive sheep downs, which cover a very large portion of the upper parts of these hills, it might be difficult, perhaps, to devise means of rendering them more valuable, in any other *state*, than that in which they are, at present;—more especially, while the country remains under its present system of management: *improved* they doubtless may be; particularly with the SHEEPFOLD. But this is limited, and slow in its progress, and is peculiarly valuable to the ARABLE LANDS.

THE

SOUTHERN DIVISION

OF THE

CHALK HILLS.

THIS NARROW tract of country shoots, eastward, from the HAMPSHIRE DOWNS: having the rich flat of the SEA COAST OF SUSSEX, to the south; with the sandy-loam DISTRICT OF PETWORTH, and the WEALD OF SUSSEX, on the north; being terminated to the east, by the MARSH LANDS of PEVENSEA.

The EXTENT, from east to west, is fifty to sixty miles; the width—three to six miles; the superficial contents—two to three hundred square miles.

The ELEVATION of this range of hills is similar to that of other chalk downs: and, lying along the sea coast, their exact height might easily be ascertained.

In SURFACE, too, they resemble other chalk hills: except that the narrow range,

now under view, are separated, by deep vallies, into five distinct compartments: the waters collected in the District of Petworth, and the Weald of Sussex, finding passages to the sea, through these vallies.

REMARKS. What affords interesting matter of reflection, to the GEOLOGIST, the collecting surfaces have a natural tendency, to bring the waters towards these passages; so that no lake, or collection, is formed, in any part of them.

Were the vallies worn, by waters, originally pent up, behind the hills, while the chalk was yet in a soft papous state? or did the same force, which separated the line of chalk, rend the clay and sand, while yet plastic; and did the closing of the chasms, give the present inclination of surface?

This is not a singular, though a striking case. The extraordinary outlet to the waters of the Vale of Pickering (see YORKSHIRE) as well as the rents, in the limestone heights, on its northern margin, are of a similar nature. In like manner, too, the Valley of Amesbury receives the waters of the Vale of Pewsey. The Medway, below Maidstone, is let out, through the Chalk Hills of Kent, in a similar way: also the Stower, below Ashford; and the Mole through those of Surrey, at Dorking.

It is difficult to explain, on rational principles, the existing form of the earth's sur-

face: yet how interesting is the subject, to those who inhabit it. If the nature of the materials of which it is composed, the vegetable productions it bears, and the animals it nurtures, are important subjects of inquiry, surely, what the inhabitants of the *earth* may well term THE FACE OF NATURE, cannot be indifferent; especially to those whose station in life is to cultivate it; to turn every portion of it to the profit of the species; and to suit every part to its most profitable purpose.

The hills, under view, give rise to another train of ideas, which relate to the formation of the earth's surface; and belong to what might be termed the process of agitation, which gave it the present form. The Downs of Sussex, and the opposite hills of Surrey and Kent, appear to have been impelled, in different directions. The hills of Sussex dip southward; shelving down to the rich lands of the coast; which probably rest on their skirts; the north side of these hills showing a steep broken cliff.

On the contrary, the hills of Surrey dip, northward, with a gently shelving surface, towards the Thames, and with a high broken cliff, to the south; the low, vale district of Horsham separating these two strongly featured ranges of high lands; which are prominently conspicuous to each

other; though they are placed near twenty miles asunder

The hills of England, most generally, shelve southward, or eastward; seldom to the north or west. Thus, the mountains and Wolds of Yorkshire; the Chalk Hills of Buckinghamshire and Hertfordshire; the Cotswold Hills of Glocestershire; and the Chalk Hills of Wiltshire and of Sussex,—dip to the south, or east; having high broken steeps, to the north or west. The hills of Kent and Surrey, the Isle of Wight, and and other hills, in my recollection, are exceptions to this more general rule.

A GEOLOGICAL MAP of England, shaded somewhat agreeably to the sketch, I have given of Yorkshire, showing, not only its *mountain*, *upland*, and *vale* districts, but giving an adequate idea of their *elevations*, and *casts of surface*, would, in the instant, be a valuable acquisition to science. And, whenever the government of this country shall turn their attention to the country itself, such a map, or maps pointing out, at sight, the elevation, the turn of surface, the waters, the soils, and the substrata, as they relate to AGRICULTURE, will be found to be an acquirement of considerable value.

A sketch of its AGRICULTURAL DEPARTMENTS I have attempted, with a degree of success.

THE four VALLIES, which separate the Sussex Downs, are those of *Arundel*, *Shoreham*, *Lewes*, and *Seaford*. The part which is included between the Hampshire hills, and the valley of Arundel, is called the "WEST "DOWNS": —the other four divisions—the "SOUTH DOWNS";—probably, in contradistinction, to the Downs of Surrey; which, as has been shown, are situated to the north of them.

To speak of the SOUTH DOWNS, with greater ease and precision, it will be convenient to subdivide them, into the *middle* or *main downs*, included between the vallies of Arundel and Lewes; and the *east downs*, comprising the two smaller compartments, to the eastward of the valley of Lewes.

The INFORMATION, which I gained, respecting this department of the Chalk Hills, was gathered, in repeated excursions from PETWORTH, and was confined to the three most westerly, or principal divisions. The two, to the eastward, which are comparatively small, I had not a favorable opportunity of examining.

The SOILS of the Sussex Downs vary, from black, spungy, vegetable mold, to a strong, deep, flinty loam: this division partaking, in the nature of its soils, equally of the eastern and the western Divisions; being, in this particular, a mean between them. The most prevailing soil, on these, as on all

other chalky downs, is a light-colored calcareous loam.

The SUBSTRUCTURE appears, in the different QUARRIES, which are worked, on the sides of the cliffs. The quarries of HOUGHTON, in the upper part of the valley of Arundel, are the most considerable; as they are favorably situated, on the immediate bank of the Arun navigation:* the chalk being wheeled, by hand, down an easy descent, from the rock to the barges. These quarries show a uniform mass of chalk, from one to two hundred feet in depth: the face being kept, nearly perpendicular. The whole is thrown down, by hand, without blasting; and is conveyed to the barges in large barrows (with two small wheels) carrying a quarter of a ton, each; the chalk being weighed into the barrows.

By ANALYSIS, with the *marine acid*, three specimens, taken from the upper, the middle, and the lower strata of the loftiest of the Houghton quarries, yielded as follows: the upper and middle strata afforded only one grain of residue, each! the lower stratum three grains,—a grey, sub-tenacious silt. The inconsiderable portion of indissoluble matter, of the great mass of these rocks, is of a brown color, and fine enough to insinuate itself into the pores of the paper.

* See the WEALD OF SUSSEX.

It is to be observed, that, when chalk is intended to be burnt into lime, especially with wood, the blocks and larger pieces, only, are used. The rubble and smaller pieces, which break off, in quarrying, are unsaleable; and are thrown aside, as rubbish: hence, the immense mounds, which are noticed, in the DISTRICT OF PETWORTH, as a proper subject, for experiment. See page 176.

The quarries of DUNCTON, in the more immediate face of the northern cliff, and from which the western extremity of the Weald of Sussex is supplied, with chalk, for lime, disclose, on the contrary, a variety of strata. The upper parts of the steep are composed of "white chalk", which is burnt for manure, and answers to the white chalk of the Houghton quarries; (the hill, here, being much higher, than at Houghton): beneath this, is a deep stratum of "grey chalk", which is burnt for cement, and is of a superior quality, for this purpose: and, below this, is a bed of "marl";—a still fouler chalk: the more immediate base of the hill being the "maam" soil, which is particularized, in the DISTRICT OF PETWORTH.

REMARKS. This species of STRONG CALCAREOUS SOIL * is not peculiar to the West

* By ANALYSIS, the MAAM SOIL (or black "wheat land") of *Duncton* (at the immediate foot of the hill) yielded

Downs of Sussex, but is to be found, perhaps, in a greater or less quantity, at the foot of every high chalk cliff of this Island. I have observed it at the foot of the Betchworth hills, in Surrey, Maamscot and Wrotham hills, in Kent, at the foot of the Hampshire hills, near Petersfield, and of the Wiltshire hills, by Warminster. Whereever the height of the cliff is greater, than the depth of the mass of chalk which forms it, this species of soil, which appears to be its natural adjunct, is probably to be found, at its base.

It may be observed, that, in one of the quarries of white chalk, in the upper part of the face of the steep, above Duncton, a thin stratum, or list, of three or four inches in thickness, runs, nearly horizontally, but taking a somewhat wavey line, across the middle of the quarry. It has something of the appearance of fuller's earth; but is calcareous. The quarrymen call it "marl flour." It is a species of calcareous fossil, I have not noticed, elsewhere: at least, not in a similar situation. *

only seven and a half grains,—while that of *Graffham* (of a browner color, and interspersed with granules of chalk) afforded fortyfive and a half grains, percent, of calcareous matter. The residue, of both, brown silt: that of the latter being the finest, and most tenacious.

* By ANALYSIS, with the *marine acid*, an hundred grains of this fossil yielded fortyone grains of calcareous

STATE OF INCLOSURE. These downs being little more than a single range of hills, they are chiefly laid to the townships on either side of them. Hence, even the small village inclosures, which are seen on most other chalk hills, are here, except in a few instances, wanting.

The PRESENT PRODUCTIONS, of this tract of hill country, are similar to those of the western Division. The VALLIES contain *meadows*, and *marsh lands*—provincially "*brook lands*." The SLOPES and LOWER STAGES of the HILLS, bear *arable crops*. The TOPS of the HILLS are *sheep walks*: mostly of fine turf; but with a mixture of *furze* and *heath*. And some of the STEEPER SURFACES,

earth; leaving fiftynine grains of impalpable matter; resembling fuller's earth, but somewhat darker colored.

For analyses of the CHALKS of DUNCTON, see the DISTRICT OF PETWORTH, page 183.

The "MARL" of DEANS WOOD, on the opposite side of the hill (mentioned in page 237.) yields ninety-eight grains, percent, of calcareous matter.

The "MARLS" of the SEA COAST (see page 236.) yielded as follows: a specimen taken from an undisturbed mass, in the face of the beach, presently after being left by the tide, and then in a state of firm paste, yielded (having been previously dried) ninetysix grains, —another specimen, picked up loose on the beach, in the tide's way, ninetyeight and a half grains, percent; being of course a *chalk* of the purest, and most valuable quality; yet suffered, century after century, to lie in a state of neglect, and useless to the species! See as above.

especially of the West Downs, are hung with *wood*.

In the light of ORNAMENT, this range of chalk hills differ, little, from the Yorkshire and the Wiltshire Downs: excepting that the sea, here, generally enters into the view; and excepting a lovely passage, round Findon, (a well soiled, well sheltered flat, or midway stage, of the compartment between the vallies of Arundel and Shoreham) which is one of the most habitable situations, I have any where observed, *upon* the chalk hills of England. In other respects, whether we view the abrupt broken cliffs, or the summits which crown them, or the opposite margins, shelving to a rich vale district, the South Downs, the Downs of Surrey, and the Wolds of Yorkshire, are the same. The passages of country, between Shoreham and Brighthelmston, between Croydon and Epsom, and between Beverley and Driffield, have a striking similarity in their appearances.

The most interesting CIRCLE OF VIEWS, that caught my eye, on these hills, are seen from the West Downs, above Arundel park. Two of them are singularly grand, and various in feature. On the one hand, the wooded declivity, from Arundel to Goodwood, spreads, as a foreground. Chichester, the Isle of Selsey, and the rich lands of the coast, compose the center of the view: the

sea, and the Isle of Wight rising proudly out of it, the distance: Spithead, with its shipping, forming a clear and interesting part of the picture. On the other, the finely broken grounds of Petworth and Pulborough appear at hand, partially skreening the vale of Horsham, backed by the Lethe Hills, which form a prominent and striking feature; Box Hill, and other hills of Surrey, appearing in the furthest distance.

WOODLANDS.

THE PRINCIPAL part of the Woodlands, of these hills, hang on the southern declivity of the WEST DOWNS; with some on the northern steep, of the same compartment.

These woods are chiefly BEECH; but with a mixture of OAK, and ASH.

Near the foot of the southern hang, above Walberton, is the finest GROVE OF BEECHES, I have any where observed. The trees are thick on the ground, and tall, beyond comparison. Many of them are fifty feet, in the stem; as clean, and almost as straight, as gun barrels. In 1791, the largest size was four feet in girt; and if they remain, in

the crowded state in which they then stood, their future growth must necessarily be retarded. The soil is a dark-colored loam; the subsoil—calcareous rubble, on a deep bed of marl: a true beech and sainfoin soil.

In thinning, or rather culling, one of the beech woods above Slindon, I observed, that the WARE, cut out, was chiefly RAILS, and other scantling, for the Northumberland COLLIERIES.

The durability of beech timber, in water and moist situations, being now well understood, these woods will, no doubt, be henceforward of great value. And there are many sites on the chalk and limestone hills of this Island, on which it would pay amply for propagation.

The OAK, and the ASH, do not thrive, on the higher parts of these hills. The former becomes stunted, and mossy: and the latter is eaten up, with the canker. The beech is the natural timber tree of chalk hills: especially, in bleak, exposed situations.

AGRICULTURE.

THE MAIN OBJECT I had, in going over this Division of the Chalk Hills, was that of gaining some knowledge of its SHEEP,

which have, of late years, grown into high estimation; and are, still, rapidly spreading over the southern parts of the kingdom. I am, therefore, unprepared for a DETAIL of its HUSBANDRY; and shall only notice a few GENERAL HEADS.

It may here be remarked, that, before the Woodlands of Sussex were cleared, the range of hills, under notice, had probably little, if any communication, with those of Surrey and Kent. Hence, in some part, the difference in their practices. The practice of the hills of Sussex, as well as of their outskirts or margins, on either side of them, resembles, in many particulars, that of the Western Division of the Chalk Hills; and the still more western districts of the Island.

FARMS. In a cursory examination of these hills, and judging from the similarity, and great size, of the flocks of sheep, which everywhere meet the eye, they would seem to be wholly divided, into large farms. But many of the flocks, here, as on the western hills, are parochial, or aggregations of the flocks of small farmers, whose lands lie contiguous, or intermixed.

Nevertheless, farms of sufficient extent, and with a happy union of sheep walk, arable lands, and marshes, are to be found, in different parts of these hills * And some

* The farms of APPLESHAM, and NORTH STOKE,

that are too extensive, for individuals to cultivate, with propriety. I have been well informed, that, on one estate, there are three farms, of a thousand pounds, a year, each.

FARMERS. From what I have seen of the larger occupiers of these hills, they are not only opulent, but intelligent: husbandmen of the highest class.

The BEASTS OF DRAFT are in the greater part, I apprehend, HORSES; but with a large portion of OXEN, of the Sussex breed.

IMPLEMENTS. On the middle or main downs, the TURNWREST PLOW is solely in use. But, generally, I believe, of a lighter frame, than the ordinary one of Kent. On the Brighthelmston downs, I saw one, in barley seed time, worked with two horses: not abreast with reins; but driven, at length. On the east downs, I understand, the same plow is prevalent.

PLAN OF HUSBANDRY. The great OBJECT, to which every view of the South-down farmer appears to be directed, is SHEEP. The hill lands may be said to be appropriated to them. A large portion, more than one third of these lands, is kept in a state of perennial sheep-walk: and a very con-

the property of the EARL OF EGREMONT, and occupied by Mr. GELL, and Mr. SAYER, are of this desirable cast; and there are few farms, in the kingdom, under better management.

siderable part of the arable crops,—as turneps, rape, tares, rye, and ley herbage,—are cultivated for their maintenance; and are intermixed with corn crops, as the wants of the flock require: there being, I believe, no established, regular COURSE of PRACTICE followed.

What distinguishes this division of the Chalk Hills, from the western division, with respect to the sheep husbandry, is its want of water meadows, for their spring food: of course, a greater exertion is requisite to be made, on the arable lands, for their due support, at that season. The grass of the brooklands comes too late, for this purpose; and is chiefly, I believe, applied to grazing.

SHEEP. The NUMBER, maintained on these hills, is greater, in proportion to their extent, than that of the Western Division: not altogether on account of the comparative smallness of the breed; but a greater proportion, of the arable land, is at present, appropriated to sheep, here, than on the Hampshire and Wiltshire hills.

The OBJECTS, of the sheep husbandry, on the Sussex Downs, at present, are those of *rearing wedder lambs;* for the hill farmers of the Eastern Division of the Chalk Hills, and other parts of the South of England;—also *ewe lambs*, for spreading the breed, over the Western Division, and other parts; and *aged ewes*, for the same purpose. Also a

few *store wedders;* for folding, one year: they being generally sold, at eighteen months old; and chiefly, I believe, to the Kent and Surrey farmers. But, since the great demand for this breed has taken place, fewer wedder-teg flocks have been kept, than formerly: breeding flocks being now found more profitable.

The BREED varies. On the *West Downs*, a wild-looking, base-bred sort are seen: mostly white faced, and various as to horn; having the same mongrel appearance, as the mountain sheep of the WEST OF ENGLAND: and they are, probably, the unreclaimed native stock of these hills; retaining their miscellaneous state, for want of selection; and their comparatively small size, with respect to the Wiltshire sheep, for want of watered meadows: this breed commencing eastward of the valley of Lavant, with which the watered meadows, of the western hills, end:—a strongly corroborating evidence, that the present size of the Wiltshire breed has been obtained, by that forcing spring food. *

Some apology, for the inferiority of the West Down breed, may also be found, in the downs themselves; which are of an inferior quality, and remain, more, in the unreclaimed forest state, than any other passage of the western, or the southern Chalk Hills.

Eastward of the valley of Arundel, and to

* See page 347.

the easternmost extremity of this Division, a breed of sheep are found, of a description, very different from those of the West Downs, and still more widely, from those of the Western Division,—in stature, frame, color, and wool: though, by no means, so select, and uniform, in these respects, as the Wiltshire breed.

This distinct breed of sheep is well known, in many parts of the South and West of England, by the name of the *South Down breed.*

The individuals, as has been intimated, differ somewhat, in their frame and wool, and more in their *countenances.* What may be considered, as the true SOUTH DOWN SHEEP, I conceive to be of the following description. The carcass thick; yet somewhat loose; owing to a deficiency, behind the shoulders. The legs of a middle length, and the stature, altogether, of the middle height; (between the small heath sheep, that are found in various parts of the Island, and the Wiltshire breed). The bone of the legs rather large; yet their flesh is of a good quality. The head and neck thick, and short. The fleece remarkably close, and fine; and long, considering its fineness: particularly full, on the neck; giving the head a muffled appearance. The face and legs black, or dark grey. The head invariably poled, or hornless.

But, in looking over the flocks of these Downs, great deviations, from this standard, are observable; particularly, in a thinness of carcass, an openness of fleece, and in the color of the legs and face. On examining, with some attention, the flocks on what may be called the Brighthelmston compartment of the South Downs, beside remarking on the unevenness of their form, I took the following notice of their color: —about half the ewes, with white or slightly colored, one fourth, with mottled, and one fourth, with black, legs and faces. Some of the *lambs*, with mottled carcasses. And, on examining two separate, and large flocks, on the adjoining compartment, included between the vallies of Shoreham and Arundel, I observed a similar disparity, and want of evenness, in frame, and color.

Of the *origin* of the Southdown breed, or how long it has been confined to the narrow limits, within which, until lately, it has been kept, I have never heard the least intimation. On my first view of it, in 1791, it appeared to me a matter of surprise, that a breed, so very different, in many essential properties, as well as popular marks and distinctions, from every other, I had, then, more particularly examined, should have found their way into, and retained exclusive possession of, this small tract of country. But having, since, seen the breeds of the West

of England, and bestowed much thought on the different varieties, that appear to have sprung, from the native, or ancient breed of the western mountains, I see nothing in the South Down sheep, to show, that they are not, merely, a variety of this original stock. Nor can I discern any other characteristic, in the poled, grey-faced sheep of the South Hams of Devonshire, and the poled, grey-faced sheep of the South Downs of Sussex, than what soil, or rather food, and climature, may have given. There appears to me nothing, either in the size of the carcass, or the length of the wool, which these may not have effected. And I have no doubt of a breed of sheep, resembling that of the South Downs, being, even yet, to be raised from individuals which might be chosen, from the unreclaimed flocks of Devonshire and Cornwall.

The present quality of the wool of the Southdown breed, may either have arisen from the fineness of the Southdown pasturage; or from the original selection, through which the variety was propagated; or from its having, since, been the fashion of the district, to breed it. Even to this day, *wool* and *bone* are the two points aimed at, by Southdown farmers, even of the higher class.*

* 1797. In passing and repassing DARTMOOR, this summer, since the above remarks were written, I

Whatever attention may, heretofore, have been bestowed on this breed, it was pretty evident, at the time I first examined it, on its native hills, that little attention had, for some length of time been paid to it: even the best flocks, I then saw, were very uneven; and, evidently, in a state of neglect.

About, and since, that time, some considerable attention has been paid to it; especially on the East Downs.† But with what success, I am not able to speak, with sufficient knowledge of the subject: not having had a favorable opportunity of examining the new variety, *on its native ground*. And as there appears to be doubts, as to the nature of the improvement, yet effected, I forbear to risk any remarks of my own, on this part of the subject.

All I can say, from my own knowledge, of the general subject is, that, *in the breed at large*, there is very great improvement to be made; and that he who unites, in the best manner, the four essential qualities of HILL SHEEP; namely, fine close wool, well-flavored mutton, an inclination to fat early, and a sufficient strength of frame and con-

paid particular attention to the sheep that fell within my view; and distinguished several individuals, which so much resembled, in frame and color, the Southdown sheep of the above description, that they might well have deceived the *eye*, even of a Southdown farmer.

† Particularly, I believe, by Mr. ELLMAN, of Glynde, near Lewes.

stitution, to stand the fold, will, in my opinion, be the best friend to his country.

I cannot refrain from noticing, here, with some concern, the evident jealousies, and a degree of contention, which exist, between the SOUTHDOWN, and the ROMNEY MARSH breeders; as if each were contending for the whole country! whereas, these two breeds, in their present states, are calculated for two opposite descriptions of soils and situations. The South Downs, for upland arable districts, to grow fine wool, and fill the fold, in situations which require it. The Romney Marsh, for rich low lands, to produce long wool, and to throw into the market the greatest quantity of mutton, with the least bone and other offal, without regard to activity or strength of frame. And it is to be feared, that, by endeavoring to accommodate their flocks, to both these descriptions of country, they will render them improper for either.

The present breed of the South Downs is admirably adapted to every department of Chalk Hills, and Limestone Heights, in the kingdom; and, particularly, to those that are destitute of watered meadows: they having been long moulded to that description of country: and the first step towards their improvement is, evidently, that of making them *evenly good* with the *best of the established breed:* without refining too

much, or copying, implicitly, the principles of improvement, that have been applied, with happy effect, in meliorating a breed, which is suited to a different purpose ;—excepting so far as relates to filling up the deficiency of the fore quarter.

The DESCRIPTION of FLOCKS has been intimated, as being that of *breeding ewes*; with a few small *wedder flocks*, for folding ; but with very few, if any, *fatting flocks;* except in the brooklands, or marshes.

EWE FLOCKS. The usual size is five hundred. For although the larger farmers keep a thousand, fifteen hundred, or a greater number of breeding ewes, they seldom, I believe, place more than five hundred in one flock, or under the care of one shepherd. And the town flocks I found divided, in the same way.

The *rams*, which I saw, were not well chosen: and I was informed, by an intelligent shepherd, on the Brighton quarter of the Downs, that little cost, or even attention, is bestowed on them. The unevenness of the flocks is, therefore, a necessary consequence of neglect.*

The *time* of *admitting* the *rams* would seem to vary, with situation, or climature: for, in 1791, there was nearly a fortnight

* When I went over the District, in April, the rams were among the ewes and lambs, in *heads*, as male deer are seen, in parks, at the same season.

difference, between the eastern banks of the Arun, and the bleaker heights of the Brighthelmston quarter, in

The *time of lambing*. Ladyday is spoken of, as the usual time of commencing. But, on the tenth of April, there were lambs, on the western quarter of the South Downs, three weeks or a month old. The majority of the lambs are dropped, in the early part of April; continuing to fall, until the latter end, or the close of that month. On the 27th April, many of the ewes still retained their lambs.

The ewes of this breed mostly bring *single lambs:* but not unfrequently *twins*.

The *foods* of ewes and lambs, in this meadowless District, are various: as turneps, rape, raygrass, and perhaps rank wheat. The ewes, when I saw them, were mostly low in condition; but the lambs, in general looked well: an evidence of the South Down ewes being good nurses; though not a proof: for ewes, in general, when fed chiefly on turneps, will bring their lambs forward, while they are, themselves, sinking in condition.

Folding. Ewes and lambs are seldom folded, until the lambs have gathered some strength; as at ten days or a fortnight old; and, then, on clean sward, or ley grounds; shepherds objecting to folding them on

fallows, or broken ground, until after shearing time; unless the weather be very dry. A superior manager keeps two folds standing: one on grass, the other on fallow; and drives his flock, to one or the other, as rain or dry weather directs: an accuracy of management, which others might copy; the expence of an extra number of hurdles being its only inconveniency; while the advantage, in some seasons, may be great.

On the north side of the West Downs, I met with a striking instance of the stoutness of the South Down, or "blackfaced" sheep, in regard to the fold. In this, and other instances, in that quarter, they are pastured, from the first shoot of spring, until autumn, upon the higher downs, and folded, sometimes every night, on the maam soil, at the foot of the northern steep!* up which they have to climb, in the morning, and perhaps a mile to travel, on the top of the hill, before they reach their pasture.

I know no breed of sheep, of a superior quality, except the South Down, or the Norfolk, which is capable of enduring such hardships. Nor, perhaps, could even the South Down breed support it; unless under a principle of management, which is common to this division of the Chalk Hills, and

* See DISTRICT OF PETWORTH, in page 167.

marks it strongly, as a distinguishing character, from the practice of the other Divisions.

Instead of feeding them, *in the fold*, as is done, on the Wiltshire Hills (see page 349.) they are "suppered up with something good," *before they go to fold*. Thus, in the instance noticed, and at the time I observed it, the middle of June, they had their fill of clover, trefoil, tares, &c. below hill, in the evening, before they went into the fold: in which they have leisure to chew the cud; and to digest their aliment, during the hours of rest. And, in the morning, their stomachs being emptied, they are not only able, but eager, to climb the hill, to their daily pasture.

On the Middle Downs, their supper food, I was informed, during a principal part of the year, is RAPE; which is sown, from time to time, for this purpose: a practice, peculiar, I believe, to this division of the Chalk Hills of the Southern Counties.

In the SHEPHERDING of the South Down flocks, the following are the few particulars, which occurred to me.

Between the lambing, and the commencement of the fold, *the ewes* are "*tailed*," or trimmed, behind: an operation, which ought not, in any district, to be neglected. (See YORKSHIRE, on this particular). And during this interval, namely, at ten days to

a fortnight old, the *male lambs*, that are not intended to be kept for breeding, are *castrated*.

The *shepherd's dog*, of the South Downs, is stout, active, and intelligent: guarding his numerous flock, from the unfenced corn lands which surround them, with great caution, and severe labor; especially, where the surface is flinty. Being on his legs, the day long, his feet get battered, and full of corns, so as to render his services of short duration: rarely standing full work, more than three years.

The *shepherd's crook* is, here, in common use; and is found in its best form.

The *time* of *weaning* the LAMBS is about the middle of July.

Their TREATMENT varies. The wedder lambs, and such of the ewe lambs, as are intended for sale, at the ensuing Michaelmas, are put upon early sown rape, or other nutritious food, to fill them out, for market.

The *ewe lambs*, intended for breeding, are allowed less forcing fare; being generally kept from the ram, the first autumn; and are usually confined, to the higher Downs, until they are eighteen months old; when they are united with the ewe flock.

IMPROVEMENTS. The SOUTH DOWNS, as well as the SEA COAST of Sussex, do the agriculture of the county much credit. There are not many districts

in the kingdom, in which there are fewer great and obvious improvements to be made, than in these two.

In TILLAGE, it is true, something is to be done. In the eastern parts of the main Downs, I saw much foul underworked land: the biennial thistles, so conspicuously disgraceful to the Dorsetshire hills, being predominant. But these were probably the lands of small village farmers: for the larger farms, I went over, were in a high state of cultivation.

The want of SAINFOIN, even on the larger farms, is, to me, the least reconcileable part of the South Down husbandry. The almost only piece, I particularly observed, was on the higher thinner lands; yet the crop was good; the plants even and full of vigor.

Perhaps, the last generation cropped the lower better lands, and the present are creeping higher up the hills. Or perhaps, sainfoin, which will not bear to be pastured, in summer, without great injury, is less convenient, in the SHEEP HUSBANDRY, than the clovers, raygrass, and trefoil; and it certainly is most eligible, when CATTLE are the pasturing stock: and this may, in some measure, account for its infrequency, on the Wiltshire hills, the calcareous lands of the Isle of Wight, and the South Downs.

But, surely, a certain portion, for hay, would be valuable. And if it were sown

with CLOVER, even on lands that may have been formerly cropped, it could scarcely fail, from the nature of its growth, to be found profitable. See vol. I. page 156.

In regard to WATER MEADOWS, the South Down farmers ought not to be reproached, for a want of them: because nature has not furnished either proper land, or suitable water, to make them with. This single ridge of hills has no lengthened vallies, with broad waterformed bases, as those of the Western Division; nor, if they had, are they supplied with copious streams of calcareous waters, to irrigate them: excepting the valley of Lavant; and that is watered.

The dissecting vallies, that have been mentioned, can scarcely be said to belong to the Chalk Hills. The waters, which pass through them, are chiefly collected, from clayey and sandy surfaces; some of them the astringent ouzings of heathy soils, or peat bogs: and the brooklands or marshes, themselves, have doubtless been formed with materials, washed from these surfaces; with, perhaps, a valuable mixture of marine silt, or sea mud.

It aptly occurs, however, that the waters of the valley of Amesbury, are mostly collected, in the vale of Pewsey, a sandy district. But the vale of Pewsey is beset with chalk, on almost every side; and its own base is probably calcareous. The principal

part of the waters that pass down the valley of Amesbury, it is more than probable, has *filtered through chalk*: whereas those which escape, through the vallies of Sussex, have most of them passed through less fertilizing strata.

The great body of the water, absorbed by the Chalk Hills of Sussex, is doubtless conveyed, through subterranean passages, to the sea; to which these hills have been said to dip. Nevertheless, some part of it, as has been mentioned, in the DISTRICT OF PETWORTH, is discharged at the feet of the northern cliffs, and passes into the Arun: and the whole line of cliffs, no doubt, have a similar discharge.

Hence, the waters of these rivers are not wholly destitute of the calcareous principle; and it certainly belongs to those, who have large properties, in the marsh lands through which they pass, to ascertain their quality; and to try, by forming them into steep-sided beds, and throwing the water on, in the Wiltshire manner, whether they are, or are not, proper subjects of improvement.

Lastly, with respect to the ROUGH DOWN LANDS, which cover a part of the summits of the Sussex, as of other, chalk hills, bearing furze, heath, and the coarser grasses,—as well as the finer SHEEP DOWNS, of the lower stages,—it appears to be a matter of doubt, whether they are, *in general*, capable

of much improvement. It was an observation of one of the shrewdest farmers, on these hills,—and may be generally understood,—that the old down lands bear drought, much better, than new ley grounds: a good reason for letting them remain, and endeavoring to improve them, in their present state. Nevertheless, some of the deeper lands may be best adapted to arable crops.

THE

EASTERN DIVISION

OF THE

CHALK HILLS.

THE SITUATION of this extensive range of heights may be gathered, from what has been conveyed, in defining the districts which lie adjacent; the line of hills, under view, stretching through the central parts of Surrey and Kent.

The EXTENT, from west to east, is near a hundred miles: reaching from the heaths of Surrey, to the South Foreland, between Deal and Dover. The width is irregular: but, considering the length, the variations are small. It is, in no part, I apprehend, (except near the eastern extremity) more than six miles (even including the faces of the southern cliffs, and the chalky loams that form its northern outskirts), nor less than four. Five miles may be considered as the full average width: and its superficies

may be estimated, with sufficient accuracy, for the purpose here intended, at five hundred square miles.

In ELEVATION, the hills of Surrey and Kent resemble other chalk hills. Their height, from end to end, is similar; though not uniformly the same. The eastern extremity is high land; as appears in the cliffs of Dover. The hills of west Kent, however, are probably of much greater elevation. From the top of Maamscot hill, to Sevenoaks, the descent is great; and, from thence to Tunbridge, the fall is not mu h less: beside the descent from Tunbridge to the Nore. *

SURFACE. The eastern, as the southern Division, is broken into compartments, by rivered vallies. First, by the Wey and its valley, at Guilford: next, by the valley of the Mole, between Dorking, and Leatherhead: again, by that of the Darnt, at Farningham (between Sevenoaks and Dartford): next, by that of the Medway,

* "KNOCKHOLT BEECHES," which grow on this part of the Kentish hills, are an evidence of its superior elevation. For, although they stand in a deep chalk pit, showing only their tops above the surface of the hill, they are seen at an extraordinary distance, on every side. A telegraph erected near them, might communicate with a great part of Kent and Surrey; and with parts of Sussex, Essex, Middlesex, Hertfordshire; and, perhaps, with the hills of Buckinghamshire and Oxfordshire.

between Maidstone and Rochester; and lastly, by that of the Stower, between Ashford and Canterbury.

These several compartments vary, somewhat, in surface. The prevailing cast is that of a single ridge; with a steep face, to the south; the north side shelving, gently, towards the Thames; and pretty uniformly, throughout.

The southern cliffs are less regular: in some parts, they are mere precipices. In others they are covered with soil, or break into culturable stages. In the most eastern compartment, the chalk unites, in a loose irregular manner, with a line of ragstone heights; and, in the more western, with sand hills.

But of the principal compartment of Surrey, eastward of the valley of the Mole, the general surface is flatter, and is broken into ridges and vallies; which afford shelter, and render the country habitable.

The opportunities, which I have had, of obtaining INFORMATION, respecting this Division of the Chalk Hills, are numerous. My residence, in Surrey,* was on the border of the principal compartment, last mentioned: a quarter which is the most familiar to me. The westernmost point, too, I have viewed, on every side. The part, between the Wey and the Mole, I am less

* See MINUTES of AGRICULTURE, in that county.

acquainted with: though there is scarcely any part of the hills of Surrey, or of west Kent, which I have not formerly been led over, by diversion, or in travelling.

My knowledge of the west Kent hills, however, has lately been renewed, in a less incidental manner. In October last, I crossed them (for the intended purpose of information) between Bromley and Sevenoaks; and, in the same month, between Wrotham and Farningham.

The middle Kent hills I examined, with some attention, in repeated excursions, from Maidstone; and have traced the outlines, on both sides, of the whole compartment, between the Medway and the Stower.

The more eastern parts, between the Stower and the sea, I have likewise viewed, in different points; during my excursion, in east Kent, in 1795. First, in examining the northern skirts, in the Barham quarter: next in crossing over the higher parts, between Deal and Dover, and between Dover and Hithe; and, finally, between Hithe and Canterbury: thus gaining a general and comprehensive idea of the entire range, from end to end.

The CLIMATURE of these hills varies, with the elevation and turn of surface. In 1795, the harvest, on the exposed heights, between Deal and Hithe, was near a fortnight behind that of the Isle of Thanet: and the high single ridge, of the central

parts of Kent, is later than the more depressed, broken, and better sheltered lands of Surrey; the warmer parts of which are something, but not much, behind the vale lands that border them.

The surface WATERS, collected by these hills, are few. The rivers, which dissect them, are chiefly drawn from the extensive vale lands, to the south of them. The only constant stream, I believe, which is collected from the hills, is that which rises in the easternmost compartment (chiefly perhaps in the vallies of the ragstone heights) and winds down the charming valley of Bishop's Bourn; joining the Stower, below Canterbury.

But, in different parts of them, periodical springs, or "BOURNS," rise at particular seasons. That which issues from the deeper vallies of the hills of Surrey, and enters the head of the river Wandle, at Croydon, sometimes takes the character of a brook, of considerable size; more particularly, when the preceding season has been rainy.

Beside the periodical springs, which rise within the areas of the hills, there are continual discharges, at their outskirts, on either side. Those, at the feet of the southern steeps, are in general small; emitting little more, perhaps, than the rain waters, which the steeps themselves absorb: while those on the opposite side are copious; as being

fed, probably, by the principal absorption of the hills; whose base and retaining strata, as well as their surfaces, doubtless, incline the same way. Westward of Croydon, particularly at Carshalton, a river of water is continually rising.

REMARK. The natural history of chalk hills, particularly what relates to the waters they absorb, and discharge, whether periodically or continually, is a fit subject for philosophical inquiry. One law appears to govern the whole: and this, perhaps, would not be found difficult to explain. It is not merely a subject of curiosity, or abstract science; but is connected with agriculture. The waters of chalk hills are of a singularly fertilizing nature; and the manner in which they are absorbed, filtrated, impregnated with the calcareous principle, collected, and discharged, cannot be deemed uninteresting to the student in rural knowledge. If, by any discovery of science, they can be brought more under command, or rendered more generally applicable, than they are at present, the research may become highly beneficial.

It may be observed, here, that, in different parts of these hills, there are wells of three hundred feet in depth, and passing through one continuous mass of chalk. But no one, that has come to my knowledge, exceeds that depth; even though sunk from the surface of the higher swells. This is an evidence,

of some authority, that the mass or stratum of chalk, of which these hills are formed, does not much exceed that depth: an evidence that is corroborated, by the thickness or height of chalk, which shows itself, in the faces of different cliffs; so far, at least, as the eye can judge. By the assistance of instruments, the exact thickness of chalk, of different hills, in this Island, might be ascertained.

Judging from the remarkable uniformity in their several heights, as they appear in the face of the country, it is probable, they have had the same origin,—are fragments of the same stratum, or extended mass, of calcareous matter; which, there is much reason to believe, is of submarine origin,—is composed of animal substances, deposited, or otherwise accumulated, at the base of some great ocean,—an Atlantic of a former world, or past arrangement of the earth's surface. Such, at least, appears to have been the opinion of the GREAT NATURALIST (Linneus): and extravagant as the idea seems, when it first strikes the mind, it becomes more and more reconcileable to reason, the more it is examined.

The SOILS of the range of hills, now under view, differ much, in the aggregate, from those of the other Divisions. The tops of the higher swells, instead of having a thin chalky loam, or a thinner coat of black ve-

getable mold, are generally covered with a tenacious clayey loam, of a dark brown color, and extraordinary strength; and, in some places, of great depth; as three or four feet: being generally mixed with flints; especially, perhaps, near the surface; which, after harrowing, will in some instances, appear covered with them.

This may be considered as the prevailing soil of the upper parts of the hills; especially, where the surface is flat: while, on sloping surfaces, the soil is generally a thin, pale-colored, chalky loam; and, on the lower skirts of the hills, a deeper loam, of a somewhat similar nature, prevails. Between Croydon and Epsom, there are some thousand acres of this desireable soil;—deep, rich, friable, calcareous loam.

On the contrary, the opposite cliffs are, in many parts, destitute of soil; except where the face of the hill has slid down, and carried with it the soil of the summit; lodging it, on stages, or with steeply sloping surfaces, on which the TURNWREST PLOW gains an instable footing: and for these, possibly, it was invented.*

* The TURNWREST PLOW is used on surfaces so extremely steep, that, on being *overturned!* the plow, horses, and perhaps the plowman, have been known to roll down, from the top to the bottom of the hill.

But, surely, sites of such a degree of steepness are

The SUBSOILS likewise vary. On the upper parts of the hills, a red or chocolate-colored earth, which is of a clayey nature, and which dries to a sort of rubble, is commonly seen incumbent on the chalk; forming the base of the cultivated mold. In other places, a chalky rubble intervenes, between the soil and the chalk rock; which however, in other instances, rises to the cultivated soil; even where this is of inferior thickness.

ROADS. The more public roads are in general good. Materials of the first quality (flints and chalk) being everywhere in plenty. But the village roads, since I first knew these hills, were mere waggon tracks, through woods, narrow lanes, and hollow ways; with few places, in which even two carts could pass each other: and this was formerly the case, in many parts of the Island.

REMARKS. Hence, the probable origin of "BELL TEAMS." A constant alarm was necessary, to apprize the respective drivers of each other's approach: and no one was less likely to be neglected, than that which was given by the mere motion of the team. But to continue to load horses with bells, on wide open roads, and in open daylight,

fitter subjects for PLANTING, than for the plow. The clays are well adapted to the *oak*, the chalky loams to the *beech*.

is perfectly ridiculous; and, on public roads, may well be deemed a nuisance.

TOWNSHIPS. Where the hill lands form a single ridge, as in many parts of Kent, they are chiefly divided, between the lines of parishes, which run on either side of them. But, in the more habitable parts, as in the Banstead quarter of Surrey, the hills, or chalk lands, are themselves laid out into townships: a mode of distribution which reaches into the western parts of the Kent hills. Also, towards the eastern extremity, where the chalk lands are broad, and the surface somewhat broken, a similar distribution prevails.

STATE OF INCLOSURE. In this respect, the eastern differs, much, from the other Divisions. The greater part of the hills, under view, are INCLOSED. There is nevertheless, much OPEN DOWN: especially on the sides, and lower parts of the hills; where the soil is of a loamy, chalky nature; what may be properly called the true chalk-down soil: and this, it may be said, is everywhere kept in an open state! while the parts, which are covered with strong clayey soil, are chiefly inclosed:— not only on these hills, but in the north of Hampshire, in the Western Division.

REMARK. How is this prevailing distinction, with respect to the present state of inclosure, on soils of different descriptions,

to be accounted for? Sheep are kept, indiscriminately, on both: and the plow is equally employed on each. See the ISLE of THANET,—the HILLS of WILTSHIRE, &c.

In PRESENT PRODUCTIONS, this Division differs from the other two, chiefly, in its growing a much greater proportion of WOOD. A considerable share of the clayey lands, high-lying as they are, and resting on chalk, an absorbent base, are too wet, cold, and ungenial, for arable crops! being chiefly in a state of wood. On the Boxley and Detling hills, in the central part of Kent, there are tracts of woodland of very great extent: such as the Wilds of Kent and Sussex cannot equal. And even on the more habitable parts of West Kent and Surrey, woodlands prevail.

Nevertheless, much of the strong land, everywhere, is kept under ARABLE CROPS: as are most of the chalky lands: with, however, a small portion of perennial SHEEP WALK. But this, I believe, is on the decline.

In the vallies, and about farm houses and villages, on the strong cool soils, there are OLD GRASS LANDS; but not in any great proportion. And, in Kent, HOPS are more or less grown, on the hill lands.

On a high broad summit of the Surrey hills, there is a tract of HEATHLAND; greater

in extent, perhaps, than that of all the chalk hills of the kingdom united.

The APPEARANCE of a country, diversified in surface, and amply wooded, as are the hills under view, cannot fail to interest: especially, where the vallies are cleared, and the hills remain capped with woods, which bend over their brows, and fall with irregular outlines down the sides of the vallies: passages of beautiful scenery, which not unfrequently meet the eye, in crossing the more secluded parts of the hills of Surrey.

The DISTANT VIEWS, which are commanded from this range of hills, are various, and extensive. Those from the Boxley and Detling hills, in Kent, have been noticed. The hills of Surrey afford, among many others, one remarkable point of view;—Sanderstead hill, near Croydon: from whence is commanded the upper and principal part of the wide Vale of London; closing with the well featured grounds of Windsor; whose castle rises, boldly, and distinctly, to the eye,—though placed at near thirty miles distance.

ESTATES.

ON THIS HEAD, I have had few opportunities of collecting information.

PROPERTY is much divided; especially in Kent; where the tenure of gavelkind prevails: while, in Surrey, the YEOMANRY, I believe, are few; or nearly extinct.

In the FARM BUILDINGS of these hills, there is little that differences them, from those of the vale districts, on either side of them. (See DISTRICT OF MAIDSTONE, &c.) They are, still, chiefly constructed of WOOD: the covering materials being THATCH, or PLAIN TILES.

On the hills of Surrey, I have observed an ingenious method of LAYING PLAIN TILES, so as to give vent to the steam of a brewhouse. Instead of placing them close, in the usual manner, a space of two inches was left between every two tiles: thus making the covering sufficiently open, to let out the steam; yet close enough, (when the pitch is not too flat, nor the guage too long) to shoot off rain water.

There, too, I have seen a species of HIP TILES, in an eligible form: namely, a triangle, with the three corners cut off, and

the lower end, or base, somewhat rounding. The length about a foot, and the width, at the base, the same. The whole is hollow, as a ridge tile: the depth of the hollow, at the base, being three inches: with a nail hole, near the upper point.

DRINKING POOLS are formed, on these hills, with CHALK and LIME; and in some instances, are fed artificially, as in YORKSHIRE. But not in the regular and systematic manner, which is there praticed. No instance of practice fell under my observation. But the outlines of the method which is followed, on the hills of Surrey, I understand, from good information, are these.

The bason being formed, agreeably to the situation, and the intention, it is bottomed, or lined, with a coat of chalk, six or eight inches thick. This being beaten with rammers, so as to give it a degree of firmness, and smoothness, a grout, or batter, of pounded chalk, and lime hot from the kiln, is prepared, and spread regularly over the surface of the chalk; covering it, perhaps, half an inch thick. When the first coat of cement is sufficiently dry, another (and perhaps another) is added. Thus closing the pores of the chalk, and glazing the bottom of the bason; so as to make it perfectly tight; and, at the same time, effectually preventing the mischiefs of earth worms.

For a *sheep* pond, railed round, to prevent cattle and horses from stepping into it, (as is frequently seen) this slight covering may be sufficient.

FIELD FENCES. The OLD HEDGES, throughout this Division of the Chalk Hills, I believe, (as well as in the north parts of Hampshire) partake of the Danmonian mound fence (see WEST OF ENGLAND); appearing as Devonshire hedges, in ruins: the mounds being in general, low, wide, and irregular.

REMARK. These mounds, perhaps, were originally, no more than accumulations of soil, to encourage the growth of hedge-woods, on the thinsoiled lands; without any view of increasing the fence; and they may, since, have been increased, by flints, and the roots of weeds, gathered off the lands. This being as it may, the shrubwood, raised on these mounds, not only answered the purpose of fences; but, at the same time, afforded a supply of materials for hurdles, dead hedges, and fuel, on every farm. The practice, whatever may have been its origin, was singularly well adapted to these bleak, unsheltered heights.

AT present, many of these old hedges are wearing out; owing, perhaps, to negligent management: many of them having, doubtless, been injured, or destroyed, by the white

climber, travellersjoy, or virginsbower *(clematis vitalba)*, which is suffered to overtop the hedgewoods, and form arbors on their heads! Yet this, being a perennial plant, might be checked, at a trifling expence, compared with the mischiefs it is capable of doing, in a state of neglect—in this its natural situation and soil.

MODERN HEDGES are of hawthorn, planted in single rows, in the usual manner; and, on the deeper soils, they thrive with luxuriance; notwithstanding the extraordinary treatment they are subjected to. When a hedge of this kind is cut, it is usually felled to the ground, and a full-bottomed dead-hedge set upon the stubs! as if to prevent it, effectually, from rising again.

REMARKS. This, under ordinary circumstances, might be improper: but, in a country where sheep are the pasturing stock, and where they have no other shrubs, than those of the hedges, to satisfy their natural cravings, it appears to be singularly eligible, if judiciously executed: for a sufficiency of shoots are found to make their way, upward, through the spray of the dead hedgewood; which defends them from the bite of sheep, without the expence of a double line of fencing.

Some skill, no doubt, is requisite, to form a dead hedge of this intention. Forming

the base, with long sprayey materials, so as to reach across, or between the stubs, and hang over the ditch (in this case mostly shallow) yet thin, or open enough, to suffer the shoots to rise freely through them, would seem to be the proper outline of practice.

This practice, I recollect, struck me, on my first observing it, as being most absurd, and ridiculous: yet, *on due examination*, it is found to be one of those simple expedients, which necessity, in the infancy of arts, and long experience, in their riper years, have happily struck out.

WOODLANDS.

THE SPECIES of woodland, which prevails on these hills, is COPPICE, or UNDERWOOD, generally having a few OAK TIMBER TREES scattered among it; agreeably to the practice of the southern and western counties; and, more or less, of the midland provinces; constituting what is emphatically called a *wood*, in distinction to *grove*, and *coppice*.

And, beside extensive woods of the above description, the hills of Surrey, more par-

ticularly, are strowed with small plots of coppice; provincially "SHAWS"; which, at once, give shelter to stock, and afford a supply of hurdle and hedge materials: conveniences, which every chalk-hill district might profit by; yet which no other, than this under view, sufficiently possesses. See ISLE OF THANET, and the WILTSHIRE HILLS, in these Volumes; also COTSWOLD HILLS of GLOCESTERSHIRE; and the WOLDS of YORKSHIRE.

The PRODUCTS, or WARES, of the larger woods, are made to vary with their situations. In Kent, HOP POLES are the prime object: and the AGE OF FELLING, there, is twelve to eighteen years. In Surrey, STAKES, EDDERS, and other FENCING MATERIALS, HURDLES, HOOPS, and FAGOT WOOD, are in demand; and, there, the AGE OF FELLING is seven to ten years: a plan of management, this, which extends, I believe, fifteen or twenty miles, on every side of the metropolis; and has probably been handed down, from the time when wood was its chief article of fuel.

AGRICULTURE.

IN a tract of country, an hundred miles in length, it is scarcely possible, that a uniformity of practice, even supposing the practice of the whole to have had the same origin, should be found, after the series of centuries which these hills, probably, have been in a state of cultivation. Yet the eye, in a cursory view of them, perceives little variety of management: except towards the eastern extremity; where the Thanet, or East-Kent practice extends, more or less, over the hills: a practice which is evidently of a different growth, if not of a different root, from the present practice of the West-Kent and Surrey hills.

FARMS. The major part, of the lands of these hills, is laid out into farms of the most desireable SIZE: namely, from one to two or three hundred pounds, a year.

In a country, where the sheepfold is the farmer's dependence, for his arable crops, and where parochial flocks are not formed, a small farm is less eligible, than one which is able to maintain a flock, large enough to employ the attention of a regular shepherd.

On these hills, however, I have not met with any instance of the over-sized farms, which are observable, more or less, in every other department of Chalk Hills, in the kingdom.

BEASTS OF DRAFT. These are, invariably, HORSES of the black cart breed: four of them being the usual PLOW TEAM: even on the lighter loams, where two are fully sufficient. On the deep, strong, "cledgey" lands, on the Boxley hills, in Kent, I have seen six such horses working, with great difficulty; owing to causes that will be explained.

The IMPLEMENTS in use, on these hills, (excepting so far as the East Kent practice reaches) are the more ordinary and plain ones of English husbandry. On the hills of Surrey and West Kent, there are no *drag plows*, as on the Western Hills; nor any *shims*, *broadshares*, *stricking plows*, or *nidgets*, as in Middle and East Kent.

REMARKS. This not only shows the torpid state in which English agriculture has remained, for a century or centuries past, (the situation, climature, and soil, with respect to the hills of East and West Kent, being similar, yet their present widely varying practices have been established from time immemorial); but evidences, in a striking manner, that the practice of East and Middle Kent is either of foreign growth,

or owes its rise to local circumstances, which do not, at present, exist.

The practice of the VALE of GLOCESTER, I have conceived to be of monastic rise; * and, in comparing the methods of harvesting beans, in GLOCESTERSHIRE, and the DISTRICT of MAIDSTONE, it seemed to me probable, that they have both had the same origin. † And it appears to be equally probable, that other points of the Kentish practice, and the various implements that are peculiar to it, may either have been invented by the clergy, or the lay officers of the church, who turned their attentions to rural concerns; or have been introduced, from time to time, by those who have been resident on the Continent; or by foreigners residing within the metropolitan diocese.

THE TURNWREST PLOW is common to these hills. But, in Surrey, it is confined to the hill lands; the lower skirts, on either side, being plowed with swing, and one-wheel plows, in use on the vale lands adjacent: while, in Kent, the turnwrest prevails, on every soil and surface, to within a few miles of London.

Beside the good properties, already allowed this extraordinary implement, an-

* See GLOCESTERSHIRE, VOL. I. page 196.
† See VOL. I. page 130.

other remains to be noticed; and which has probably introduced it, upon the hill lands of West Kent and Surrey. It is peculiarly adapted to the strong flinty soils, which prevail on the tops of these hills, from east to west: and, most especially, where such soils hang on steep surfaces. (See page 392.) In soils of such a nature, a *winged*, or a *fin* share could not work, with propriety, in any state; but, more particularly, when stiffened by a dry season. Its singular strength, too, is well adapted to this stubborn soil.

The OUTLINE of MANAGEMENT, over the whole of this Division of Chalk Hills, is that of keeping the lands (the small portion of grass lands excepted) in grain crops and sheep food, alternately. *Corn* and *sheep* being the principal OBJECTS.

The MARKETABLE CROPS are *wheat*, *barley*, *oats*, some *peas*, and, in the eastern parts of Kent, *beans*,—even on the higher, thinner lands!

The CONSUMPTIONAL PRODUCTS are *turneps*, *tares*, *ley herbage*, with the *perennial grass*, which the small portions of meadow, pasture, and sheep down afford.

The COURSE OF PRACTICE is unfixed: on the lighter lands, turneps, or tares, are the cleansing crop: on the stiffer, tares, or summer fallow, for wheat, is in use: the clover crop, or other ley herbage, following either wheat or barley, according to the state of

tillage and cleanness of the lands, on which these crops are sown.

TILLAGE. The same extraordinary method of using the turnwrest plow (namely, that of forcing open the plow-furrow unnecessarily wide) prevails on the hills, as on the vale lands of the District of Maidstone (see Vol. I. page 74.) On the hills of Surrey, I think it is not left quite so wide. But on the Middle-Kent hills, and in the instance mentioned under the head IMPLEMENTS, the width was near two feet, that of the plit, or plow slice, being twelve inches, and its depth eight inches. It is no wonder, then, that, in such work, in such a soil, six horses should find full employment.

REMARKS. What probably adds much to the stubbornness, and gluey texture, of these strong flinty lands, is their being laid flat, with the turnwrest plow; without ridges to shoot off, or furrows to carry away, the waters which fall on them; even where this retentive impermeable soil is two or three feet, in depth! If they were plowed equally deep, as they are at present, and laid up, in convex beds, of seven or eight feet in width, with deep interfurrows, and cross trenches, to take off superfluous rain water, they would not be so liable to run together, into a close compact mass, as they are, under their present treatment.

BEFORE I lose sight of the TURNWREST PLOW, it may not be amiss to mention the difficulty which attends the HOLDING of it, by those who have been habituated to common plows, only; and, most especially, by those who have been accustomed to the swing plow, drawn with the horses at length, walking in the last-made plow-furrow; and, of course, leaving an uninterrupted sight, forward, for the plowman. It is not the intricacy, and obstruction of the view, caused by four horses drawing double, with two sets of splinter bars, and a tall "gallows," and huge beam, rising up before the eye, nor the complexness of the implement rendering it difficult to regulate, but the aukwardness experienced in turning the soil to the left, which is the chief cause of difficulty.

As I have repeatedly recommended the turnwrest plow, for absorbent soils, lying on steeply sloping surfaces, it may be right to convey some hints, respecting the method of holding the KENTISH PLOW, to those who may wish to make a trial of it, on lands of that description.

A plowman who has been accustomed to the swing plow, only, should first use it, as the common plow, with the wrest continued on the right-hand side; until he becomes habituated to the effect of wheels, and has made himself master of the implement, and

the manner of regulating it. This accomplished, let him turn the wrest to the left-hand side, and continue to use it as a left-hand plow, until he has subdued the force of habit (until he has learnt to walk with his left foot foremost, and to keep his eye on the right-hand side of the plow beam); which he will effect, much sooner, by these means, than he can, by beginning with it, as a turnwrest plow, and changing the wrest at every end. And horses, that have been accustomed to draw, at length, in the plow-furrow, require a similar mode of training.

MANURES. The hill farmer's chief dependence is on the SHEEP FOLD. HIS YARD MANURE, except what arises from team horses, is of an inferior quality; being little more than straw, trodden down by a small, inadequate portion of lean strawyard stock.

The strong "cledgey" lands are commonly CHALKED: a practice which is probably of ancient date; and may account, in some sort at least, for the flints, with which they are generally mixed.

REMARK. These lands, and their natural alliance to chalk, with which they appear to be ordinarily connected, form a subject which is well entitled to geological inquiry.

SEMINATION. This varies with the situation. In East and Middle Kent, the "stricking plow" is in use; even on the

strong lands: while, in West Kent and Surrey, the soil is prepared for sowing, and the seed covered, with the ordinary plow and harrows; agreeably to the prevailing practice of the kingdom at large: there being, in the established practice of the western parts of these hills, no instance of cultivating, either corn, or even pulse, in rows. The bean and pea culture, of East and Middle Kent, may be said to be as little known, on the Hills of Surrey, as on the Wolds of Yorkshire.

In the HARVESTING of MOWN CORN, the practice of Surrey differs, in like manner, from that of East Kent: each part falling in, with the practice of the vale countries, which border upon it. In Surrey, barley and oats are universally carried, immediately out of swath, without being tied up in bundles, and formed into piles, or shucks, as they are, in the East Kent practice; and (which is highly interesting) as they are, in Devonshire and Cornwall; which are situated at an opposite extreme of the Island: the intermediate space, of more than a hundred miles in extent, having no knowledge of the practice.

On the CULTURE and MANAGEMENT of PARTICULAR CROPS, upon these hills, little requires to be said; as they partake of the practices already described.

The TURNEP CULTURE is, in general, well conducted: and, on the drier lands, is prevalent; being chiefly depended on, for sheep food, in the winter season.

For spring and summer food, TARES are a prevailing crop. On the Middle-Kent hills, I have seen them used, in different ways: namely, folded off, as they stood, in the GLOCESTERSHIRE manner; mown, and given in racks, or cages, within a fold, on the land already cleared, as in the WILTSHIRE practice; and, in one instance, I observed them pastured off, as clover, or other cultivated herbage; the flock going over them, a second time, when a fresh shoot was ready to receive them.

SAINFOIN is much more prevalent, on this, than on the other two divisions of the Chalk Hills of the southern counties. It is grown even on the deeper clayey lands, with success. These lands having been chalked, and perhaps contain, *naturally*, some portion of calcareous matter, the roots are led down, to the chalky substrata, and bring into action and use, what otherwise might, for ever, have lain dormant and unprofitable.

On the Hills of Surrey, its usual DURATION is fifteen to twenty years.

Of CATTLE these hills are in a manner destitute; excepting a few cows, kept for a supply of milk and fresh butter.

In BREED, they agree with the vale lands, that skirt them: as, in Kent, the *Welch*; so in Surrey, the *Staffordshire*, are most prevalent: "Staffordshire heifers" finding their way to this the farthest limits of the longhorned breed: the CHALK HILLS of SURREY, as the Heaths of Hampshire and Sussex, being a BOUNDARY, between the LONG and the MIDDLEHORNED BREEDS.

The *Suffolk* and the *Alderney* breeds are also found, on these hills.

SHEEP. It has been already conveyed, in speaking of this species of livestock, in the other two Divisions of the Chalk Hills, that the DESCRIPTIONS of FLOCKS, in this Division, are those of *rearing*, and *fatting* WEDDERS.

The BREED, formerly (as has likewise been intimated) was wholly that of the *Wiltshire* and *Hampshire* hills. But, during the last ten years, the *Sussex* or *South Down* breed have been gaining a footing, which they are likely to hold: as being a more *natural*, and, of course, a more *hardy*, variety; that is to say, have been less *forced*, from their native, or long inherited qualities, and habits, than what may be properly styled the *watermeadow* variety: both of them being, probably, from the same root. See WEST OF ENGLAND.

The AGE OF PURCHASE is that of lambs; whose ages vary, somewhat, with the breed;

both breeds being bought in, about the same time; namely, MICHAELMAS: when those of Wiltshire are about nine, those of Sussex about six months old.

The PLACE OF PURCHASE, for the former, is chiefly *Weybill*, for the latter, the fair of *Lewes*.

The ECONOMY, or plan of management, of these WEDDER FLOCKS, has been, heretofore, that of folding them, two summers, and fatting them, the ensuing winter and spring. But the South Down breed, I believe, are more generally fatted, at two years old: turneps, hay, and cultivated herbage being the usual materials of fatting.

In the SHEPHERDING of sheep, I met with little, that is rare or interesting, on this Division of the Chalk Hills.

In *folding*, the ordinary calculation is "three sheep to a hurdle." The hurdles of these hills (which are formed of hazel rods, in the wattle or fleak manner) are of different lengths; as seven to nine feet: but the stakes do not stand at more than seven feet and a half, on a par: so that, on this calculation, each sheep has a space of eighteen or nineteen square feet: which is a narrow space, for large sheep; and I have measured a fold, for two hundred six-tooth Wiltshire wedders, which was pitched twentyfour yards, by twenty: thus allowing near twentytwo square feet, to each sheep.

It will be right to mention, here, as a caution to shepherds, and arable-land sheep-farmers, an alarming incident, which occurred to a valuable flock of sheep, some years ago, on these hills.

A field of thin chalky loam, had been sown, the preceding summer, with the seeds of weld (*reseda luteola*, or dyersweed), and with a small portion of turnep and rape seeds, by way of giving some sheep food, the ensuing spring, and which had been eaten off, in the beginning of April (agreeably to a practice then not uncommon on the hills of Surrey) leaving the weld to stand on for a crop, without further care.

But the soil having been made fine and full of condition, for the crop, and the seeds of the "redweed," or poppy (with which the ground was infected) being thereby set in action, so as to injure the crop of weld, —three hundred and fifty prime fatting wedders were turned upon it, to eat out the young herbage of the poppies; which was then (the beginning of May) in a tall gross-growing state; rising in tufts, six or eight inches high.

The shepherd, not being aware of the danger, left his flock, for a short time; and, on returning, found the whole struggling on the ground! many of them foaming at the mouth: all of them much swoln. Being a faithful shepherd, and doating on his

flock, he was seized with a degree of frenzy; and had not their owner's son* fortunately entered the field, at the juncture, the whole flock (worth near six hundred pounds) might have been lost. But, by rousing them with dogs, getting them upon their legs, and driving them to a high, airy ground (the weather being warm, and the field of accident hanging to the sun), only five of them suffered.

SWINE. The BREED is mostly of the large, spotted, Hampshire, or Berkshire variety; or a sub-variety of this breed, called the "tunback," from the regular curvature of the spine.

In the FATTING of swine, I met with two particulars of practice, on the hills of Surrey, which are entitled to notice, here; they being new to these Registers.

In one of them *salt* was mixed with their food, in the proportion of a pint to every two bushels of barley meal; under an opinion, that it kept them from disorders, forwarded their fatting, and added to the delicacy and flavor of the pork.

In the other, the meal or flour, whether of barley, peas, or other grain, was given to them, *dry*;—and this in the practice of one of the largest and best farmers, on these

* Mr. WILLIAM ASHBY of Woodmanston, in the Banstead quarter of the Hills of Surrey.

hills;—under a conviction, resulting from experience, that the practice is less wasteful, than the ordinary one of mixing water with the flour, and forming them into grout; which, in winter, is liable to be frozen, and, in summer, to be baked, to the sides of the troughs.

POULTRY. The Hills of Surrey have long possessed a breed or variety of FOWLS, which are, there, called the "five-clawed breed," and are generally known, as *Dorking fowls*. They are of a large size, of a white or yellowish color, and are distinguished from most or all other breeds, by a double claw, behind. They are fatted very highly and are sold at extraordinary prices; being, there, a profitable article of farm-yard produce.

END OF THE SECOND VOLUME.

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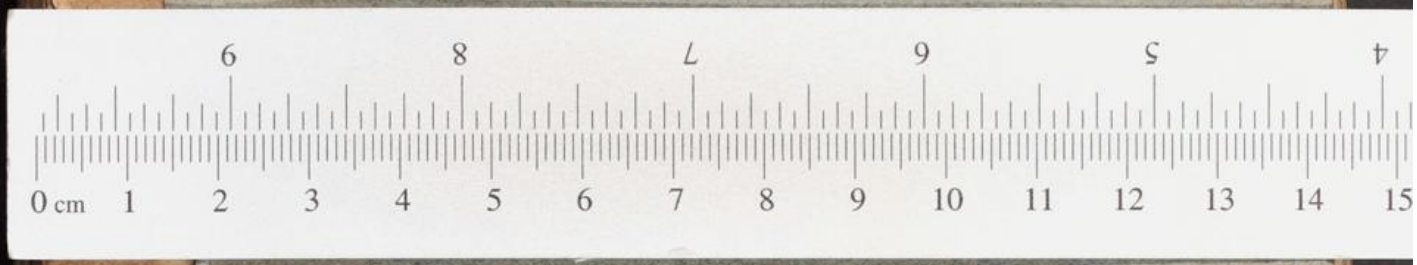








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0 cm 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15


Colour & Grey Control Chart
Danes Picta
Blue
Cyan
Green
Yellow
Red
Magenta
White
Grey 1
Grey 2
Grey 3
Grey 4
Black