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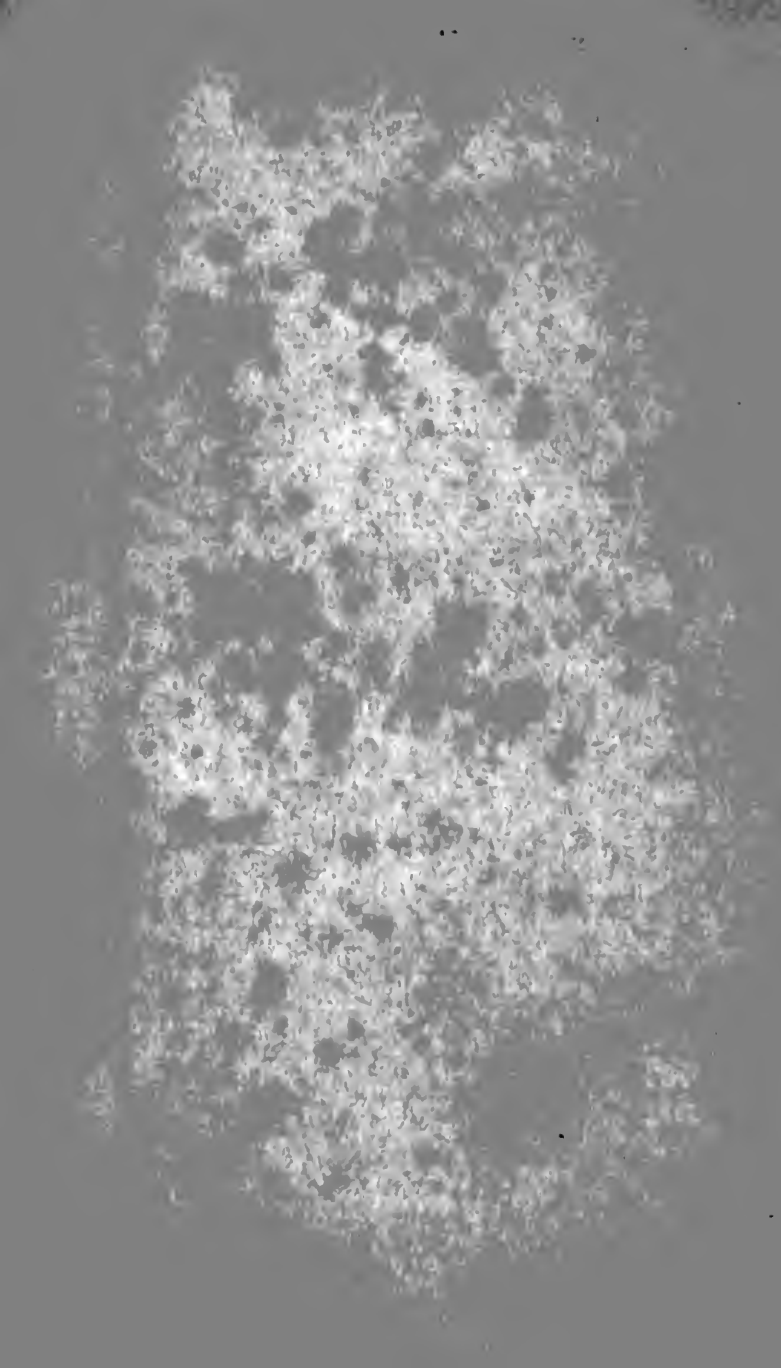
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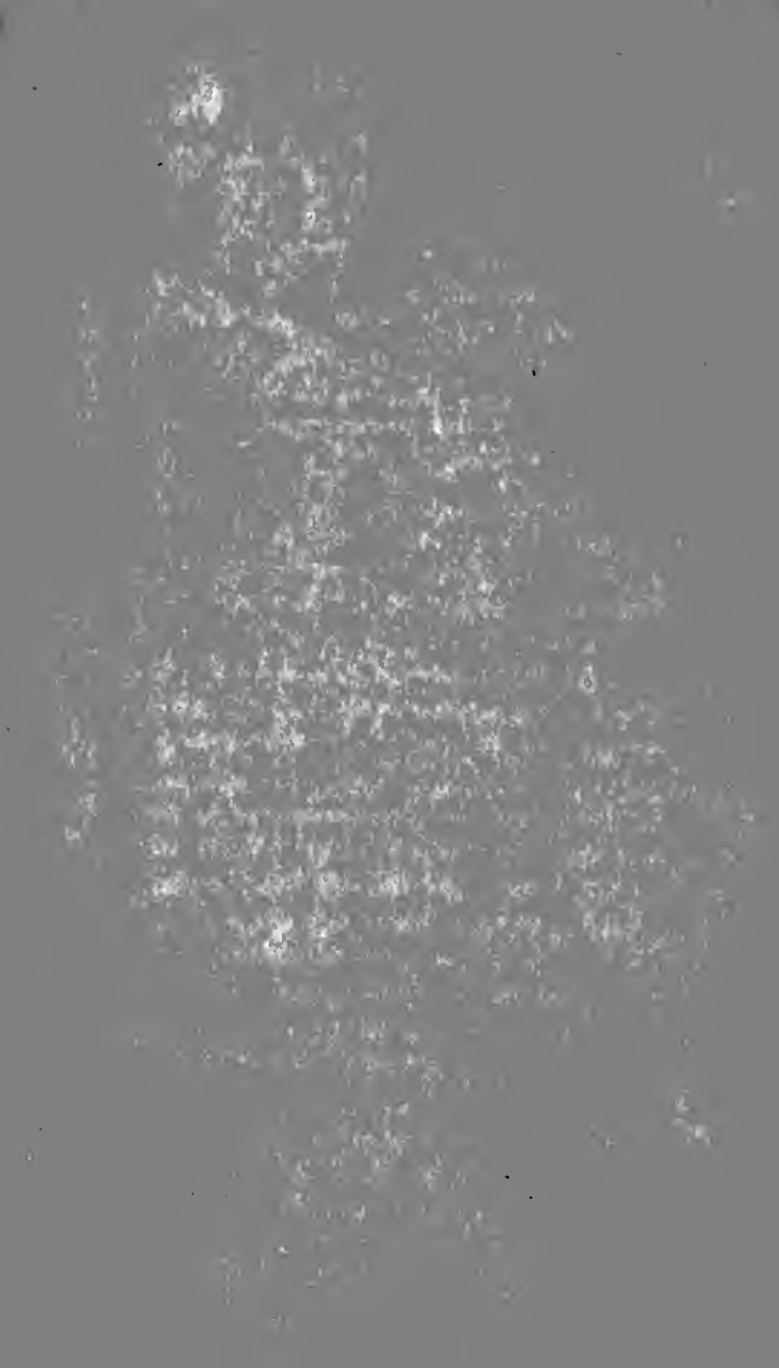
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*Edw. Burd*

A NEW SYSTEM  
OF  
HUSBANDRY.

From many Years Experience,

WITH TABLES SHEWING THE

Expence and Profit of each Crop.

That a Farm of a 150 Acres will clear 402l. 4s. sterl. a Year  
How to stock FARMS to the best Advantage, How the  
CROPS are to follow each other by Way of Rotation.  
Of Trench-Ploughing, shewing how to raise good Crops

WITHOUT MANURE

ON REARING, BREEDING, and a new discovered  
CHEAP FOOD FOR CATTLE.

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Of the NAKED WHEAT, with many other new discovered

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and Climate of America.

Also shewing the great profit of RABBIT WARRENS, and  
how to stock them.

A FARMER'S and KITCHEN GARDEN CALENDAR  
Of all Sorts of MANURES, MARLS, CLAYS, SANDS, &c.  
A NEW INVENTED THRASHING FLOOR

Also many chosen RECEIPTS in *Physic* and *Surgery*,

For the Human Species,

AND OTHERS

For the Cure of all sorts of Cattle.

To which are annexed a few *Hints* humbly offered for the  
perusal of the Legislators of America, shewing

How to put a stop to runaway Servants

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By C. V A R L O, Esq.

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V O L U M E II,

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PHILADELPHIA: Printed for the AUTHOR. 1785.

[Price 3 dollars in boards or 3 and a half bound.]



# CONTENTS.

CHAP. 1 The management of white flax. Page 5

2 The pulling, watering and management of flax seed, &c. 12

3 Directions for the management of black or bunch rate flax, &c. 15

4 Directions how to manage dew rate flax, &c. 19

5 Directions for breaking & swingling flax without fire. 22

6 Observations on flax-seed &c. 26

7 Directions for making French sieves, and their use. 35

8 On winter flax. 37

9 On flax among potatoes. 41

10 The management of white flax, in pulling, watering, grassing, &c. 45

11 An Address to the different Legislatures of America, &c. 48

12 A few hints humbly offered for the perusal of the Legislatures of America, on a general act of Congress to prevent run-away servants. 55

13 A few hints humbly offered for the perusal of the Legislature of America, relating to a dog act, &c. 59

14 Upon limiting the size of farms. 67

Chap.

27471

5509

V27

1785

# C O N T E N T S

	Page
Chap. 15 On the great advantage that might accrue from rabbit warrens, &c.	77
16 How to set potatoes in drills with the plough.	82
17 Remarks on setting potatoes with the plough.	86
18 Remarks and illustrations on the foregoing table on potatoes, &c.	90
19 On setting potatoes as in Ireland on ridges by trenching.	92
20 On different sorts potatoes	97
21. The management and use of vetches.	101
22 Explanation and nature of different sorts of pulse, &c.	106
23 On the different management of clover, &c.	110
24 On cattle hosed by clover, and its cure.	119
25 Remarks on clover.	126
26 On lucerne, its perfection and management: also the method of drilling with the common plough, &c.	128
27 The most suitable lands and climate for lucerne, &c.	135
28 How to manage saintfoin, which suits America.	139
29 On rye grass, its perfection and management.	144
	Chap

# C O N T E N T S

Chap. 30 The perfection and management of Burnet.	Page 150
31 On manuring land.	154
32 On manures in general	157
33 On the compound manure.	166
34 On liquid manure.	169
35 On clay and sand: shewing how, when mixed together, they operate to make good soil, &c.	173
36 On clay, sand and marl	181
37 On the weakest and worst of all sands, &c.	185
38 On different sorts of grass and pulse, &c.	193
39 The management, &c. of the white and blue boiling pea.	199
40 The management and perfection of the grey field pea	202
41 Directions for the plowing, sowing and management of buck-wheat, thro' all its variations.	205
42 Directions how to raise rape and cole-feed, &c.	208
43 Directions for making a new invented thrashing floor.	221
44 The management of tobacco	224
45 The management of indian corn.	228
46 General directions for ploughing sowing, harrowing and mowing, or harvesting barley.	231
	Chap.

# C O N T E N T S

Chap. 47	On mowing and harvesting spring corn.	Page 234
48	Five sorts of barley	239
49	Different sorts of land for barley.	244
50	The management of rye, both for winter-seeding and a seed corp	246
51	Remarks and illustrations on rye	249
52	Directions for ploughing, sowing and harvesting oats	253
53	Explanation of six different sorts of oats.	256
54	The white vetch.	262
55	The Siberian or naked wheat	263
56	A dialouge between a Farmer and the Author	269
57	A few remarks made in the West of England.	274
58	On thin sowing, &c.	281
The gardeners	calender, for work to be done round the year in the kitchen-garden	284
59	Preface to the appendix	310
60	Nature of the soil, and price of the land, with many other interesting subjects, necessary for a farmer to know through Ireland.	313

Chap.



# C O N T E N T S

- Chap. 61 Trenching land near Glasgow  
with spades Page 342
- 62 The price of labour and victuals  
in the several counties of Ireland, in or-  
der to give an idea of the different state of  
the two kingdoms 345
- 63 Some approved receipts in phy-  
sic and furgery, by the most able men of  
the faculty in England. 352



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A  
NEW SYSTEM  
OF  
HUSBANDRY.

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CHAP. I.

*The management of White Flax.*

**A**MONG the flax growers the word white flax signifies when the flax is pulled before the seed is quite ripe, by which the oil is stopped of circulation, and remains in the skin instead of reaching to the seed to ripen it.

The intent of watering or rating flax, is to rot the stalks, in order to make it part freely from the skin, when dressed: as also to soften, purge, and cleanse, or discharge any unkind harsh matter from it; but the oil being so stagnated, preserves the flax from rot-

ting in any reasonable time, not letting the water have the power over it, as it has over a poor substance: were it possible to extract all the oily substance from the flax, it would be left as poor as the stalk whereon it grows, consequently would rot in the same time, and be rendered as useless.

This confirms my opinion, that the less quantity of water the flax is rated in, the better, silkier, and stronger it is made by the oily substance which is permitted to remain therein; for the best particles gather and cling to the strongest body, (being the flax) which makes it weigh heavy, adds to the strength, and makes it of a kind, soft, silky nature.

I am confident, were a parcel of flax seed thrown into one of these pits, for some considerable time before the flax was put in, so that it might have time to incorporate with the water, it would have a happy effect, and considerably add to the goodness of the flax. I do not say that it would be worth while to do this, further than by way of experiment and proof.

I have thrown chaff, that has had some light seed amongst it into a pit, and found it to be of service.

An old pit that has had flax watered in it several years, is far better than a new made

made pit; and one that has had white flax with the seed on, watered in it, is better than one that has been used for bunch rate, or flax that has had the seed taken off, only that it turns it a dark blue colour, which by the bye is better than a bad white. All this I have seen experienced by others, as well as myself.

Now seeing it is so absolutely necessary for the good of the flax to preserve this oily kind nature in it, in order to keep it from rotting and make it kind, soft and filky, what a piece of absurdity it is to drive it out by drying it over the fire, as is universally practised in Ireland; and indeed by some unskilful farmers in England too, where they are strangers to the true method.

In short, it is rendered harsh and brittle, so that it loses considerably in its real weight and goodness, and thereby loses in its value.

In order to be convinced of this, weigh as many sheaves as will (when broken and swungled) make two stone; one half of which dry over the fire, the other half dress without, and it will be found that when both are dressed, the difference in weight will be from a pound and a half to two pounds; a great loss in so small a quantity of flax.

The experienced flax-farmers are so sensible of the real evils that attend drying it, that

that they will not suffer theirs even to be dried in the sun. It is true, when it is taken up off the grass, it is dry, though indeed some chuse to take it up in an evening, when the dew is falling.

No one that is not necessitated will offer to dress any flax, till it gets a sweat in the mow or stack, which adds to its soft silky nature, as well as weight; and after this sweat, it is never suffered to be (as above) dried in any case.

But then we are to consider that the English flax farmers are true judges in rating their flax; which if not done properly, it is hard to be dressed well, even with fire, and much more without.

There are also other kinds of tools to break and swingle it with than any in Ireland. The quantities that are raised in some parts of England and Holland, could never be manufactured in such a paltry manner. Were fire of no real damage to it, it would add so much trouble and expence of drying, &c. to a farmer's other business, that it could never be duly attended to.

One acre managed in the Irish manner, would give as much trouble as an hundred would in the right method: for when it is once in the barn, it is scarce of so much trouble as corn, having no more to do than

to agree with men to work it; and this is mostly a set price, except it misses of a good rate (which may sometimes, though rarely happen,) or if the flax be very short; in this case there is a consideration of a higher price.

The common rate for dressing white flax is fourteen pence a stone, for breaking and swingling; and sixteen pence for seed or bunch rate.

High or low wages vary according to the cleverness of the workman, from the difference of a shilling to three in a day; for there are several degrees of workmen; a good workman is as well known through the flax countries of England and Holland, as a justice of the peace, or sheriff in an Irish county.

It is necessary that a farmer look over his swinglers sometimes, to see that they make no waste; as also that they dress it clean, for on this his success and sale in the market depends.

Some workmen will make the same flax sell higher than others by six pence or eight pence a stone, and all the flax buyers know the good workmen by the lapping or making up of the flax.

A good workman is seldom made if he does not learn when young. It is far easier  
to

to make a good hackler than a good swingler, though the former is a trade of apprenticeship, and the latter is not.

The swingler generally has a pair of scales by him, and weighs the flax as he dresses it, then takes it into his master who seldom weighs it, till he gets two or three packs together, to take to the market.

A great deal depends on giving flax a good even colour for fetching a good price in the market. Let the colour be what it will it ought to be of one sort; not to be striped or spotted with black and white, or green and white, grey and blue, or green and yellow, &c.

The misfortune of these mixed colours is got before it goes into the water, particularly if it be seed flax of any kind; for the prevention of which, I ordered seed flax, in imitation of white, to be stacked with the seed end outwards; this prevents the outsides of the sheaves from being weather-beaten, which will turn them black or grey, so that it will always be of a quite different colour, from the inside of the sheaf, but the seed being outwards, can take no damage, but will ripen or dry much the faster for it.

If the bunch-rate flax get a mixed colour it is for want of spreading even and clear  
of



## OF HUSBANDRY. 11

of lumps after the pullers. The same evil the due-rate is subject to, if not properly spread; but it may happen to white flax two or three ways.

First when it is pulled, if it stand too long to dry before it is put into the pit.

Secondly, if it be not well and close covered in the pit with sods, and duly trod.

Thirdly, if it be not spread even and clear of lumps in the time of grassing,

All these cautions a farmer ought to be armed with, if he means to bring this valuable branch to its full perfection.

CHAP.

## C H A P. II.

*The Pulling, Watering and Management  
of Seed Flax, in Imitation of the White.*

**T**HE seed flax must stand about three weeks longer than the white. It will shew itself to be ripe by the leaves fading and falling off, and the boles turning brown; but beware of letting it stand till the seed in the bole turns brown; for if you do, the seed will be nothing better, and the flax a great deal worse. It is a great mistake to let the seed flax be over ripe.

Observe the same directions in pulling the seed flax as for white, only make the sheaves a little larger; set them up in a propping manner, three leaning to each other. In three or four days after if the weather permits, make them into small field stacks, no larger than you can reach without getting upon them.

Make them like corn stacks, only with this difference, that the seed ends must be outwards, in order to dry the sooner, and keep the stalks from being weather beaten.

Thus

Thus let them stand about a week, and then make them over again, by which means the top of the stack will become the bottom. Lay a little weeds, or the under growth of flax on the top of the stack, in order to make it cast the rain, and keep the upper sheaves from the sun and weather.

A few sheaves turned brown or grey, would spoil a great parcel in the beauty of its colour, for let the colour be of what sort it will it ought to be even, or else it will not bleach even when in cloth, which is impossible to accomplish without great care before it goes into the water.

Let the stack stand, after it is turned, about ten days; after which take it into the barn, and ripple the seed off with rippling combs.

Being thus rippled, tye it up in small sheaves, and water it in the same manner as directed for white flax; also observe the same directions to know when it is rightly rated and grassed; in short, rate it in every case as directed for white flax.

As to the seed, it may lie in the chaff or boles all winter, till it is wanted in spring; at which time riddle it first through a wide riddle, in order to take out all the long straws, pulse, &c.

This done, take it to the mill and shell it as you would oats. This is a ready way of taking the seed out without waste; and on the shelling it may be winnowed at the mill without the trouble of taking the dirt back.

I shall spare myself the trouble of giving any directions about winnowing, as most people are perfect in that art; as it is winnowed in the same manner as corn, saving only as to the sieves, which must be suited to the size of the seed.

And now, gentle reader, please to accompany me once more to the field of pulling, and I will shew you another, and a more general way of raising seed-flax, which is in imitation of black or blo Dutch: but in truth I have seen and reared better and higher priced by the following management than ever I saw come from Holland.

Observe that the seed flax of all sorts must stand till it comes to the same degree of ripeness before it is pulled.

CHAP.

## C H A P. III.

*Directions for the Management of Black or Bunch-Rate Flax, in Imitation of Blo or Black Dutch, and to save the Seed in perfection.*

**W**HEN you begin to pull the bunch-rate flax, arrange your pullers all in a row, at one side of the field; let every puller take about two yards broad, and lead on at about the same distance before one another.

Spread the flax after them thin and even, with the tops all one way, as white flax is spread on the grass when it comes out of the pit. Take care that the first puller lays his row straight, that it may be a guide to all the rest; as one crooked row will disorder the whole field, and give double trouble both in turning and gathering it up.

When

When pulled and thus spread, let it lie till it gets a grey colour, which will be in three or four days, particularly if there be heavy dews or rainy weather; but if not it will take a longer time.

Turn it with turning rods, as directed for white flax, that both sides may get a grey colour alike. By this means the seed will be pretty rash, therefore handle it gently, that the boles do not shake off in gathering and binding; in which there will be the less danger, if you make large sheaves as there will be less outsides.

Hereupon take it home and beat out the seed with beaters for that purpose, made of a piece of wood twelve inches long, two thick and six broad, and in this fix a handful sloping-wise.

When you begin to beat out the seed, spread two rows of flax on the barn floor with the seed-ends to meet. Then beat out the seed with your beaters; but observe that you let the beater fall level or true on the flax, or else it will break the handle:—there is some art required in giving a good stroke with the beater.

Tie the sheaves up with two bands, one at each end, and lay one half of the sheaf with the tops to the roots of the other half. Make the sheaves as large as a middle sized wheat sheaf.

Being

Being thus prepared, take it to the water; but this must not be sunk with sods, or any other weight, but must swim upon the surface of the water, lying in rows, each sheaf close to another. It is best to put it in pits that have been watered in, as it will have a finer blue colour.

It must be turned every second day; which is easily done with a long fork, having about two inches of the points of the grains bent, in the likeness and nature of a muck-drag.

For its being well watered, observe the directions as for white flax; with this addition only, that it will sink under the surface of the water when it is about enough rated, but not to the bottom of the pit. If it should be left till it sinks to the bottom, there is great danger of its being over done, or in plain terms rotten.

These are known facts amongst the flax-farmers; but for what reason nature thus varies her operations, few trouble their heads to philosophize about the matter.

Were a curious person, however, to attend the flax throughout the process of its rating, he might infer a great deal from its rising and falling in the pit; its losing and regaining its spirits, &c.

Being thus duly watered, take it out and let it lie on the pit side all night to drip; then take it to the ground intended to dry it on; but it must not be spread flat but set up almost like a sugar-loaf, the sheaves being in two parts, that is the heads each way; it will easily part in the middle, one-half of which is enough for a rickle; take it by the top and spread it round you, giving the root-end a good splay, so that the wind will not easily throw it down; press the tops close together, so that as I have observed it may resemble a sugar-loaf, standing so thin and open, that it will soon dry; but however, it will be the better to get a little rain before it is bound up in order to wash the dirt and slimy substance off.

The boles of this flax will be well broke by the beater as above directed, so that there will be no more to do than to winnow them and there is no doubt of the seed being very good.

I have known such bunch-rate flax to sell in the rough in Snaith-market, Yorkshire, at sixty-four shillings the hundred weight, and the seed from it, as good as any foreign seed whatever.



## C H A P. IV.

*Directions how to Manage Dew Rate Flax,  
with or without the Seed on.*

SOME set up their dew-rate flax in stooks after pulling to dry like corn, letting it stand perhaps three weeks or a month.

This is a bad way; for standing in the stook so long in order to dry the seed, tender the outides of the sheaves to such a degree, that they will not take so much rating as the inside, and will therefore be undoubtedly rotten before the inside is enough rated.

The best way is to spread it after the pullers, as directed for bunch-rate flax in the following manner, viz.

Arrange your pullers at one side of the field, and let them spread the flax thin and even after them with the tops all one way; if there be rain, the upper part will be well  
rated

rated in five or six days; but in this case circumstances alter greatly, according to the various sorts of weather that may happen; therefore a farmer must be circumspect, and rub a few stalks at the upper part of the row between his finger and thumb, and if they break and part freely from the skin or bast, he may then turn it with turning rods and let it lie till he finds both sides to be rated and coloured alike.

But if the flax be not spread upon the grass very even and thin, but lie thick and in lumps, the inside will be green or yellow, and not in any degree equally rated to the outside, therefore it will be irrecoverably spoiled.

If the flax be not enough rated by the above method, or that you dare not trust it on the grass, so to be, (for fear of shedding the seed) then about the first of March, when the seed is off, spread it on the grass again thin and even, and manage it the same way in grassing as white flax; also observe the same tokens for its being well grassed.

I have had flax well dew rated, with the seed on, by spreading it after the pullers as above, without any more trouble; so that it broke and swingled, and in short answered well every way; but I never knew it done by any one but myself; and indeed, I never  
ordered

ordered any thus but one year, in which, I had twenty-seven acres rated in the above manner; however, it is to be noted, that it was coarse bunned flax, which made it the easiest managed thus. For it is necessary it should be so: and it requires a good look out, lest it shed the seed by lying too long on the grass, or getting too much slavery under the weather.

When it is enough rated, take it home for working. It must be breaked and swung as other flax.

The seed of this dew-rate flax is undoubtedly very good, and there is also less trouble attends the flax; but it is not so good in quality, neither do I think it yields so well. Indeed it is scarce ever done, but in a country that has not the conveniency of water.

CHAP.

## C H A P. V.

*Directions for Breaking and Swingling Flax  
without Fire.*

**A**S I have reminded my reader to take great care that his tops of flax be kept all one way, and the roots even, it is to be hoped that my former caution may prove sufficient; if not it will occasion the more labour to the breaker; for it must be very even at the roots, before it be put in the breaker's hands, or he can never make good work.

Wherefore, when he begins to break, let him take a sheaf, and slacken the band, but not loose it quite; then chop the root end on the ground; this done, pull all the loose rubbish it has gathered from it; then take a little more than he can hold in one hand and again jump it even at the root; take hold as near the top as possible, so as to hold it fast;  
then

then take a little of the top from under the hand, bring it round the flax, and lap it round his thumb, by which he may hold it faster than if he had no more than his fingers could meet about; bend it two or three times backwards and forwards, so as to make it supple close to the hand; put it into the brakes, keep it thin spread in them, and as he works it turn it often.

When the root is breaked, let him stroke it smooth, and pull the end; then break the top-end, and the root end again.

Being thus breaked, let him begin to swingle, holding it in the nick of the swingle stock, with the left hand, and the swingle-hand in the right, let him always hit the top of the stock above the nick, and it will glance down past the nick with full force through the flax.

When the root-end is swingled once over, hackle the top-end with the foot-hackle, to take out the rough row and shoves which are hard to fetch out effectually with the swingle-hand alone.

When the flax is good and rightly watered, it is easily worked; three times going over with the swingle-hand will be sufficient to clean it from shoves.

If it be rightly swingled by a good workman, it will be quite clear of tow to all appearance;

pearance, before it goes into the hackle ; so that it will be easy to count every harl in it ; and the root will be as even as a pound of candles, and look as glossy after the swingle-hand, as it does after the hackle.

When we see a parcel of flax dressed to this perfection in Ireland, that will fetch, in the rough, from sixty-eight to seventy shillings per hundred, we may venture to pronounce that the most essential part of this noble branch, which ought to be the first introduced, has at last found its way into that kingdom.

But though I have given rules as above for a swingler, I am certain it is impossible to make a workman without ocular demonstration.

It is true, if a learner had an old workman to look at two or three days, these directions would be of great use to facilitate his instructions.

Whatever you do, beware not to dry flax with the fire, or even the sun, after it gets a sweat in the mow ; for if you do, it will certainly reduce both the value and weight, making it light, furzy and brittle.

I have

I have often been told by the Irish, that they thought it impossible to dress flax without fire; and on the other hand, when I have told the English that the Irish dried their flax with fire, they wondered as much, thinking them very ignorant for so doing.

CHAP.

## C H A P. VI.

*Observations on flax-feed, of its being worn out or tired, and how to refresh it, &c.*

**F**LAX-feed is a very deceitful grain, for though it may look well to the eye, yet it may not be worth a penny a cart-load for sowing. Indeed if it be of a good quality, it is not worse for looking well, by being clean and bright, &c.

The flax-farmers are as much on their honor in supporting the character of their seed, as that of their horses; nay more so; for it is impossible for a person to sell a parcel of seed at any price, if he is not known to be in a good breed, (as they call it) and he must be well known to be a man of good character, and his seed well vouched.



It is incredible to tell the difference there is in flax-feed; which I have seen proved more than once. An instance or two I beg leave to mention, viz.

A farmer of my acquaintance lived about twenty miles from the flax-country, and though no farther off, yet he was quite a stranger to the branch, but as he was a pushing scheming man, he made a journey over to the most famous part in England for flax. He staid a few days among the farmers; and as he was a sensible man, without doubt returned as well instructed as the nature of such a journey would admit.

Upon which he ploughed up twenty acres of good old lay land, and sowed it with flax-feed, which he bought at an oil-mill, and which, he said looked very well, being large, bright and clean; it grew very vigorously till it was about fourteen inches long, whereupon it made a full stop, began to blossom, and never got to be half a yard in length. He was greatly surpris'd at such a disappointment; and as the land was good could not unriddle the mystery.

However, he was not discouraged beyond hope, as he remembered that the flax-farmers, when he was in the flax-country, sold their seed for four pounds per quarter; so that if he made no use of the flax, the  
seed

seed he apprehended would pay him better than any thing he could have sowed his land with.

Upon this presumption, he took a sample and went to sell it at the time of year ; but not a grain could he dispose of at any price though the farmers were selling one to another at four pounds a quarter.

He wrote me a pitiful letter, complaining of the flax-farmers, believing they combined against him, not to buy his seed, in order to deter him from sowing any more.

Hereupon I advised him to employ a person to sell it for him by commission, and recommended a noted flax-buyer for that purpose.

He took my advice, by which means he sold his seed at four pounds per quarter.— However it was a bad job for all sides ; the buyers lost their crop, and the sellers their credit.

The flax was so short that it could not be wrought ; and as to him who sold the seed by commission, he has told me since, that his credit was hurt so much by selling the said parcel of bad seed, that he never could sell a half peck since in the commission-way.

This shews how cautious a farmer ought to be in the choice of his seed. Among many instances of this sort, I shall only mention one more that happened to myself.

About five years ago, I happened to be one bushel short in finishing about sixty acres I sowed that year, with good seed of my own rearing. The field I finished in contained twelve acres, and was very good land; wherefore I thought it a pity to let any of the land lie idle.

Hereupon I bought some seed at a venture, which looked well and grew vigorous as the rest of the field, till it was near half a yard long, and then it made a full stop, blossomed, seeded, and grew no more, though all the rest of the field was from a yard to a yard and a quarter long.

A more demonstrable proof I never saw, for it was put into a sack wherein the good seed had been; and as some grains of the good seed stuck to the sack and mixed, it was easy to gather every stalk, of flax that grew, from the good seed, being above twice the length of the bad species.

Moreover, the branches of the good seed were long, and one aspiring above another, having a leader above all the rest.

But it is not so with the bad sort, of which the branches are all of a height, so that the

top will be as even as a clipped hedge. When flax comes to have such a top, and abates so much in height, it is a sure sign that the seed is tired, bad and worn out.

Perhaps my reader would be glad to know what I mean by seed being tired, as also how to help tired, seed &c. which is as follows, viz.

First, let us consider that it is from the hot climates that this seed comes namely, from North America and Riga. It is true that the heat in the latter only continues about three months; but that is the season in which the flax grows, during which time it is exceeding warm.

The heat in America holds much longer; and it is well known that a plant or vegetable, which produces a fluid substance, will ripen in fruit and seed, to a greater perfection there, than it will in our cold climates; the skin being thin, kind nature, as it were, crams her receptacles full of rich juices suited to each plant.

This in flax-seed is demonstrably proved by the oil mills, as they find a considerable larger produce of oil from foreign new seed, than from seed that has been repeatedly sown for many years in England, though the latter shall look brighter, larger, and plumper than the former.

The

The seed therefore certainly degenerates by not producing so much oil in our cold climates, but instead of oil a thick skin, and within it a gross pulpy substance; and the longer it is sown here, the more it runs to this harsh unkind matter.

Now, this oil is the very life and spirit of the flax; therefore as this abates in quantity, the flax abates in its length and real value.

Without doubt were a parcel of seed that is quite run tired in England, taken to those hot countries and sown, it would in time regain its former good quality.

But let not my brother farmers be deterred from saving seed in the colder climates, under fear of its degenerating, for be assured it may be sown four or five years before it need be changed; but I only mention these particulars, in order to lead the flax-grower thoroughly into this branch.

The farmers in England have a way of resting their seed (as they call it) which is done by barreling it up, letting it stand a year or two without sowing; the longer it stands the better. This was discovered by chance.

A farmer happened to spare some seed after harvest; he let it stand two years:—and, when he came to sow it at the end of that

that term among some seed of the same sort but which had been kept sowing each year, it topped it in length eight inches. This accidental experiment has brought on a general practice, as it is found to refresh the seed in a surprising manner.

There is no accounting for this amendment, otherwise than by supposing that the pulp and skin mellorates by the evaporation of the watery particles, and by the cruder parts being mellowed and melted down (as it were) into the body of the oil.

Thus any sort of seed of an oily nature such as rape, mustard, or cole-seed, will produce the more oil, the colder it is; and it is oil (as I said before) which is the very essence of flax.

A farther caution is necessary, that your seed be clear from button-seed, which is a very pernicious weed, and a great enemy to flax; for where this gets footing, the flax-seed must be condemned for oil, be it ever of so good a quality, so fatal is this weed to it.

The seed of this weed is white and very small, not so large as the smallest grain of mustard-seed; but there are as many joined together in a bunch as make a head about the size and likeness of a waistcoat button, from whence it takes the name of button-seed.

It grows on a small stalk, which twists round the flax, as ivy about a tree; so that there is no getting quit of it either by weeding or swingling, as it will not part the flax along with shove; and the increase is so very great, that if there be only a few stalks in an acre of flax this year, the next it may destroy the whole crop.

There is another bad seed which is by some called wild-willow, and by others corn-bind; this is not much unlike hemp-feed, only not quite so large; it also twists round the flax as ivy round a tree, which makes it impossible to be weeded out; however as the seed is large, it will stay in a sieve that will let flax-feed through, by which means it may be kept clear with care, and though it is not so multiplying a seed as button-feed, yet it is a great enemy to flax and ought to be guarded against.

There are several sorts of flax-feed which might be explained, were it worth while to go to the nicety of matters: but as I have no intention to swell this work with matters of speculation, or with any thing that is not of immediate consequence to the farmer, I shall only mention the two principal seeds from whence we derive our growth, namely, that of America and that of Riga.

The former is a bright bay seed, and produces a fine small flax; but the Riga is mostly a dark bay, broad, flat seed; it produces a gross tall flax, which I am apt to think is most suitable for this degenerating climate, for it is easily cured and made finer by sowing it somewhat thicker on the ground.

I got the best breed of seed I ever had from Memel and Riga. This Riga seed will last good longer than American seed in England or Ireland; but it is not so beautiful to the eye, neither is it of so high a price in Dublin as the American seed.

There is a sort of seed which comes from France, and when sown here produces a fine flax, but so puny, short and small, that it is scarce worth reaping. I once sowed some, by way of trial, but lost my crop. I have also seen others suffer by it, therefore would have my reader to guard against it.



## CHAP. VII.

*Directions for making French Sieves, and  
their Use.*

**F**RENCH sieves so called, as they came from French Flanders. The rim is about three feet diameter, and three inches deep; the bottom is made of parchment; two are made use of, and called a set; one of them goes under the name of riddle, and the other of sieve.

The riddle is punched with a hole, thus  $\square$ ; it lets through the flax-seed being flat, and any round or square seeds stay in the riddle.

The sieve is punched with round holes thus  $\circ$ , which lets through the small round seed, -such as rape, mustard, ketlock, or button-seed, but the flax-seed stays in the sieve. These holes must be punched to an exact size, or they are useless.

There

There is a particular art in dressing with these sieves, which I shall spare myself the trouble of explaining, as it is impossible to be executed without seeing it put in practice; and even then it is not easily learned.

There is not above six pair of these sieves in England; and about as many men who are capable of dressing with them. It is a calling of itself; and at the time of sowing, they are very busily employed. A farmer pays about two shillings per quarter to have his seed dressed in them. None requires to be dressed in this manner, save such as have run to weeds; and in this case, though it is difficult to get the right knack of dressing or turning the sieves, yet the stirring of them any way will clear a great deal of dirt and seeds out.

The expence of a set of these sieves, at a moderate computation, is three pounds, and one set and two men will clean all the flax-seed for ten or fifteen miles round in a flax-country.

CHAP.

## C H A P. VIII.

*On Winter-Flax.*

**W**E may truly call that winter-flax which is sown in autumn, to stand the winter, it being about five months longer in the ground than the common.

In my travels through Ireland, I have met with several persons that told me they had made trial of this method; and some speak in favor of it, but there are many more who condemn it.

I was often asked the reason why I took no notice of it in my first edition? My answer was, that I thought it of no utility to the public, as I had tried it long ago, and found it did not answer; therefore I omitted taking any notice of it for that reason. The particulars of the trials I made are as follows,

viz. Observing where the flax-seed had been accidentally scattered in autumn, and that it grew, or kept green all the winter, I concluded that this method might be improved upon; therefore I was determined to be convinced by a fair trial; and for that reason in October 1759, sowed one acre in the middle of a twelve acre field, tilled well, and managed it in every other degree as it ought to be.

About the middle of March following, I sowed the remainder of the said field with the same sort of seed. The winter-flax got to be about five inches long before the severity of the winter came on; after which it grew no more, but from the first frost changed its healthy dark green to that of a sickly pale green, and at spring never regained its former healthy complexion.

After the spring-flax came up to be about five inches long, I set sticks as marks to both sorts.

The spring-flax grew above one inch in twenty-four hours; but the winter-flax grew half an inch only.

The winter-flax was ready to pull three weeks before the spring-flax; and at pulling was scarcely thirty inches long: the spring-flax was about a yard and seven inches, so that it was longer than the former by thirteen

teen inches or thereabouts. The winter-flax branched or spread greatly into top, so consequently produced more seed; which indeed by the by is no recommendation.

The year following I made another small trial, which was attended with much the same consequences; therefore I was thoroughly convinced that winter-flax is not an advantageous crop.

The failure in winter-flax, may be accounted for in the following few words, viz.

It is to be considered that flax in its nature, is trusting to one leader, the top of which is exceeding tender, insomuch that if any thing wound it ever so little, it will grow no more, but strike or spread out into side-branches, which is of no other use than to bear the seed, being of a poor towy quality, therefore comes off in dressing as such.

If a fly, or what is commonly called a flax fly, happen to bite or wound the leader, or top of a stalk of flax, when at five or six inches long, it stagnates its growth, and makes it short, coarse and stunty, much resembling a young fir tree that has lost its leader. I found the frost had pinched the tender leader of my winter flax, which made it liable to the said ill consequences.

Another

Another thing is, that flax-land must be harrowed very fine at the time of sowing; therefore much wet weather in winter makes it cement, or bake together, which helps to bind the flax in the ground, and retard its growth. Any land is certainly better and fitter for a crop, that after a severe winter, is opened, broke up, or pulverized in spring. as it sweetens and proves of great utility thereto.

## C H A P. IX.

*On Flax among Potatoes.*

**I**F flax-seed be sown among potatoes set with the plough, as directed in this treatise, there is no doubt but it will answer very well, as the potatoes are set thin and in drills, having about eighteen inches between each drill, and about ten inches between each potatoe; by this the tops of the potatoes and the flax do not incommode or crowd each other, having room enough for each to flourish.

The potatoes set thus, will spread underground, and produce a far better crop than when planted thick, as the tops by this warm situation, draw one another up weak and tender; and nature being so profuse in throwing her bounty upwards to support so  
much

much useless top robs herself of the salts she ought to reserve to enlarge the potatoes.

In the year 1765, I received the highest premium in Ireland, for saving the most and best flax-seed among potatoes. I saved forty-eight pecks of good seed; only the land was subject to weeds, and had little pains bestowed to clean it, or I might have had as much more; the potatoes were very good also. I set them with the plough, as directed in this treatise.

As soon as the potatoes were planted, I sowed the seed the broadest way, at the rate of eight quarts to the acre; and in order to try experiments I raked and rolled some; but the most part of it I did nothing to after sowing, but left it uncovered, which proved the best crop; and though it may seem odd to my reader, yet it may be easily accounted for.

It is to be observed, that flax-seed being of an oily nature has a great attraction, in so much, that if a field be sown and not covered by harrowing or otherwise, the second day after sowing, it will be impossible to find a single grain, particularly if there fall in the mean time either dew or rain, or if it be sown in green mold. Each grain gathers the fine particles of earth about it,  
being



being candied (as it were) with mold, and much resembles a comfit; so that after the second day (as I observed) one loses it insensibly, and sees no more of it till it rises at the top of the plant, which it will in about five days after it is sown. The first time I found this out I was greatly alarmed, as follows, viz.

In 1753, I had a large field ready to sow on a Saturday, and having a call from home I sent a man to sow the field, and ordered it to be harrowed once in a place when sown. At my coming home I was told the field was sown, but about an acre of it left uncovered.

On Monday I sent to finish the field, but the servant returned in a great hurry, telling me that the birds has picked up all the seed; upon this I as well as the rest of the family, and some of my neighbours, went to see if it was necessary to sow over again.

We sought a considerable time and could not find a single grain; therefore had concluded to sow it over again; but by chance I found a grain by rubbing the mold between my fingers; this learned me how to seek for it, after which I found several grains candied with a coat of mold, and very slimy.

In order to see the result of this, I left it as it was without harrowing, and I never had a finer crop; I believe every grain grew, and all started (as it were) fairly together, and not one grain buried deeper than another; which is not the case when harrowed, for when it happens that in case some may be buried deeper than others and if dry within makes two growths, which is a detriment to flax.

CHAP.

## CHAP. X.

*The Management of White Flax, in Pulling, Watering, Grassing, &c.*

**T**HE name of white flax arises from the flax being pulled while green, not being suffered to stand till the seed is ripe or even till the boles turn brown or a dark colour, by which means the substance of the oil instead of arising to feed the seed is stagnated and remains in the skin of the flax, therefore it not only makes the flax tough, oily and filky, but makes it a white clear colour and drefs well.

Your flax pullers being aranged properly in order each person is to bind his own sheaf, make it no larger than you can hold in both hands, and as the bands (if made of good flax) will be damaged, they are generally tied with the small under growth of flax.

In the evening of the day it is pulled, or the next day at farthest, put the flax in water for being exposed in the sun it dries the oily nature out, and will make it of two colours.

The depth of water proper to water in, is three or four feet, begin to lay a layer a cross the pond and so continue laying the seed end uppermost so that no part of the flax except the seed can be seen, till you have filled the pond, but if one layer be not sufficient to fill the pond so that you may stand a minute on the flax without sinking over the shoes, you must lay another layer, in fact flax always rates best when it is put in pretty stiff.

The pond being thus filled, you must cover it close with thin sods laying the grass side downwards, or next to the flax, but if you do not cover all the flax, any left exposed to the sun will be of a different colour.

The flax whilst in the pit, must be trod every night and morning till you bring water over the sods, the more it is trod the better and evener it rates, when it is near being enough watered the flax will sink till the sods are under water.

When you think it enough watered, take a little out and dry it, when dry if the stalk  
or

or shove break and part freely from the skin when rubbed between the finger and thumb, it is enough watered, take it out and let it drip a day on the bank of the pit, then take it to some even grass field and spread it straight, thin, and clear of lumps, if it be scarce enough rated in the water it will take a longer time on the grass, when it has been about a week spread on the grass it must be turned with straight sticks or turning rods.

When you think it enough rated tie it up in sheaves, and let it get a sweat in the mow or stack before you break or swingle it.

Take care never to rate or water flax in water that comes from a lime stone quarry, or in hard water, or in a running water, that is where a current of water runs through the pond, for while the flax is soft the stream of water would wash the skin off, and lime water burns and spoils the flax, neither is hard water so good as soft water to rate in.

## C H A P. XI.

To the different Legislatures of America, and such other Gentlemen as have power, abilities and capacity to enforce, advise and contribute towards making Acts, forming Schools, &c. as are here set forth for the Improvement of Youth, and the Promotion of Agriculture and Trade.

**I**T is no longer a controvertible point whether the science of agriculture merits the distinguished attention of philosophical minds, and is the proper study of the most enlarged understanding, since the proof is beyond contradiction, that a judicious rural oeconomy is one of the chief supporters of the prosperity of a state.

We every day see instances in common life where the happiest disposition, most informed genius, superior talents, profound knowledge, even probity and virtue becomes  
useless,

useless, and are lost in the wreck of their possessors fortune, if he omits to regulate his domestic affairs by the rules of a wife and prudent œconomy.

The same observation may be extended to the wisest systems of legislature, and indeed the best political institutions will lose their efficacy and are incapable of defending a state from absolute ruin, unless a general scheme of œconomy sensibly executed provides for the subsistence of the people; either by finding within itself those productions requisite to the support of individuals, or exciting a spirit of industry to exchange with foreign nations the produce of manufactories for the necessaries of life.

There is something so seducing to the imagination in this last method, that there is danger of suffering ourselves to be deceived in giving it a preference to the former.

Through the medium of commerce manufactures invite into the country (where they flourish) not only the necessaries of life, but every superfluity of wealth and luxury.

However parsimonious the hand of nature may have been to such a country, it soon becomes more affluent than the most fertile soils, and increases in power and population almost miraculously. Yet if agriculture

culture remains neglected, all these advantages will be fluctuating and uncertain, whilst on the contrary where that is considered as the first object of national attention, it conducts directly and invariably to the end desired, without exposing us to the caprice of fortune.

A state that amply produces the sustenance of its inhabitants from its own bowels, has at least the advantage of independency; whilst the richest nation when obliged to have recourse to the assistance of foreigners for the necessaries of life, submits to all the vicissitudes of unforeseen events, and in many instances must be subservient to the cordial or unfriendly disposition of its neighbours.

The late king of Prussia, an excellent financier in many respects, and who had very enlarged schemes for augmenting public revenues, reasoned very justly on the established principles of his political system that agriculture is the foundation of the opulence and prosperity of a state. He encouraged in the strongest manner, and made several regulations in its favor, whose wisdom was unperceived till many years after; the constant attention he paid to the observance of these regulations, completed their salutary effects.

LIBRARY.

This

Division of Horticulture,

N. O. Dep't of Agriculture.



This monarch had understanding to know (and all financiers ought to be proud of receiving instructions from a master) that the most stubborn and infertile soils are melorated by manuring and ploughing, and that rich land is made still richer. He therefore insisted that farmers of his demesnes and proprietors of estates in lands should manure them sufficiently, and plough deeply and frequently.

When the king was expected to pass thro' the provinces, the gentlemen, the farmers, nay even the peasants thought they could not pay their court better than in placing a dung-hill before their doors.

A powdered courtier might sneeringly deny this œconomical attention a place among the royal virtues, but the sagacious monarch was sensible that these dung-hills spread over the fields would produce a crop of ducats.

He had the satisfaction to see after reigning some years the sands of the marsh of Brandenburgh, the heaths and morasses of Prussia covered with a plentiful harvest of the finest corn in the world.

The king his son supplied all that was wanting to bring this noble plan to perfection; and we have seen in a short space of  
time

time the sandy desert that extended to the very gates of Berlin, converted into good and profitable land.

How are we to account for the variation of rent in estates where the soil is naturally the same, situate in the same parish, and adjacent to each other, a variation so remarkable that a farm of a hundred acres is sometimes let for more than one of a thousand, and the produce very nearly answers that proportion, or how else should it happen that the same ground rises and falls in value so considerably at different periods. I have seen some estates sold for a third less than had been given for them twenty years before, and others whose purchase has advanced in my time to three times this estimation fifty years back.

The different degrees of skillfulness, industry, or neglect in the occupiers of these estates was undoubtedly the cause of the variation, and I am apt to believe it depends on our own diligence and industry whether we will double the fertility of our lands and by that means relieve ourselves from the state of dependency. However a great many of the improvements whether in agriculture or commerce depend chiefly on the laws enacted by the Legislature, or schemes set on foot by the leading men in a neighbourhood

bourhood who has abilities and judgment to plan and encourage them, such as spinning schools, weaving schools, or other mechanical arts, premiums, &c.

How easy would it be for a set of gentlemen who live a few miles only from each other, to take a house, provide a master and mistress to teach their black children to read and spin, which they are very capable of from three years old and upwards, and whom at present are brought up in idleness.

Also if a society of gentlemen were to form an academy and give premiums for the best invention in mechanics, for implements of husbandry, &c. the best growth or most corn, flax and hemp, from an acre, &c. &c. it would be laying a foundation for improvements.

Societies of these sorts are very common all over England, for which they raise money by voluntary subscriptions, and though many farmers may have an eye to the premium or a medal offered, yet ambition is the chief spur to make them strive for pre-eminence.

The dog-act which is herein pointed out, would be a sufficient fund for any state in America to enable them to give copious premiums, if gentlemen did not chuse to raise

money by subscription; and as the money raised by this act would return back among land-holders, no doubt but the act would give general satisfaction.

CHAP.

## C H A P. XII.

A few hints humbly offered for the perusal of the Legislatures of America, on a general act of Congress to prevent run-away servants.

**B**Y advertisements and rewards offered daily in the news-papers, &c. we find that run-away servants, for which money has been advanced, is a growing evil and if possible ought to have a stop put to, as the master is not only deprived of his property but such vagrants when at liberty, mostly turn out to commit depredations on the public.

Suppose

Suppose an act from the Congress was to run nearly in words or substance as follows :

Whereas it appears to the congress assembled, &c. That a public evil has long prevailed, and still seems to gain ground, that servants for whom money has been advanced, and they bound to serve a certain number of years to repay it by their labour run away from their masters (which is the same thing as robbing them of so much cash) besides putting them to great trouble and expence in advertisements, rewards, &c.

In order to put a stop to this evil as well as to prevent as much as possible such loose vagrants from stroling about the country to commit depredations on the public.

Therefore be it enacted from the authority aforesaid, That from and after the first day of

17

any

person who takes a servant for whom he advances money, and which servant is to serve a limited time, in order to repay it, that it shall and may be lawful for the said purchaser of any servant to set a mark on the back of the arm, under the sleeve of the shirt, imprinted letters signifying the master's name and county in which he lives,

the

the year of our Lord in which he was indentured, and a figure to signify the years to serve.

And be it enacted by the authority aforesaid, that the said mark or letters shall be made with the point of a needle, by pricking or raising the skin (which may be done without pain, or even without drawing blood, if the performer be dexterous) after the letters are made, bruise gun-powder fine and rub it over them until it works under the skin, which will turn the letters all black and legible, and which time or art will never efface.

The mark or writing will stand thus :

*John Davis*, St. Mary's co. 1784. 5

Be it further enacted, that if a servant thus marked, run away to any other state, and offer himself to be hired or ask for work, &c. it shall and may be lawful for any one present to examine his mark, to know whether he be a bound man or free ; if it appears from the figure of years to serve, when compared with the present year, that his time is not expired, it shall and may be lawful for the constable of the parish to hire two men as a proper guard to conduct him back to his master, who must

pay the men wages, other expences and all reasonable charges.

And be it enacted by the authority aforesaid, that if any one who indents or hires a servant, and if the said master neglects or omits to have the said servant marked according to law as aforesaid, and if the said servant run-away, the master of such servant, shall not demand him back but lose the benefit of said servant, and also forfeit the sum of fifty pounds, to be recovered by law, one half to the informer, and the other to the poor of the parish where the master lives.

It may seem a sort of cruelty to make marks in the skin as above, but it is no such thing, for it is often done by sailors themselves before they go abroad, that should they be drowned they may be known by their name on their hand or arm. I have seen a mark that has been very legible after fifty years standing.



## C H A P. XIII.

A few Hints humbly offered for the perusal  
of the Legislature of America, relating to  
a Dog Act, &c.

**T**HOUGH I am no great politician,  
yet I wish so well to the constitution  
of America, that, so far as I am capacitated,  
I would most willingly lend a hand to point  
out any laws that might be of utility to its  
inhabitants.

And I flatter myself, that such of my readers as are impartial, will think with me, that a dog act would be of great utility to the public; especially after they have been told the immense sums it would save to the industrious part of mankind, and also the great revenue it would raise to the public funds

funds out of the pockets of none but such as could well spare it; as any one who found himself oppressed could ease himself by parting with the cause thereof.

Secondly, it would lop off a great many useless animals; and such as are of benefit would be preserved for their merit and the owner's interest. Neither ought a poor man to keep a dog if he be not well able; it is inhuman to keep any dumb animal to starve, which many must, did they not eat the poor children's bread and butter, or turn out to worry sheep.

It is always allowed, that what will keep a dog will keep a pig; and I think I need not say which would be found the most profitable to the poor man's family at Christmas, a dog for his children to play with, or bacon to fill their bellies.

I may be asked, why, cannot a poor man see these follies himself? I answer no; because fore-cast does not always get the better of folly in this, no more than in every other degree in life; there is a natural tenderness and indulgence, in every parent towards their children, as well as in ladies for their lap-dogs; pardon the comparison.

Thirdly, it will appear, that there will be yearly, at least a half million of money saved, that will center among the poorest  
sort

fort of individuals; and also 125,000*l.* sterling, which will go to the public funds, out of the pockets of the abler fort.

In order to reduce this to some sort of certainty, it may not be amiss to make a computation, how many dogs may be in America, and (upon such an act passing) how many useful ones may be kept to pay tax, and how many of the reverse, destroyed for a saving. This cannot be done better, than by first making a computation, how many people are supposed to be in America, which is at the least 5,000,000.

There is nothing that can give a better idea of the increase of people, than the multiplying of new houses; neither is there any one object that attracts the eye of a traveller, or dwells upon his memory more, owing perhaps both to the largeness of the object, and to the taste of building in the present times.

Few men have travelled more than I have done, and I have made my remarks very minutely, upon the looking over of which, and comparing my journal with all the observations and computations I can make, I am clearly of opinion that there is daily a great increase of people in America.

This may occur to any one who lives in any part of the Continent, if he only takes

notice of the many new houses that are daily building in every town and city, together with all the farm-houses and gentlemen's seats that are starting up in the middle of every new inclosure or clearance that are rapidly going on in all parts of America.

Neither are there any houses that stand long empty, being immediately tenanted.

Were not this the case, architects, or proprietors would soon stop building; but it is the great demand that makes them push forward the work with spirit.

Some will compute five, and some four people in a family; but to avoid fractions we will allow five people to a family.

This makes one million of families; and I think we may justly compute one dog to each family; as there are more families that have two or three dogs in them, than what are without; not to speak of gentlemen that keep hounds, who have perhaps more dogs than people.

Therefore I say, we may almost with a certainty, set down at least one million of dogs in America.

The next question is what each dog will take in a year to maintain him; which I think we may justly set down twenty shilling; for if a gentleman in England (and victuals in America are dearer) sends a  
whelp.

whelp into the country to be reared, he never pays less than half a guinea or fifteen shillings, till he is a half year or three quarters old, and sometimes a guinea, except he sends him to a tenant who is under an obligation to him, in this case he pays perhaps nothing, but then the consumption of victuals is no less, for the dog eats the same as if paid for.

As to gentlemen's hounds, grey-hounds, pointers, and my lady's lap-dogs, they cost a great deal more.

We will suppose Pug only to destroy one pound of meat in the day, reckoning bread and butter, tea, roast-beef or what is stirring, and call that only three-pence, tho' ready dressed and without a bone, (because it would be very imprudent to give poor Pug bone to break his teeth.) Now three-pence per day, will be found to amount to four pounds eleven shillings and three pence sterling a year.

This to be sure, is nothing in a lady's pocket; no more is dirting or wearing her aprons, &c. any great matter, because she can mend them herself; which shews good housewifery.

But tho' such things be not felt by people in affluence of fortune, yet be assured it hurts the public in general.

The

The greater the consumption is, the higher is the price in the articles thereof; and a half-penny, or a farthing in a pound, in either meat or bread, is very sensibly felt by the lower sort of people.

If one million of dogs consume annually twenty shillings sterling each, the sum amounts to one million of money sterling. Suppose an act of assembly to pass, that each dog should pay five shillings sterling yearly, the sum would amount to 250,000l. sterling a year.

But upon such an act's taking place, we will suppose all the useless dogs destroyed, and tax paid only for shepherds dogs, farmers house dogs, and gentlemen's dogs, which might perhaps reduce the number to one half, that is one to every two families, then the sum raised, would be yearly one hundred and twenty-five thousand pounds, to go into the public funds, which would all come from the pockets of such as would be well able to pay it; and as I observed before, if any one found himself oppressed by the tax, he could quickly ease himself by dispatching the dog.

The said half million of useless animals that would be put away, reckoning each to destroy twenty shillings worth of victuals every

every year, this would be a saving to the nation of half a million of money, and this too from those of the poorest sort.

Though these calculations are only guess-work, yet the probability is so great on their side, that it almost amounts to a certainty.

Perhaps some of my readers may imagine, that I have some interest in writing upon this subject; but I will assure them I have not, so far from it, that were such an act to take place, I should in all probability, pay for two or three dogs, being very fond of those animals, so far as they are useful; but I have no notion of keeping a parcel of yelping curs for no other use than to eat the poor's bread, bite horses heels, worry sheep, run mad, &c.

And since we cannot defend ourselves, and rest securely at home, without a respectable standing army, and since that army cannot be raised nor paid without money, and money cannot be raised without taxes, let them be levied upon such superfluous articles, as reason clearly shews is most for the public good.

Was this act to pass, and each dog to pay five shillings a year, there is no doubt but this would raise a fund of at least 125,000l. sterl. a year, which tho' very considerable, is nothing in comparison of the great saving, which

which could not be less than half a million of pounds sterling per annum. Any saving plan enforced by an act of assembly, is indisputably as beneficial to the public, and reflects as much honor upon the member that promotes it, as one that brings in money to the public funds; and such a dog-act would be found to do both.



## C H A P. XIV.

*Upon limiting the Size of Farms.*

**I**F an act of Assembly was to pass, in order to put a stop to the monopolizing of land, it would doubtless have a great tendency towards making improvements flourish, and plenty abound throughout America.

It would then be in the power of every one, to make the most of his ground; no corner of it could escape his eye, and lie barren. He would improve every part, and fill it with one profitable crop or other.

It is the nature of man in all stations of life to be aspiring, and very often to grasp at what he is not well able to manage.

But in no case is the misfortune more sensibly felt, both by the party concerned, and by the public in general, than when a farmer holds too much land.

But

But suppose the farmer can struggle thro' and pay the rent ; or on the other hand let the land lay uncleared ; yet the public is still a loser ; as the earth does not produce half the increase she would do, were she managed to the height of perfection.

A restraining act would lay the foundation for plenty ; and only such that can make the people happy and honest.

May we not compare a kingdom to a family ? Is it not the first care of a master to provide bread for his family ? If he neglects this, can he expect that his servants will be honest and industrious ?

Is not the legislators the fathers of the people ? Are they not impowered to enact such laws as may appear to them to be most for the public good ? Is there any that ought to draw their attention, before such as would satisfy the first law of nature ?—Hunger will break through stone-walls.

Wherein is the good of all laws which ever have been enacted in England to prevent forestalling ? Do they satisfy the people's craving appetite with bread ; or make it one jot cheaper ? Do they add one peck of corn to the mill, or tend towards making one blade of corn more grow.

It is inconsistent with reason they should. In short, were these laws put in force, they would have the contrary effect; because they would cramp trade, which, like water, is the best leveller.

What would London and all great sea-ports do, were it not for the corn-factors, wholesale butchers, drovers or dealers in cattle, &c? It is such as these that keep an equality in prices throughout the kingdom. They buy where such commodities are low, and sell where they are high. Is it to be supposed that a farmer or grazier, who has perhaps no more than twenty quarters of corn, or three or four fat cattle to sell, and who lives a hundred miles from London, could go there to sell them? And suppose he did, must he not lay a greater price upon them, to answer such extraordinary expences? And would not this most sensibly effect the lower class of people?

A merchant who deals largely in any such commodities, certainly can afford to sell lower in price, than he who must be at the same expence in attending the markets with a trifle.

The merchant's warehouse may justly be called a magazine for the poor, where they can apply for such necessaries as they stand

in

in need of. Neither have the poor cash or means to provide long before such things are wanted.

It is the merchant's interest to lay in his commodities in the time of plenty, and to sell out in time of scarcity. Is not this a natural policy, that will keep things most upon an equality? Was not this the case with Joseph? He filled his stores in the time of plenty, and sold when they grew scarce, for he did not give any more than our merchants do.

Most of the commodities necessary for life are perishable, therefore under a necessity of being disposed of before they spoil. Should any one be so silly or indiscreet, as to keep them too long, he is punished by his own folly; but this very seldom happens.

The merchant with a capital and warehouse proper for the occasion, is a ready market for the farmer to fly to, for the sale of his crops. Had he not such a resource, he would be deterred from sowing, which would be the first step towards a famine.

These are all consequences which must naturally happen, were the acts to prevent forestalling put in force. For every person that buys before the goods are brought to market, is in reality a forestaller.

I remember

I remember reading many hints in the news-papers, relating to fat cattle being returned from the markets in London to the country unfold; and at the same time wishing for such laws as would enforce them to be sold, and not returned.

Certainly such authors judge as superficially of those matters, as the old-fashioned farmer, who for a year or two past, has stuffed the papers with his silly arguments, wherein he takes upon himself to prove to the public, that it was the inclosing of commons, together with turnip-husbandry, which was the cause of the dearthness of provisions in England.

In one of his letters about Martinmas, he thanked Providence for a mis-crop of turnips. For says he, as this crop has failed, farmers are obliged to bring their sheep and cattle to market; which has lowered butchers meat greatly. But, perhaps he is one of the tribe of sleepers, which only want food one half of the year; the other they live in a state of insensibility without it. His short-sighted understanding could not find out what would be the consequence; that the more they killed in autumn, the fewer remained for slaughter in the spring; that we cannot both eat our cake, and have it.

That

That when winter-food falls short, (of which turnips are the best) the cattle must walk to the market with their bones half loaded with flesh; consequently the poor must go with half a belly full.

The old fashioned farmer's reasoning upon the inclosing of commons, is much the same, for he does not see the many thousand acres in the kingdom, which in their wild state will not keep a rabbit on an acre; whereas, if inclosed and improved, they might be made to keep four or five sheep per acre. And certainly the more live stock there is bred in the kingdom, the greater chance we have for plenty; because in the end, they must come to the butcher, except turnips and other winter food fail. Then indeed the cattle may die for want, and the poor may sew up their mouths. There has been many acts passed in England to prevent foretalling, but scarce any put in force.

I mention these hints that America may by such experience keep from enacting any such restraining laws, but leave trade open and the industry of man will keep it level.

It is past a contradiction, that the more waste barren lands there is inclosed and improved, the more stock and corn it will raise; all which tends to plenty; because every article that keeps nature alive, springs from  
the

the earth; consequently it ought to be our first care to make her produce abundance.

But to return to the farmers, salesmen and butchers; (these are represented as unmerciful men by authors in the news-papers who want some laws to make them kill the cattle when brought to market, whether it can be consumed or not.) I humbly conceive such laws would be very pernicious, and put a stop to the balance of trade; which instead of going on smooth and even, would be continually upon a flux and reflux. It would be like a weigh-pole, which children ride upon, always up and down, rising and falling; because some weeks there would be twice as much cattle in the market as is necessary for the inhabitants to consume; therefore the meat would be sold very low, or thrown away, and perhaps both.

The next market-day, there might not be half the quantity of cattle as was wanted, consequently the meat would be double the price. In this case the rich could buy, but the poor might starve.

Experience shews the butchers, not only in London, but all over the world, how much meat each market will take off.

Each one knows what he killed last week, which was perhaps as much, or more than he

he could sell; therefore he will kill no more lest it should lie on his hands.

Before such laws should take place, it would be necessary that the farmers should be endowed with the spirit of prophecy or fore-knowledge; that he in the north might know on what day he in the south, at several hundred miles distance, would send his cattle to the market, lest they should clash with each other, and over-stock it.

In short, I am of opinion, that it is as necessary to send cattle out of the market, when over-stocked, as to bring them to it when scarce; consequently the drawing farms near London, or any other great market towns are very useful, and may be considered as a sort of make-weight, ready to throw into the rising scale, to keep a balance.

There is another set of people, who exclaim against farmers for withholding their cattle from the market; as if that contributed to the dearth of provisions.

But these notions, like the rest, are ill grounded. Every one that judges of things rightly, must know, that it is not the husbandman's interest to keep back from market his cattle, after they are once fat; for when they come to the height of perfection all the food they eat is thrown away; and the



the interest of the money is sinking. It is the interest of every one in trade to make as quick a return as possible; therefore it is plain that it is the graziers interest to send their cattle to market as soon as they are fat.

And on the other hand, the public can lose nothing by the cattle being kept away from the market till they are fat; because every pound they gain in weight is adding to the public fund of plenty; the more pounds a bullock gains in weight, whilst he stays from the market, consequently the more bellies he will fill when he arrives and is sold.

Upon the whole it is bad policy to cramp trade in any branch, much more in that which concerns the craving of nature.

The most prudent step would be to lay a foundation for plenty, and there is no doubt but that nature will produce enough to satisfy her dependents. As to things being dear, it is a natural cause, which arises from money being more plentiful, and from an increase of inhabitants; and not from any real want, or decrease of the usual market provisions.

It is not improbable but that in process of time, wheat may rise to five shillings a peck, by gradual steps, for the same reason as it  
has

has rose from one penny to sixteen pence a peck sterling; and every other commodity in proportion.

CHAP.

## CHAP. XV.

*On the great Advantage that might accrue  
from Rabbit Warrens in America.*

**I**N my travels and observations through a great many parts of America I find many spots of land, particularly adapted, and proper for rabbits, and am much surpris'd so profitable a stock should escape the farmers attention so long, but it must certainly be for want of knowing their value or how to stock or manage a warren.

The perfection and utility of a rabbit warren are many, first they produce a wholesome delicious food all the year round, for the use of mankind.

Secondly, their down or fur are valuable for the hat manufactory, and of late years sells high.

Thirdly,

Thirdly, the capital for stocking a warren is a trifle.

Fourthly, poor land that is scarce fit for any thing else will do for them.

Fifthly, they are easy managed and as easy fed.

The rabbit generally breeds every month in the year, and will bring forth from four to ten at a kenneling or litter, consequently their increase is prodigious. The doe no sooner kennels (as it is called) but she runs immediately to the buck, who strikes her (a term for copulation) and that day month she brings forth again.

When the doe wants to kennel she goes to a distance, makes a hole in the earth, and therein kennels; she makes up the door (as it were) by covering the mouth of the hole with sand, this is to prevent the buck from finding them while young, for if he does he is sure to kill them.

Being so great breeders a few couple will stock a large warren in a year or two, when a warren amounts to a thousand couple it is worth a hundred pounds sterling a year clear profit, besides sufficient to increase the stock twenty or thirty pounds a year; there are many sorts of rabbits, but the best to stock a warren with is the grey colour, black, white or spotted are what is generally called the

the tame rabbit, which is not so good in the field breed.

Rabbits delight much in a high sandy land, and if it be so poor that nothing else will live on it, it is the better for them, for had they good ground and much grass they would over eat themselves, and always be poor, being a very ravenous animal, which is the reason that they are fatest in frost and snow, when little meat is to be got, though little meat will do, yet when a snow covers the ground they must be fed, either by scattering bits of hay over the warren, or branches of trees, and strewing them over the ground, the bark of which they are very fond of.

The method to stock a warren is, before you turn the rabbits out, throw up little ditches across the warren, from east to west, so that the face of the bank may front the sun, and as many couple of rabbits as you intend to turn out, make so many holes with a spade as far as you can reach, running them horizontally rather inclining downwards; in the evening put a couple into each hole and before morning they will dig them deeper, and as they increase will make fresh holes according to the increase of numbers.

There

There are two methods used to take them when wanted for market; one is with a ferrit and a purse net; the method is to muzzle the ferrit and turn him into the holes, and lay the nets over all the mouths of the holes thereabouts; when the ferrit comes at the rabbit and scratches it, which makes it immediately bolt out, and is entangled in the net, the man who stands ready and without making any noise, immediately seizes the rabbit and breaks its neck, except it be a doe with young, then he lets her go. The purse net is made much like a cabbage net, only wider at the mouth, perhaps about two feet over, it is made of of common pack-thread.

The next method to take them is, with a long net about a yard wide, and long enough to reach across the out-skirts of one side of the warren; this net is to take out layers or stragglers; it is set up with little forked sticks stuck in the ground, the upper part of the net is hung on the fork, and the under part lays loose on the ground; the net is set about an hour or two after dark, in order to give the rabbits time to go abroad, being thus set, and at the out side of all the holes the man goes with two or three little dogs and hunts the rabbits, which makes for the holes, but the net being in the way  
they

they bolt against it and are entangled, which gives the man an opportunity to take them.

There is not ten miles between New-York and Virginia, but what there is a proper spot of land for a rabbit warren, such as is sandy, hilly, and wore out or impoverished not being fit for other stock or any crop. And I need not say of what utility it would be to individuals to have such a fund of plenty dispersed over the country, and that raised from the worst land.

## C H A P. XVI.

*How to set Potatoes in Drills with the  
Plough.*

**T**AKE any poor worn-out stubble-land which may be intended for fallow; plough it in autumn in two furrow ridges; that is, lay two furrows back to back, thro' the piece you intend for potatoes.

By doing this it will lie dry all winter; and in the beginning of March (or sooner, if the weather permit) harrow it across, and it will fill all the furrows level; after which plough it, either across or lengthwise, no matter which, provided the land be all cut and turned up; then again harrow it well and fine; and just before you intend to plant potatoes, plough it again  
into



into two furrow-ridges, lying back to back, so that they must close at the top; but not so as to let any mold fall into the opposite furrow.

Being thus laid in ridges, and the furrows all open, in every furrow set a row of potatoes, each about the length of a man's foot asunder; then take the dunging-baskets and drop a piece of dung, about the size of your fist upon each potatoe; by this method a little dung will go a great way, and a few hands will set a great deal in a day.

When thus set and dunged, go with the plough and split the ridge in two; so that what was the furrow, will now be the ridge, and the ridge will be over the potatoes; so that they will come up in rows through the middle thereof.

In summer you may go with the plough up and down every drill, to cut the weeds and earth up the potatoes.

By this method it may be well termed a potatoe-fallow, as it may be ploughed always when the weeds grow.

In taking them up, go with a plough, and turn the whole drill over; by which means all, or most of the potatoes will appear above ground, and be easily gathered; but if a small part of them remain ungathered, they will all be found by harrowing, or the next ploughing.

This

This is a very expeditious way, both in setting and taking up, and it ought to be every man's study to work his land with as little expence as possible.

The next easy way to set potatoes with plough is in grass-land, viz.

Harrow the sod well, both length and crosswise, to scratch, wound and mangle the grass-roots, in order to set them a rotting; which they will do speedily when turned up.

Then begin and plough a furrow eight inches broad; in this set a row of potatoes a foot-length asunder; and on every potatoe drop a lump of dung, about the bigness of a man's fist; then plough two furrows, and in the third set another row; so that there will be a furrow between every two rows or drills through the piece. When it is all set harrow it well; but take care not to turn up or disorder the fods.

When the potatoes are come up a little above ground, go with a plough up and down every drill, and lay the loose mold, with the harrow raised, to the stem of the potatoes; but be careful not to disturb the sod. When they are taking up, turn the drill or furrow with the plough; by which means they are easily gathered.

The

The third method of planting potatoes, is with spades, as they do in Cheshire.

They dig all the ground, and bury the dung about four inches deep; as if they were trenching in a garden; after which they go with setting sticks, make a hole, and drop the potatoe in; then they rake the ground to fill the holes.

They are dug up with spades also; but this is expensive in comparison of setting with the plough.

However they take care not to bury the dung too deep; as also not to throw up any bad earth to spoil the land, which is too often the case in Ireland.

## C H A P. XVII.

*Remarks on setting Potatoes with the Plough.*

**M**E thinks, I see my brother farmer turn hither in great hurry, to see my reason for advising him to set his potatoes with the plough; and not to keep him long in suspense I plainly tell him, that it saves both men, money, and dung, besides improving his land. These are considerations well worth his attention.

First, it saves men; as one man and two horses, and five or six boys, will set as many potatoes in a day with the plough, as seventy or eighty men could set with spades.

Secondly, it saves dung; as one load will go as far as four.

Thirdly, none of the dung is lost by being buried in the trenches; which is evidently

ly the case when trenched in the old Irish method; as a lump is dropped upon every potatoe.

Fourthly, potatoes got thus, are nearly clear gains, as they may be sown upon land that is intended for summer-fallow, and such land will absolutely receive more benefit from this potatoe-fallow, than if nothing had grown; for what with hoeing with the plough, and what with the tops smothering the weeds, &c. the ground is made clean and mellow, and in fine order for a wheat-crop at Michaelmas.

And there can be no disappointment, as potatoes can be ploughed up speedily.

All these reasons, I hope will prevail upon the farmers, or people in general, to follow this cheap and easy method; as nothing concerns a farmer so much, as working his land with the greatest dispatch, and the least expence that reason can devise.

As I have travelled between England and Ireland, for near twenty years past, I have had an opportunity to remark how the different markets ruled in the two kingdoms; and I always found that in the cities of York, Lincoln, and in large towns, such as Leeds, Wakefield, Doncaster, Sheffield, and in short all over England, where it is customary to set the potatoes with the plough, they always sell lower than in Ireland. This

This fact is incontestable ; altho' it is well known, that, in these places, land is higher and so is labour of more value.

This shews they must have a cheaper and easier way of coming at them, or they could not be afforded at a lower rate. Further, the method of setting with the plough is so easy, that a man may teach in an hour as many people as could look at him.

The Expence and Profit of an acre of *Potatoes*, raised by the Plough, as directed under that Article.

	l.	s.	d.
To twenty quarters of potatoes, at 9s. per, or forty stone	-	9	0 0
<hr/>			
To three ploughings, at 2s. 6d. each if with one man and two horses	-	0	7 6
To two harrowings	-	0	2 6
To one quarter of potatoes for seed, at 9s. per	-	0	9 0
To six loads of dung, at 2s. per	0	12	0
<hr/>			
		1	11 0
		Brought	

# OF HUSBANDRY. 89

Brought over	-	-	1	11	0
To six boys or girls, each at 4d. per day	-	-	0	2	0
To two men, to see they be right- ly fet, and to help to lay the dung	-	-	0	1	8
To three times hoeing with the plough	-	-	0	6	0
To ploughing up	-	-	0	2	6
To eight boys or girls, at 4d. each	-	-	0	2	8
To carriage home	-	-	0	2	0
To land-rent	-	-	0	15	0
Total expence			3	2	4
Clear profit			5	17	8

CHAP.

## C H A P. XVIII.

*Remarks and Illustrations on the foregoing  
Table on potatoes set with the plough.*

**I**N order to encourage the farmer to fall into this valuable piece of husbandry, I have allowed him in the foregoing table, to be well paid for his trouble; and yet he sees the profit amounts to upwards of five pounds seventeen shillings an acre.

Were I to be very minute, the profit would be much more; I have very often known from fifteen to twenty pounds made on an acre.

If I was to do strict justice to this valuable crop, it should not be charged, either with rent, ploughing or dung; as it is past contradiction, that the land, after this would  
be



be better for a crop of wheat, the succeeding year, than if it had been fallowed in the common way.

It is also to be observed, that I have charged the potatoes only at nine shillings a quarter, which often fell for much more.

These are all plain and impartial reasons; and I hope will encourage the farmer to pursue this valuable method.

There are a great many parts of England that follow this method; therefore such may overlook this chapter, and leave it for those that know nothing of it; which are a great many parts both of England, Ireland, Scotland and Wales; so excuse me if in other cases I mention sometimes what is known to some farmers, as it may be strange to others.

## C H A P. XIX.

On setting Potatoes, as in Ireland, on Ridges  
by Trenching.

**T**HE Irish method of setting potatoes, is in some cases very useful, and the cheapest of all others, except the plough; and would be much more valuable in all cases, if they were cautious not to make the trenches too deep.

It is a very easy method and quick too; because not above one-fourth of the ground is dug; and few farmers have fields or closes but what have waste corners, where the plough cannot come; as also backs of ditches, &c. which if he lays on a good coat of manure, he may set potatoes in, and when they are dug up, it will make good compost for his land.

It

It is also a good method to break up tough, stubborn, rooty or rocky land:—because this is a quick method of working it, and the crop will meliorate it to that degree, that it may be ploughed the year following with ease: as to the executing of this method, nothing is more easily learned, viz.

When you have fixed upon a piece of land for this purpose, you must lay out your ridges in breadth according to the depth of your soil: that is, if the soil be shallow, make your ridges about four feet broad, and the trench about two feet and a half wide.

This is in order that you may raise earth enough to cover the potatoes, without entering upon a dead poor soil.

But if your under stratum be good, you make the trenches deep and narrow, which will save land.

Sometimes it happens that a rich earth, or even a kind of manure lies within the reach of this trenching: when this happens it is a treasure.

Cover your potatoes about four solid inches thick:—being thus learned and determined as to the depth and breadth of the ridge, you must stretch a line and cut it out, then spread your manure straight and even

on the ridge, leaving the breadth of the trench without any.

After this lay on your potatoes at about nine inches from each other : then dig the trench, and turn the first sod-grafs downwards close to the edge of the ridge : and what the sod does not meet to cover, finish covering it with the second spit ; but leave the shovellings at the bottom of the trench, till the potatoes are ready to peep above the ground ; then shovel up the loose earth, and cover all the ridge thinly over.

This will check the growth of the top, and cause the potatoes to spread under ground : this is a better way than to finish the ridge all at the first setting, as some will do.

If you have much old grafs or rushes, &c. on the ground, or that the sod is tough and likely to take much time to rot : in this case it is better to trench the ground in December or January, and in March set the potatoes : make holes with the planting-machine : but the pegs must be thicker, in order to make the holes wide enough to let the set to the bottom : or for want of this machine, you may take a setting flick, like the shaft of a spade, and fix cross-ways a strong peg about four inches from the bottom

tom : this is to set your foot on, in order to sink the setting-stick more easily.

Make the holes about nine inches asunder : in them drop the potatoes, but no deeper than just to fall between the two fods : for they love to spread along the firm earth : rake or harrow to fill the holes, then shovel the trenches and finish the ridge.

Though rotten dung is doubtless best, yet if the ground be trenched early enough, long dung will make a good shift, and may be better used in this than any other crop, as it will have time to rot, and will keep the two fods open, so that the potatoes may have room to run and spread between them.

In the county of Leitrim, there is a great deal of wet rushy land worth little ; and I have seen very good potatoes in it, from no other manure than cutting the rushes, and laying on the ridge, and making it no broader than the furrow or trench, so that the fods meet. They trench it early, and make the ridges only three feet wide.

However, if they doubt the land will not bring a good crop thus, they may be sure of a good crop, if they only give it a thin covering of either lime, marl, or lime stone gravel, along with the rushes : but the sooner this manure is laid on, (in order to grow  
to

to the sod and rot) the better, and the greater certainty of a crop. Such land generally gives a good crop of bear or wheat, after the potatoes are dug out.

## CHAP. XX.

*On different Sorts of Potatoes.*

**T**HERE are various sorts of potatoes, more perhaps than I am acquainted with; however the following is a list of the various sorts which I have cultivated.

First, white ruffeting; this is a round potatoe with a rough skin.

Secondly, red ruffeting; this is a red round potatoe with a rough skin.

Thirdly, the large Irish white smooth potatoe.

Fourthly, the large round red potatoe.

Fifthly, the culgee.

Sixthly, the early-wise potatoe.

Seventhly

Seventhly, the white kidney potatoe.

Eighthly, the Jerusalem potatoe.

Ninthly, the bull's eye potatoe.

The bull's eye is a large red potatoe, which will grow and yield a plentiful crop on poor ground; but it is a very bad eating potatoe: it tastes not much unlike a yam.

As they produce a plentiful crop, some gentlemen sow them in Ireland, and particularly near Waterford, and the county of Kilkenny, where they feed and slaughter many swine for exportation.

The Jerusalem-potatoe is long, and full of eyes, and is of a great produce; each eye makes a set; as indeed so they do in every other potatoe; for the Irish always cut them in sets, which is a good way, though not generally practised in England.

The culgee is a very sweet eating potatoe, one side is generally red: in their growing they do not spread and grow from strings, like another potatoe, but stick to the bottom of the stalk like a bunch of grapes, and rise to the surface, insomuch that often the red side will be above ground.

I have had a fine crop of them, they are very fond of a well-tilled soil, therefore the drill method of setting them with the plough in broken land suits them best.

The



The wife potatoe is of an early kind; they produce a small top but no blossom, and the top withers early; they do not grow very large, are of a light red cast full of eyes; they are of a great increase, but a great many of them small, they are very useful for an early crop; as they are dry and ready for use two months before others; but it is not a good keeping potatoe.

The large red Irish potatoe is of a good kind, and particularly on strong cold land, where it thrives best; it grows large and produces a good plentiful crop.

As the Irish poor eat potatoes instead of bread, these are the best of all others for that use; they will tell you, that they will lie longer than any others on the stomach; so consequently are of a sound firm texture; their colour is of a deep red, and of a round shape; they have a gross strong stalk or top.

The white-ruffeting is a very pleasant eating potatoe; but I do not think them good yielders: neither will they thrive well, without rich well tilled land.

The red ruffeting is of a hardy sort, and will grow almost on any sort of land; but they do not produce many at a root: neither are they large, so consequently are bad yielders, and not a desirable crop, where other seed can be got. The

The toad-back is nearly a-kin to the large Irish potatoe, only not so large: the skin is almost black and rough like a ruffeting:—this is a sound, dry, firm, good eating potatoe: it is fond of good fresh land, and agrees very well with the Irish method of setting on lay-land, as directed in the chapter that treats thereon.

The kidney (or by some called Spanish) potatoe is of an oblong shape, a white colour, with a yellowish cast: it is a sweet good-eating potatoe; but not so dry, or mealy as some others, therefore not so proper to be used in the place of bread, as is the case in Ireland) but it is very good to be chopped up, and used as sauce to meat: it is an exceeding good yielder, and by nature seeks its food deep; and therefore requires a good covering with mold when set; it will thrive well on a strong deep soil; but requires to be well tilled.

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CHAP.

## C H A P. XXI.

*The Management and Use of Vetches.*

**V**ETCHES are a very useful good crop, and particularly for winter or spring-feeding for sheep, or indeed other cattle; and what adds still to their value is that they want no dung or manure.

They may be sown, and will grow upon land that lie uselefs all winter; and what is more, they add to the fertilizing of such land; neither does a farmer pay one penny more rent for his crop, than he would for the stubble standing on the said land.

The chief use of vetches is to supply the farmer with winter-feeding on his stubble-lands, that would otherwise be waste, from

the time the crop is reaped, which is about September, to March or April following: in this case they are very valuable; as what benefits either the land or the farmer gets by them is clear gain.

But as useful as vetches are in this case, they are too inconsiderable a crop, to stand all summer, and take the year's rent upon them; except in very poor, sandy, or gravelly land, which is generally of a low rent.

The better the land is which they are sown on for the winter-feeding, doubtless the better herbage they will make; also the sooner they are sown in autumn, (so as to have as much benefit of the declining summer sun as possible) the better and stronger your herbage will be; therefore the more cattle it will support; and if the land be a rich, deep, strong loam or clay, it will produce good herbage; though it is not proper for seed; because the richness of the soil would force it all into straw, but little corn.

The method of those that would sow vetches upon their waste stubble land, for winter-feeding must be this:

Take any sort of land that has been under rape, cole-feed, turnips, or any sort of corn, and as soon as the crop is reaped and off, plough the stubble under; begin in the middle of the ridge, and raise it as high as possible

sible with the plough, (by gathering or taking it up) in order that it may lie as dry as possible all winter; which will add both to the goodness of the crop, and the cleanness of the cattle's feeding.

This done, sow your vetches at the rate of ten stone to the English acre; then harrow them in; after this water-furrow and gripe-crofs your ridges, in the lowest places of the land, leading to the side drains; in order to give a ready passage for the winter's water when it falls.

If they be sown at the latter end of August, or the beginning of September, you may turn your sheep in, about the middle of December.

Eat them all winter, and in the spring the land will be in fine order for oats or barley.

Some chuse to preserve their vetches till spring, to feed early lambs or weathers on, which is very profitable: others will eat them all the month of May, and then give the land a couple of ploughings, and sow it with turnips or rape at midsummer: this is also a good way.

Others again will fallow all summer, after the vetches are eat off; which will greatly enrich the land; and then sow wheat on it in autumn.

If you intend your vetches for seed sow them in February, at rate of six stone to the acre ; and harvest them as peas. But if they be intended to plough in for dung, (which is the worst way, as it is better to make dung by eating them on the ground) sow them in March, at eight stone to the acre ; and plough them in, when full of blossom, as directed for buck-wheat.

If you intend this crop for fodder, by the way of hay, they must be mown before they are ripe , that is, when the straw is full of juices and sap.

By taking them thus green, when the straw is full of sap or rich substances, the grain does not shake out ; and the horses eat straw and corn all together ; which is excellent fodder

In this case the hay must be made by the same method as any other hay : only by being cut in this state, the straw will be particularly full of sap ; therefore you must be careful that it neither rot nor mold.

The quality of vetches is such, that they will grow almost on any sort of land ; if they stand for seed, poor, gravelly, or light sandy land suits them best : for indeed they are mostly sown where nothing else will grow, and I think they exceed any other grass or crop whatever, except turnips for  
winter

winter feeding, as they suit our climates, being a native of these kingdoms, and a plant that keeps green all winter.

Indeed they are of such a juicy herbage nature, that though the seed ripens, dries, and sheds, yet the stalk or straw will be a green herbage, and full of juices, after the seed has deserted it.

CHAP.

## C H A P. XXII.

*Explanation and Nature of different Sorts of Pulse, such as Vetch, Tare, Lentils, &c.*

**T**HE following multiplicity of names, confusedly made use of by authors to convey the meaning of one plant, may well puzzle or confound the ideas of a farmer, and send him in search after plants, corn or grain, of which perhaps he himself may be already possessed.

However it cannot be expected he should have a sufficient library of books, always at hand to clear up references. It is enough to tell him, that though the many following names are made use of in different parts of the two kingdoms, yet vetch is a name that suits our English tongue best, and what may be



be understood by every one that understands the language: to this name is added fitch, fetch, thetch, thetches, fitches, chick and checkes: and these absolutely mean one and the same thing; some make the word of the singular, and others the plural number.

Most people are inclined to believe the real name of this pulse to be vetch; but this cannot be, as vetch is the Latin word for tare, and though the tare is of the pulse-kind yet it hardly bears a resemblance to the vetch in question.

Besides the tare is considered amongst the judicious farmers as a weed, and with great reason too, for it is as destructive to corn as any weed whatever, being a weak, climbing, heavy topped, feathery plant, which pulls the corn down and rots it.

The seed also when once it gets a footing is very hard to get clear of, as it is of a small round shape, and blackish colour. It is likewise spoken of in scripture as a weed.

Notwithstanding all this, I with regret see it largely treated on by some authors, as a valuable crop; however I know the ill consequences of it so well by woeful experience, that I shall not bestow a single line about it, except to advise the farmer, that already has it, to clear his land of it, as fast as possible. There

There are two sorts of vetches, namely, the large and the small: the large is of a grey colour, and is most proper to sow, when the crop is intended to stand for seed.

The small sort is a small black grain and a hardy plant, and not so gross; therefore not so apt to lodge, and rot by the severity of the winter as the former.

The vetch bears a blue, or rather purple blossom, much like a grey field-pea; the pod of much the same likeness, but small: the stalk has a resemblance also, but will not grow to near the length or grossness, and is clad with a small narrow feathered leaf.

The lentil (but corruptly called by some till) is a species of pulse, and one that deserves the farmers attention. It is nearly of the same nature as the vetch; therefore must have the same management, but will afford to be sown something later in the spring, as it is rather of an earlier kind.

The stalk of the lentil is more taper than that of vetches, so consequently will stand better without a support.

For this reason the farmers may sow it with success among their oats, as it is able to support itself without pulling the oats down.

Again, it is a great bearer, and adds much to the mealy part of the oat, and consequently

consequently has more strength of food for the horse, and the straw being mixed with the oat-straw makes excellent fodder.

The pod that holds the seed is somewhat like that of a pea, but broader in proportion, and very thin, as the two sides fall close together round the seed.

The seed is grey, and of a round flattish shape, the leaves grow in pairs opposite each other, are long, small, and pointed, of a palish green, and a little downy at the under side.

The corn is very good for pigeons or fowls of any sort: it is also made use of for the same purposes as the grey pea or vetch.

One thing is to be said of the lentil, that it will grow on any poor, light gravel, or sandy land, perhaps better than any other grain or sort of pulse: but though this be its perfection, yet doubtless the better the land the stouter the crop; provided it be of a warm sandy nature. Indeed any grain of the pulse kind is fond of such land; but when it is richer than common, the seed must be sown thiner in proportion, and particularly when the crop is intended to stand for seed.

## CHAP. XXIII.

*On the different Management of Clover,  
through all its Variations.*

CLOVER suits the climates of England, Ireland and America, better than most other grasses, and is a very beneficial crop, either for grazing, or meadow; besides it is a great improver of land, having a strong fibrous root, which quickly incorporates with the earth: and when ploughed up or disturbed by tillage, soon rots, and becomes a very rich manure.

This together with the several rich crops it produces, makes it of more value than any other artificial grass.

The

The way to make the most of it, I take to be this, viz.

Sow it with a spring crop, that is, after the corn is sown and harrowed, sow the clover-seed, at the rate of ten pounds to an English acre.

When sown, either bush-harrow or roll it; but the latter is best.

When the corn is reaped, eat the clover for about a month: though there are many who object against this method: (but my reasons for it may be seen in the ensuing chapter on clover) then lay it up. It will be well grown by April, at which time you may turn in your ewes and lambs.

It is an excellent thing to create milk for feeding lambs with: also feeding for any sort of cattle; but be watchful to keep your horned cattle walking or stirring about; or they will be very apt to hove and burst, as it is a very swelling food, and particularly if the weather be wet; for when the cattle are first turned in, they eat greedily not taking time to chew it.

Therefore, it is best only to suffer them to be in about ten minutes at a time, the first day, twenty the next, and so on: but it is best to turn them in with a full belly of hay, or some dry meat; which will abate their

their greedy appetite, and help to dry up the watery particles.

One great use or advantage in clover is its early spring; for it comes in at least a month before natural grass; and a month's grass early in the spring, is worth two at any other time of the year.

This is a consideration a farmer ought to bear in mind: and that for several reasons, viz.

First, for feeding early lambs.

Secondly, to supply the place of hay, which at this time of the year is generally scarce and dear.

Thirdly, it is a great strengthener to young cattle; such as calves and foals; for it first purges, and then puts them in health and vigor, to enter with a good constitution into the natural grass-pasture. It is always observed, that when they go weak and poor into the summer grass, the best part of the summer is spent (in which time they should grow in bone) before they recover their flesh.

Fourthly, it springs the in-calving cows to milk: and a farmer ought to bear in mind that a fortnight's good feeding, before a cow calves, is worth a month after; as it flushes her to milk, by opening her milk-veins, stretching her udder, teats and milk-vessels

vessels; and it strengthens and feeds the calf within, and herself to undergo the painful task of calving.

A cow with health and strength at calving, is worth one and a half that is poor, for milk in summer.

After this most valuable grass has performed all these good offices, by its early spring, lay it up for meadow, about the first of May; and it will be ready to mow in a month or five weeks after.

By good management, it will produce three crops in one year; besides the after-grass, or winter-herbage, which is almost of as much value as the rest.

The different stages for a crop of clover, are as follows, viz.

Suppose the seed to be sown amongst corn in the beginning of April: this year the rent of the land is paid by the corn-crop; therefore the clover has no charge of rent upon it till May following: however it is of great use in this year for winter-feeding.

After the corn is reaped, the stubbles must be kept free from cattle, till the clover get to be a good herbage; which will be about the first of November; then turn light cattle in: eat it till the first of December, or till you see that they have cropped off all the first shoots. Then

Then take them out, and lay it up till the first of April: at which time it will be a good herbage.

Therefore if your grafs be scarce, and you chuse to eat the clover, you may turn in cattle for a month: and the first of May lay it up for a meadow-crop.

If a wet summer follows, and the ground be good, it will be ready to cut by the tenth of June for hay: the next crop will produce seed, or if you chuse another crop of hay.

The time to cut the second crop for hay, is about the middle of September; or when the flowers are all full blown, and some of the most forward begin to fade.

But if you would save the seed, give it time enough to ripen, as there is no fear of its shedding: it is so well inclosed with a very sticking, tough, wirey pod, therefore defer cutting it till very ripe; as also make it very dry or rash when cut, or it will not part from the straw or pod by treshing, without more labour than it is worth.

By taking out the seed, the straw will be treshed very short and mushy: however it will be good fodder, though not near equal to the crop managed for hay in its proper season.

He



He is a good workman that can tresh out a peck of clean feed in a day : he must first tresh the pods, and rub and winnow the feed out : then dry the pods or husks again ; and so repeat these operations, till he gets the feed separated from the husk.

But the best way is to thresh the pods or husks out of the straw, and then take them to the mill, and shell them as you would oats ; this is very easily done, and saves a great deal of labour and feed, as little by this will be wasted.

There is one piece of care or observation that a farmer should never lose sight of, if he expects a full crop of feed ; and that is, never to lay up his first growth of clover for feed ; for though it may grow vigorously, blossom, and look well to him who is not a true judge, yet it will not bear feed.

Therefore, when a farmer eats his clover in April or May, he must see that his cattle eat it near and crop every branch, as those that miss cropping, though they flower will not feed ; for this reason I recommend eating it in April, mowing the hay crop in June, and saving the seed from the last crop, which will produce the most and best feed.

But if the farmer chooses he may not eat it in spring ; by which means he may mow  
the

the first crop of hay by the middle of May, and the next crop raise seed from.

This will bring the seed crop more in the middle of summer, when the heat is strong; so consequently it will be in less danger of being spoiled by autumn-rains, which come earlier in Ireland, and the north of England, than they do near London.

I mention this that every farmer may be a judge of his own situation, and suit his crop accordingly.

It is a gross mistake and very often committed, to let the first crop of clover hay stand too long before it is cut, for several reasons.

First, when it stands till the bottom of the stalk turns brown, it is drained of all its substance, and also has exhausted or weakened the root too much of its vigour; therefore when it is mown, the stubble is left as dead or lifeless as that of corn: and the next shoot or branch which comes forth must be from the very root, which admits of a fortnight's delay in the growth of the crop: whereas on the other hand if it was cut when the stalk is green and full of sap or juices, it would send forth fresh shoots out of the very stalk a little below the cut: and the coat of clover being stripped off, the roots are supplied (before they are left too

too weak and sickly) with fresh air, and kept in vigour and strength, to support and bring to maturity, the succeeding crop.

It is true, there may not be so great a bulk of hay in the first crop when cut so young; because the stalk is cut when soft and full of juices, and therefore flattens, closes, and runs or cakes together when in stack, &c.

It also requires more care in making; but as this happens in the height of summer, there is not so much danger that way; and a stone of such hay is worth two of that which is left to stand till the stalks are left dry, hard and impoverished.

Clover may be sown with success amongst oats: also if wheat or rye be sown in broad ridges, it may be sown amongst them in May and rolled in.

I have seen good clover where the seed was sown amongst flax: but the best of these crops for raising clover is barley, as this grain is not apt to grow with so long and gross a straw as oats, wheat or rye; therefore the clover is not in equal danger of being smothered.

Yet there is no general rule without an exception.

I have

I have seen good and bad clover among all these crops; a deal depends upon a good season: barley however has the best chance; as we generally till well for it; barley being a tender grain.

## C H A P. XXIV.

*On Cattle bowed by Clover, and its Cure.*

**T**HO' it may seem strange or odd in me to make a comparison between the human and the brute creation; yet true it is that what will cure one will also cure the other, if due regard be had to proportion the dose agreeably to the strength of the animal.

In many instances, similar cases might be quoted to support this assertion, but as few words will answer my present purpose, I shall leave every thing else to the recollection of my reader.

The most natural difference between the entrails of the human and the brute species, is that the former lie in a perpendicular, and the latter in a horizontal direction.

What

What I aim at by this inference, is to make my reader feel by himself the disorder that affects a beast by eating over greedily.

I dare say not one of my readers but upon recollection, will find that he some time or other has eat his meat hastily, without taking time to chew it, till it has given him uneasiness in his bowels, by a suppression of wind, insomuch that he has been obliged to halt, or pause a little, till the bit settled; after which he breaks wind with a belch.

This disorder when coming on, he plainly feels, is no other than swallowing too quick.

Therefore I say, when he finds the gullet overcharged, and the wind so prest, he stops till all is right again; but if he was still to persist in eating, the consequence might be dangerous: and I doubt not but many lose their lives by it, as we often hear of people dying at meat.

Just such is the case with cattle eating clover: for the nature of clover is such, that a beast can fill his mouth quicker with it than with any other grass; which is owing to its bushy top and soft, and small stalk.

All

All natural grass is small at the top, and thickest towards the bottom; it therefore takes a good pull to break it off; which gives time for a swallow; neither can the beast fill his mouth so quick. But clover being quite the reverse, he can gather it faster or quicker, than the gullet can discharge it into the maw.

Therefore one mouthful, which is very large, rolled up in balls, overtakes another, till it stops up the passage of the throat, and suppresses the inward air, and so puts a final stop to respiration, insomuch that all the inward machinery is like a blown bladder.

All these pressing upon the lungs, hinder them from playing; which causes a total stagnation of the inward machinery; and if a remedy cannot be procured, before the blood abates in its circulation, and cools in the veins, death must unavoidably ensue.

I remember an accident that happened when I was a school-boy, and as I was present, I shall repeat it as follows:

A farmer turned a parcel of cattle into a clover-field in the month of May; but in a small time after they were turned in, a bullock was observed to be very sick: he was immediately drove out of the field into  
the

the town, which was within two or three hundred yards; but in town before he could reach the farmer's house, he dropped down dead to all appearance: it was opposite to an ale-house.

Immediately people flocked about him: a drunken blacksmith was in the ale-house with a gun-barrel in his hand, and the breech-pin out, as he had been cleaning it: he came out, running among the rest, and thrust the gun-barrel up the bullock's fundament; out of which issued a deal of wind.

Another by-stander run his pen-knife into his flank behind his last rib.

I had a pellit-gun in my hand, and they put it into the orifice, out of which also rushed a deal of wind.

They also bled him. This was all performed instantly.

He began to shew sign of life; they then gave him a clister of warm milk, oil and brown sugar.

In short with one cookery or another the bullock recovered; and I believe every thing that was done was new: as most present were strangers to clover.

As it was only then, making its entrance into the neighbourhood, therefore they were all strangers to its effects. And though they  
stumbled



stumbled upon a cure, yet not one of them perhaps could give a rational coherent answer upon the subject.

The person to whom the bullock belonged was a very sensible, curious, enterprising man.

He was the first that introduced any new thing into the neighbourhood; of which clover was one instance.

As he believed the bullock dead, he stood very coolly looking on, and let them do what they would. After which he made very sensible remarks.

I have heard him since say, that was a lucky bullock; as he had been the means of saving him many cattle.

By the experiment he afforded, the people's attention was so much engrossed with this bullock, that a cow and a two-year old heifer were dead in the field before they had presence of mind to attend to them; but the farmer told me he never lost one after.

I asked him his cure, he told me that he never wanted one, for he looked upon a prevention as preferable to a medicine, or any other operation.

His method was always to keep the cattle stirring when they were first turned into clover, so that three or four mouthfuls were

as much as they were admitted to take at once, and then to walk a few yards, till that had time to settle into the maw; so as the gullet-wind, as he called it, had time to arise.

Thus he kept them stirring till they were full; and for a few nights at first, turned them into a common grass-pasture.

There is no doubt but this is a very necessary precaution, and if duly attended to would render every other operation or medicine ineffectual.

However, lest through neglect, ignorance or accident, cattle should break into clover, it is absolutely necessary that a cure should be pointed out.

I believe my reader will admit that the nearest step to a cure in any case is, to know the disease, and the cause of it: this will make the cure more certain.

Now we find that the cause of this malady is by suddenly over-filling the neck-gut, which swells and stops all the vent of the throat or wind-pipe.

This over-pressure closes the lungs, and hinders them from playing, which puts a final stop to the circulation of the blood through all the veins.

When this loses its motion, it immediately cools and thickens.

Therefore

Therefore, in this case, every step must be very quick; as delay will put it out of the power of medicine to relieve.

The first thing is, to open a vein; the next, to make an incision with a knife in the flank, about three inches from the hinder rib, as near the hip-bone as can be, so as not to enter into the flesh; there is no danger can ensue from this, provided you keep high enough up, not to touch the entrails.

Put a quill in the orifice, to keep it open: while this is doing warm a quart of milk, and put it into a half pound of treacle, an ounce of anniseed, and a table spoonful of sweet oil: mix all together, and give it as a clister: this will nourish the entrails, and keep warm and alive the blood; till a respiration can be recovered.

If a clister of this sort cannot be got, stamp an onion, mix with it butter and pepper, and put it up the fundament; it will cause an attraction and a heat: pour some sweet oil, or quick-silver down the throat; which will help to force a passage for the wind to operate.

## C H A P. XXV.

*Remarks on Clover.*

SOME persons object to the eating of clover, the first winter after it is sown; believing it to weaken the crop, but on the contrary, I believe it strengthens it: for as clover grows amongst corn, it is drawn up weak and tender by its warm situation, being surrounded by the crop: and when a tall weak plant of this sort comes to be suddenly exposed, it is a wonder if the delicacy of its constitution can bear the sudden change without a shock, as it is not fit to encounter with the inclemency of a winter.

I look

I look upon it to be much better to eat off this weak aspiring top, which makes the root strike downwards, grow strong, and incorporate with the soil and the earth: the top also will send forth fresh shoots, more of them and of a firmer texture or kind.

To convince myself of this, I once divided a field of clover into two parts, one of which I eat in common with the rest of the stubbles; the other I did not eat at all till May.

The part I eat, I found to be a good deal ranker or thicker set on the ground than the other: and I observed that the leaves of the clover that were not eaten, turned yellow with the frost, and died away.

In this case, as in most others, (reason speaks for itself) that it is better to take off a sickly, tender, weak, part or fibre, than to let it die away, and thereby communicate its state of mortification to the main body.

## CHAP. XXVI.

*On Lucerne, its Perfection and Management:  
also the Method of Drilling with the com-  
mon Plough, &c.*

**L**A Lucerne, so called by the French, but lucerne by the English, is a very profitable grass, and particularly where the climate is hot, and the land light and sandy, or gravelly and rocky.

It is an excellent food, either as herbage or hay: but its greatest perfection is for foiling of cattle, which makes it of great service in some parts of England, and would be particularly so in America.

This

This grass is not so early a spring as clover; for if we consider, that it is the sun we may thank for nourishing the earth, and makes her send forth her early spring; and that it is unquestionably the surface which first feels the warmth thereof: we must conclude that any vegetable which roots shallow or runs horizontally, will make the earliest shoot, consequently lucerne must have the more backward spring, as it strikes a great deal deeper than the clover; and therefore feeds in a colder climate, which makes it a very fit crop for so hot a climate as America.

I would further observe, that clover improves land better than lucerne by its root spreading more largely and plentifully thro' the sod.

I am strongly of opinion that nothing in nature improves land equal to the root of clover; for if it only lies one year, plough it up, and the furrow or sod will be a perfect mattrais; and after that ploughing the root soon rots, and becomes the finest manure upon earth.

But this we cannot say for lucerne: for though what root there is, may make good manure, yet it does not spread or produce half so much root in the sod, because it  
strikes

strikes downwards, like a parsnip, and therefore a great deal of it lies too deep to be raised by the plough.

The two chief perfections of lucerne are, first, its yielding a plentiful produce, tho' sown in a sandy, gravelly or rocky ground, provided it is made tolerably rich, and finely tilled.

The climate and lands of America are very proper for lucerne, as the climate is hot, the land light, and in general pretty deep, which will admit the top root to strike deep also, and seek its nourishment out of the reach of the rays of the sun, consequently in this country it has the preference to clover, as the latter never strikes deeper than the plough goes, but runs horizontally is interwoven, and feeds entirely from the the upper sod or stratum, so that in a hot climate the sun will not permit it to flourish to perfection, particularly if it be not attracted to a colder earthly climate by deep tillage.

Every farmer however, is the best judge what sort of land he has, or what situation he is in, and accordingly may suit his crop thereto.

When a person hears two tales, though he be a stranger to the affair, yet he may  
give



give a shrewd guess which is the most reasonable or likely to suit his purpose.

Lucerne requires a deep soil; and though the seed must be thinly covered, when sown yet the land must be prepared by deep ploughing: as the root strikes deep.

It is necessary that the land have a good summer-fallow; when the corn is sown and harrowed, sow the lucerne, and harrow once in a place with the harrow turned the wrong end foremost; and when the corn is come up, roll it.

If the lucerne be intended for summer-pasture or meadow, sow it in the broad-cast way, and in order to sow it even, sow it twice in a place.

Take no more in your hand than you can hold between one finger and thumb, and on a ridge that is twelve feet broad make three casts; this will sow at the rate of four pounds to an English acre, at sixteen ounces to the pound, and five yard and an half to the perch, and so in proportion for the Scotch and Irish acre.

If the lucerne be intended for soiling cattle, it is by much the best to sow it in drills, viz.

Two drills, eight inches asunder, and then an interval of three feet, and then two drills

drills more, and another interval of three feet; and so on through the piece you intend to sow.

It may appear to farmers that are strangers to the drill-husbandry, that it is a very nice affair, and not to be done without the expence and nicety of a drill plough: nor did I ever read any instructions that directed it to be done by any other way: but be assured there is nothing more easy; for a common plough will make a very good shift, when managed in the following manner, viz.

The land being well prepared for the seed if lucerne is to be sowed in drills, without a corn-crop, begin to plough at one side of the field, and plough a furrow two inches deep and eight broad: in this scatter the seed; then plough another furrow; in this sow none; but in the next sow another row: this leaves a space of eight inches between the rows; then plough five more, and in the sixth and eighth scatter the seed: so go on, leaving five furrows unsown, and two sown: this will leave room enough between the two rows in the wide interval, for the plough to go.

As soon as the lucerne is above ground, go with the plough and lay a little mold at the stem of each row, and always when the  
weeds

weeds grow plough a couple of furrows in the wide interval, which will kill the weeds and fallow the ground, and give additional vigor to the plants: weed or hand-hoe in the narrow intervals.

If lucerne is to be sown amongst corn, it cannot be set in drills as above with the plough; therefore stretch a line at the same distances of forty-eight inches to the wide interval, and eight to the narrow; and shake the seed along it, and harrow it in, as if it was sown in the broad-cast way; and as soon as the corn is out, plough the wide intervals, and hand-hoe in the narrow spaces between the two drills.

There can be nothing more easy than drilling and horse-hoeing in the above manner; which may answer the end, by sowing any sort of grain, and particularly wheat beans and peas.

Instead of a drill-box or hopper, which is used in ploughs, take a tin porringer, and punch three or four holes in the bottom, in the nature of a cullendar, just the size of the grain or seed you have to sow, by shaking along the furrow, you may bring yourself to a tolerable degree of exactness, and swiftness too: for one man may sow as fast as a plough will go.

The

The time to mow lucerne is, when just beginning to flower.

Avoid making the hay too green; for it will appear to be dry when it is not, and therefore may give again and damage, it being so full of sap or juices.

When it is cut for soil, there is nothing more than to cut the oldest first.

It may begin to be cut, when six or eight inches high; and so continue cutting as it is wanted.

## C H A P. XXVII.

*The most suitable Lands and Climate for  
Lucerne, with Remarks thereon, &c.*

**T**HOUGH the lands of England, Scotland and Ireland, are generally pretty good, and naturally given to grass; yet I dare venture to say, that more than three fourths of all these kingdoms are not proper for lucerne. America in general is proper for it, because the land is deep and in general sandy, and the climate hot and dry.

The farmer that proposes to cultivate this plant, must first duly consider its nature; that it is a native of a warm climate; and that it has a long, gross, tap-root, which runs perpendicular; and therefore feeds chiefly from the under stratum, perhaps at the depth of two or three feet.

Then

Then again, let him turn his eye on his land, and see if it be of a deep, rich soil; if the under-stratum be a loam, or limestone-gravel, or a deep loamy sand, or a warm rich gravel, or a black hazel earth: if it be any of these, he may venture to sow his lucerne thereon; provided he ploughs deep, and till well.

However, in most parts, I am afraid he will find, instead of the above, a strong clay bottom, at the depth of about four or five inches, which is of a solid, close, hungry nature, that will not admit the root of a plant to enter; nor has it any nourishment that a plant can feed upon, without first being opened by tillage and the air.

And what still adds to the evil, is, that it holds water like a dish, and will not let it sink through, but keeps it swimming on the top amongst the sod, surface or upper-stratum all winter; so that if cattle tread thereon it immediately works, or poaches to mortar.

Then certainly such land cannot be suitable for a plant of such a tender nature, and which seeks its nourishment so deep.

In such land clover has the advantage; as it requires not so deep land, because the root runs horizontally and keeps near the warm surface.

A farmer

A farmer seeing the nature of the plant, and the land suitable thereto may square his affairs accordingly, in suiting proper crops to proper land.

A voluminous writer tells us, that the lands of England are more subject to run to natural grass than any other country whatever; inasmuch says he, that it is with great labour and expence we can keep it from getting head of the lucerne, and spoiling the crop.

This I grant is the case; and this alone is sufficient to shew, that in general lucerne is not so valuable in these grassy countries as in dry, hot, sandy countries, where natural grass, or any other plant that roots shallow, is burnt up.

From that author's saying that England is the most grassy country, I suppose he was a stranger to Ireland, or he must have excepted it; and why it should be so, is easily accounted for: as that is occasioned by the moistness of the climate, and the coldness of the soil, peculiar to that kingdom.

It has a cold clay-soil, intermingled here and there with loughs, lakes, morasses or bogs, the damp from which is exhaled by the sun, and therefore softens the air, and again descends in thick mists or fogs, heavy dews

dews and small rains, which always keep the land wet, the grass green, and in a growing state.

The rain is never so heavy as in England, but much more constant.

But England has few bogs, lakes, or loughs; therefore the air is more clear and dry.

The rains of England fall seldomer, but much heavier.

Also the winter-frost and the air is sharper and more intense.

All these considerations must shew, that Ireland is the most grassy country of the two.



## C H A P. XXVIII.

*How to manage Saintfoin, which suits America.*

Saintfoin is a valuable grass, particularly where land is rocky, gravelly or sandy: and though in general, clover is the best crop for this climate, yet saintfoin may answer in some places very well, where the land is subject to rocks and stones; which makes meadow very scarce (though the summer herbage is good and plentiful) as the soil amongst these rocks is naturally good, where it can be cultivated, so as to be brought to any tolerable tith.

Cn

On such low faintfoin; and if the soil be ever so scanty, it will strike into every small nitch or crevice, and seek its nourishment very deep, where no other grass will live, or indeed can get a footing.

It is also good for foiling cattle: but in this lucerne has the advantage; as it is of a quicker growth and less stagnated with cutting: but as I before observed, this is of little signification to England or Ireland; as they abound fully with good summer-herbage.

It is winter-feeding that we are to consider; as also to keep the land in full profit, till the return of natural grass, after long tillage: and this is best effected by the two grasses clover and faintfoin: clover for the wet and smoothest land, and faintfoin for the sandy, rocky, or more stony parts thereof, such as the wolds in Yorkshire or Lincolnshire, Chiltern-hills, &c.

As I have in a few words, given the virtues of faintfoin, I shall not make a long chapter on the management thereof; as there is little alteration to be made between the raising of faintfoin and lucerne or clover.

Saintfoin may be sown earlier than clover or lucerne; as it is in less danger of being hurt by the frost.

The

The land must be well tilled, whether it be sown alone, or amongst corn: if it be sown amongst corn in the broad-cast method, harrow the ground once in a place, after the corn is sown, before the saintfoin is sown.

This will make the ground a little level, that it may not be buried too deep in places. Yet as it is a large hulky seed, it must have a covering, or it will not grow; but by being harrowed in when the land is pretty rough it will be all sufficiently covered, provided it be well harrowed afterwards.

If it be sown in drills amongst the corn, stretch a line and scatter the seed along it, leaving intervals, the broadest about three feet, and the narrowest eight inches, as directed for lucerne.

If it be sown by itself it must be got into the ground by the first of March.

Some will sow it at Michaelmas; but I do not think this a good time, for it will not be a great deal earlier; besides a severe winter may hurt it: and it is further to be considered, that by keeping it out of the ground till spring the ground can be winter-fallowed;

ed; which will add greatly to the fertility thereof.

If it be sown in drills and alone, sow it in every sixth or eighth furrow as directed for lucerne; but have a care not to cover it above an inch deep at the most.

Four bushels of seed are generally used to an acre in the broad-cast; but half a bushel in the drill-way is full enough for an English acre.

Lay up the saintfoin for hay about the first of March, and it will be in blossom about the first of June; when it is full in flower it is time to mow it; manage it in making as clover.

Observe in eating it with sheep, not to eat it too near; which will damage the root, and put it in danger of rotting, if they enter upon the head of the root: it is also dangerous to turn large cattle into a crop of saintfoin, till it is well established in the ground, as they will be apt to tread it up and spoil the plants.

The best method to manage saintfoin, is to mow the first year, and caution the scythe-man not to cut too near.

The

The next year, sheep may very well be fed on it ; and after this, it may be pastured or mown at the farmer's discretion ; as the roots by this time will be properly established.

## C H A P. XXIX.

*On Rye Grass, its Perfection and  
Management.*

**R**YE-grass is a native of our own kingdoms: its quality is such, that it will grow in almost any kind of land.

In cold clay or wet land it flourishes greatly; it will also grow well on high, dry, or sandy land; which is very extraordinary, as as the opposite extremes are so great.

It is not nice, for it will grow amongst any sort of grass; it will also encroach amongst corn; but while it is stealing its footing there, it is deemed a weed, and is known by the name of darnel.

It flourishes greatly by culture, and will grow to the height of four feet, upon good land.

The seed also grows large in proportion, and full of meal.

There are two sorts, one called droke, and the other darnel, in Latin, *lolium*.

They are both nearly the same quality: there is no knowing the seeds asunder, they are so nearly alike: the droke has a little larger or fuller grain, and I think is somewhat more delicate in its growth; for it generally flourishes best in tilled ground amongst corn.

It produces a far greater head of seed than darnel. I have counted a hundred and thirty-five seeds in one ear.

The ears of droke and darnel differ considerably.

That of darnel or rye-grass grows close to the stalk in two rows: but droke has a spread ragged head of many branches, five or six inches long, spreading from the main stalk, on the end of which branches the seed grows in bunches.

There is the same distinction to be observed in common hay-grass, as to the form of the ear; for though the root, stalk and seed are nearly alike, yet the ears differ,  
some

some having an ear like darnel, and others a loose, open, spread ear like droke.

The greatest virtues of rye-grass are its early growth, and its good quality of growing on any sort of land. It is much better fodder than timothy grass, and will thrive much better on the same land and with greater success.

These two excellencies should induce every farmer to provide himself with some of it.

There is no farmer but would be glad of a piece of early grass to feed lambs on: or if he had not lambs to turn in his cows, that are generally dropping their calves in the spring, which would be greatly forwarding their milk.

It is also an excellent feeding for recruiting calves and foals, who have hardly escaped the severity of the winter.

In short a few acres of rye-grass would be of more value to a farmer, than he can well conceive; and when his natural grass-pasture comes to a head, he may lay up his artificial grass-land for hay, and not doubt of a good crop.

Rye-grass is also wholesome feeding to mix among clover-feed when sown, as it will help to prevent cattle from hoving.

However



However though I have said so much in setting forth the advantages of rye-grass: yet it is not without its fault; and this is its being an impoverisher of land, though not in a very great degree; for a crop of rye-grass with the land laid down in heart, will hold good for ten or twelve years.

Your best œconomy is, to mow it one year, and graze it another alternately: and though it may be its property to reduce land a little, I do not think a farmer can sow a better crop, provided he does it with discretion, and sows it on his strongest, wet, clay-land, or where clover will not succeed so well.

But where clover will thrive, it is surely preferable to all other artificial herbage; and if I recommend rye-grass, it is only for about five or ten acres in a hundred, to be applied chiefly for spring feeding.

The culture of rye-grass is very simple and easy.

It may be sown amongst corn with any sort of grass seed or by itself, as there is no doubt of its growing.

If it be sown with clover and barley which is the best management, sow two bushels on an English acre; but if it be sown alone, four bushels is the compliment,  
and

and so in proportion for an Irish or Scotch acre.

The old broad-cast way is the best to sow it in ; for which choose a calm day, lest it should blow on heaps as the seed is light.

It may be sown with the corn; for it will take as much harrowing, being a light feed.

Neither is there much fear of burying it too deep, and yet it will grow if it lies above ground.

Where grass-land of any sort is too thin rye-grass or white hay-seeds may be sown on the surface and rolled, and they will grow the first rain.

The greatest care must be taken to mow rye-grass in the proper season, if no regard be paid to the seed.

The time to mow it is the first shooting of the ear when it is full of sap, but if it be for seed let it stand till the ear begins to turn brown.

There is a medium however to be used between both : and that is, to mow it when the ear is full, but the seed not above half-ripe, by this a good deal of juices are caught in the stalk, and the seed ripens and hardens as the hay is making.

The feed will be very small, but sound, and will grow very well; it must be treshed like corn, to take the feed out.

An English acre may produce upwards of thirty bushels of feed.

CHAP.

## C H A P. XXX.

*The Perfection and Management of  
Burnet.*

**T**HE world is obliged to one Mr. Bartholemew Roque, who has for many years last past been a farmer near London; but is a native of France.

I mention his place of abode, because the lands and climate near London differ greatly from those in Ireland, Scotland and the north of England.

In 1761 this plant was first began to be cultivated for the use of cattle. It is a pimpernell,

pimpernell, and commonly cultivated for fallad, and has a smell very like green cucumber; its seed is rough like spinage, and much about the same size; its shape is of a triangular oblong: the plant never grows high, being of a spreading creeping nature, and has a very bushy top; it also has an exceeding long root that runs perpendicular, and therefore requires a deep soil.

Mr. Roque's account of it is as here follows:

Says he it must be sown on sandy or gravelly ground; and the longest drought will not in the least hurt it; it also will either grow or keep green the entire winter: its growth will be about a half a yard in length for the winter half-year: it may be mown twice in the summer, and will produce two crops of seed; it may be fed all the winter, with every safety from injuring or killing the plants; though sheep must not be allowed to crop it too close, lest they damage the root.

The season for sowing it, is, from February to July.

It will bear transplanting; but it must be sown the broad-cast way; it must also be trenched two or three spades deep; but take care, says he, not to turn up dead ground. Sow

Sow twelve pounds of seed on an English acre; harrow the ground before sowing, and lightly after; when the seed is ripe, thresh it between wet and dry; the hay is very good feeding for all sorts of cattle.

He says, that, if it be laid up for meadow in May, it will be ready to cut for seed the beginning of July.

If it be mown for hay (having no regard to the seed) it will bring three crops in a year, and must be cut for hay, just before it begins to flower; it must be made for hay, like any artificial grass.

Such is Mr. Roque's account of burnet; and as he has a right to know it better than any other person, being the first introducer I shall neither add to, nor diminish from his experience.

However I cannot help taking notice, that if we cannot raise burnet to perfection without digging two or three spades deep, as he directs, I am afraid the expence will overbalance the profit: since an acre of ground, by such digging or trenching, and that to be done only once over, will cost at least about six pounds, besides seed, manure, land-rent, and all other necessary expences.

Again

Again, if we take care not to turn up any dead foil, we must not go above five or six inches deep : because in fact, all that lies below the upper stratum or corn-mold, is dead earth, till it is turned up to the air, and incorporated with manure, or roots of some sort or other : for these are the principles that must enliven, ferment and bring it to an active body ; for till then it is a dead one.

So that in short, I cannot tell what sort of foil Mr. Roque expects us to work in, except in garden-mold, whose upper stratum or surface is kept two or three feet deep by constant trenching.

I rather think he should have told us to take care, and not throw up the under-stratum, except it can be done with safety ; nor to hurt or spoil the corn-mold, which it certainly must do, if it be a hungry, cold, red clay, or ramel.

If this be the case, as doubtless it is, the farmer must first examine how deep the staple of his land is, and fix upon that which suits it best, being the good deep sort : it is true a strong clay bottom may be made to answer for it ; but it must be by dint of labour and manure.

## C H A P. XXXI.

*On Manuring Land.*

**M**R. Tull tells us (and very warmly supports his assertion) that dung is a useless article to a farmer, particularly in corn-land; and recommends tillage before it; daily experience tells us, he was in some degree mistaken. For though I admit, and am as clearly satisfied, as he could be, that ploughing will enrich or fertilize land to a great pitch; yet I am well convinced, that dung, manure, or compost of any sort, which bears a proportion of salts or fertilizing oils, will cause a fermentation, by adding to, and mixing with the salts of the air, and therefore doubtless will add to the enriching of the soil. Again



Again, though reason speaks so much in favour of enriching the soil by ploughing; and though Mr. Tull, and all the authors in the world were to make it as plain as one and one makes two, that tillage is sufficient to make poor land rich enough to produce any crop; yet nine tenths of the farmers would not follow it; and though a farmer may give his land a good dressing, fit for any crop, by twelve ploughings, at about thirty shillings expence; yet he would rather bestow three or four pounds an acre in manure to put thereon.

So blind is man to his own interest, particularly if it lead out of the old road.

For my part, I am of Mr. Tull's, and several other authors opinion; and therefore shall not manure corn-land, but enrich that by ploughing, and lay the manure upon grass-land; where reason tells us it is of most use.

First, because grass-land lies in a close consolidated body; and therefore is deprived of the enriching qualities of the air penetrating there amongst, which ploughed land enjoys, or receives, every time it is turned up.

Secondly, it nourishes the roots of grass, and suppreses, or at least retards the growth of moss.

Thirdly

Thirdly, it is observable, that manure always sinks; therefore, if it be laid on when in tillage, it is an equal chance, but one half of it will be lost, because what the plough turns to the bottom of the furrow, still keeps sinking lower and lower, till it gets out of the reach of the plough to turn up or plant to feed upon; but on the other hand, when it is laid on the grass, or lay-land, it drains through the surface in its passage, and ferments with, lightens and opens the earth, and makes it rich and mellow.

Fourthly, dung, in particular, breeds weeds, flies, worms, &c. which causes smut and mildew.

All these reasons must appear very plain and obvious to a farmer's understanding; and I would have him to bear them in mind; and when he reads over the following list of manures, he may the more easily determine with himself, how to adapt this or that to its proper soil, or part of husbandry, according as it suits his convenience for carriage and cheapness.

## C H A P. XXXII.

*On Manures in general.*

**A**NY thing that has the most salts or nitre, is the richest manure; and therefore a less bulk is required to be laid on the land.

As for instance, some sort of marl requires to be laid nearly as thick as the plough goes; and others not much thicker than lime; being so strong that were too much laid on, it would overpower or destroy the land, to such a degree, that nothing would grow well for at least two or three years after.

Marl will last longer in the ground than any other manure.

I have known land, which has given fifteen good crops running, after being well marled.

Few farmers but what may know which is the best manure, and the easiest to come at, according to their own situation; therefore I shall leave them to judge for themselves, which suits their purpose or situation best.

Horfe and cow dung is good almost for every sort of meadow-land; but I do not approve of it for corn: the former is the hottest in nature; and therefore must (to chuse) be laid on the coldest land: every one knows best what condition his land is in, whether rich or poor; for thereto it must be suited in quantity.

Pigeon-dung is a very rich manure, and will bear land-carriage better than most others; as a little will go a great way.

In England it will sell from ten to thirteen pence per bushel; forty of which will give an English acre a good dressing: it must be sown upon the ground, and harrowed in with the grain, by the way of a top-dressing; it will be found to enrich the land two or three crops.

Those that would make the most of a pigeon-house, should spread over the floor, every ten days, three or four bushels of  
ashes;

ashes; which will help to keep the pigeon-dung from caking together, and make it spread even and go farther.

Hen, or fowls dung of all sorts, should be mixed with ashes for the above reason.

Little-house dung is one of the richest of manures, but the least regarded, on account of its soft, stinking, nauseous quality; but this is easily cured, by throwing a sufficient quantity of roch-lime into the little-house, which will dry it to such a consistence, that it will spread as well as ashes, and have no disagreeable smell.

Thirty bushels will spread an English acre: harrow it in with the corn, by way of a top-dressing; or spread it on in February, for a wheat crop.

Soot is a rich manure for any kind of land.

Writers differ greatly in their opinion, whether coal or wood foot be the richest or best; but this is throwing words to the wind as no one will change his fuel for the sake of the difference in the foot: the matter is so trifling, that it is not worth entering into any particulars about.

Soot is foot; and he that lays sixteen bushels on an English acre, of any sort of foot, gives his land a good dressing; and less will not do: it must be harrow d in

with the corn, by way of a top-dressing; or it may be spread, after the corn comes up, and it will destroy red worms also.

It will do very well for meadow; provided it be laid on, just after the hay is got off: it will last five or six years so as to answer for crops.

Ashes is another good manure for a crop or two, and particularly for turnips; as turnips from burn-beating are the sweetest and best of all others.

Ashes are raised by several means, and from various principles.

Some by burn-beating, others from our constant firing, such as coal, turf or wood: the richest of these is wood: the next in value is turf: and the worst of the three is coal: though between turf and coal there is no material difference: all sorts of ashes lose much of their strength, by being thrown out of doors to get wet; they will last in the ground two crops.

A hundred and sixty bushels of wood-ashes, and two hundred and twenty of either turf or coal, is the due for an Irish acre, and so in proportion for an English one; they must be harrowed in; but if for wheat-land, it is best to spread them, by way of a top dressing in February.

Burnt

Burnt clay, or backs of ditches is another forced manure, and will bring one good crop; about three hundred and twenty bushels on an Irish acre, being two bushels to each square perch, will give land a tolerable good dressing; this must be harrowed in with the corn; as so much carriage going on wheat, would spoil it.

Now I come to treat of the mother of all manures, namely salt; for every sort of manure is higher or lower in value, according to the salts it produces; and every sort of manure is proportioned to the land, according to the quantity of salts or nitre it is thought to have in it, and not to the bulk.

Formerly, salt was thought to be an impoverisher of land; but experience has taught wisdom; it is now found to be otherwise; provided it be duly proportioned to the state the land is in, and mixed to mollify it, as follows, viz.

Take six bushels of salt, six bushels of lime, and six bushels of dry ashes: mix all together: let them lie some time to incorporate together; then spread them on the land, and harrow them in with the seed: this is a sufficient dressing for an English acre: for it is better to repeat it, than to lay too much at once.

By

By being thus mixed, one particle incorporates with and molifies the other. Salt in itself is rather too severe and harsh in its nature, and if laid too thick on, might prove of bad consequence: whereas if conveyed into the earth by a soapy smooth method, it will prove the very enricher the earth wants to send forth vegetation; this will last for three crops.

I am convinced, if a farmer was to mix salt with any sort of earth or manure, and let it lie long enough to incorporate, he might lay it on thinner in bulk, in proportion to the salts it contained: and he would find his ends in so doing.

Sea weeds, shells, fish, sea-water, sea-sand: all these bear a proportion of salts or nitre, and therefore must be esteemed a manure: though such will not last more than two years in a tillage-crop.

Old rags, rotten sticks, or in short any thing will make manure that will rot or putrify: for by such comes on a fermentation with the earth: and crossing nature, in any case, makes it work, ferment, and divide the particles of each other. Even taking one piece of soil, ten or fifteen perches from its native spot, and mixing it with another piece in the same field, will set it a working, so that one will help the other in fertility.

Lime



Lime is a manure known by every one, though but few know rightly how to proportion it to the land: as some land will require more by twenty bushels an acre, than others: and on the other hand, a hundred bushels of some lime will be strong, and give the land as good a dressing as an hundred and thirty of others.

A farmer must consider all these circumstances before he can be a thorough judge how to dress his land properly: he must observe that the deeper the corn-mold is, the more lime is taken to enrich it: and indeed this is the case with all sorts of manures; therefore he must bear this in his mind: it will last eight or nine years.

An hundred and sixty bushels, being one on every square perch, are sufficient for the worst land in England, at one dressing: but if the lime be stronger than common, lower the quantity thirty or forty bushels.—The strength of the lime is known by the lesser or greater quantity of sand it contains: for the more grit or sand much the weaker it is.

The way to try lime-stone is, by dropping a little aquæ-fortis on every stone, that is likely: and if it hisses and froths, it will make lime: but it will take no more effect on any other sort of stone, than water would.

Lime

Lime is one of my favourite manures, as I have seen it work miracles: and if properly managed by proportion, never fails its proprietor.

The best way to try marl, lime-stone-gravel, &c. is with vinegar: take a glass of vinegar, into which put a little marl, or lime-stone gravel: and if it be good, it will work up, froth and fly in sparks over the glass like champaign, and make a noise like new barm: but if the earth be poor, the vinegar will take no effect: but the earth will fall to the bottom, without life or motion, and the vinegar will be quite fine above.

Soaper's waste is a very good manure: about twenty tons are sufficient for an English acre.

Large quantities are made use of about Liverpool: which are brought over from Dublin, as ballast in ships.

They generally sell it for about three shillings a ton. The land will receive benefit from this dressing for five or six crops.

Ashes made of weeds, for the time they last, are nearly as good a manure as can be laid on land: and there are few farmers but what have plenty of those weeds about their houses: but the way to make the most of them, is to dig them up by the roots, and  
take

take a sod along with them ; by this means they will yield a greater quantity of ashes, and the roots are fuller of salts than the top ; this manure is spent by the first crop ; and therefore the second crop will not receive much benefit by it.

Forty bushels will give an English acre a good dressing ; harrow them in, with the grain ; or they may be spread on green wheat, any time in winter or spring, by way of a top-dressing.

## C H A P. XXXIII.

*On the Compound Manure.*

**T**HIS compound manure as follows, I have tried, and find to be a great enricher, and very cheap.

Take eight bushels of bay-salt, the like quantity of lime, and the like quantity of ashes; mix all these together, and let them lie two or three days in a heap, and sprinkle over it four gallons of train-oil, or for want of that, the same quantity of any sort of grease boiled, and ten gallons of chamber-lie.

If you intend it for corn-land, throw up the corn-mold in the middle of the field you intend to manure, to the bulk of about sixty bushels; with this mix the compound well; then clap it up close in a heap; and  
turn

turn it every week, till you lay it on the land: the oftener you turn it, the better, as the air will assist the different particles in working or fermenting together.

If you provide it six or twelve months before it is wanted, the better and smoother it will be.

This is also to be applied as a top-dressing, either to be harrowed in with the grain, or sown over green wheat in winter.

If you would lay it on grass lay-land, mix it with backs of ditches, or the like, in the most convenient place for carriage: the best time to spread it on the meadow-ground, is, about Michaelmas; but, if corn-land, harrow it in with the seed: this is a due quantity for an English acre.

The expence, in the middle of England, would be about twenty shillings. And the ground will be better for three or four crops.

Malt-dust is an exceeding good manure for strong or deep land, by way of a top-dressing, either to be harrowed in with the seed, or sown on in the beginning of February.

Sixty bushels is a good dressing for an English acre.

It

It is particularly good to sow on a crop of green wheat; but if it be sown among spring-corn, it must be harrowed in, along with the seed.

It will answer for sand-land; but, in this case, it should be laid on early in winter.

This manure will not last longer than two crops.

## CHAP. XXXIV.

*On Liquid Manure.*

**T**HIS is a stagnated reservoir of water, of a rich, green, or blackish colour; and few farmers in England but what have it near their houses, by way of horse ponds, and where cattle drink, or stand to keep them from flies in summer, which by their urine and dung is turned green or black, and made very rich; also where dung-hills discharge themselves into; as there is generally a receptacle for such near a house.

I am greatly surpris'd to see this valuable manure made no use of in America, England, Ireland, or Scotland: did the farmers know the value of it, as well as I do, they would not have one gallon lost.

In

In Germany and Flanders, they think more of it than they do of a dunghill, and will go and buy a pit of liquid manure, and carry it several miles.

They make their little-house dung into liquid manure.

In short, I know no manure that is more certain to give one a good crop, than this.

The first time I tried it, was, in watering a garden out of a horse-pond, which the dunghill dripped into; I found a sediment at the bottom, which I constantly, at the time I was using it, kept stirring from the bottom, so as to raise all the sediment or manure.

I never used any other dung, yet I had remarkably great garden-crops; such lettuce I never saw; my gross-lettuce was like cabbages.

I watered my wall-fruit, such as peaches, nectarines, apricots, figs, vines, and cherries; and I never, in my life, either had or saw so great crops.

The next time I had an opportunity to try it, was in this manner, viz.

It happened to be a dry summer, and corn was dear; which was the occasion of many beggars; which, indeed, Ireland never wants (for it was in Ireland) being naturally of a charitable disposition, I gave a deal away.

When



When sturdy able beggars used to come, it was natural to ask, why they did not work; the answer was, they could get no work.

At this time, I had little employment for labourers; however, I was resolved to strike out some work for them. I had a meadow near the house, which was burning by the heat of the sun; for it was a very hot time.

I got tubs, that held about four gallons each, and agreed to give every beggar, that said he wanted work, a farthing for every tub of water he carried out of a horse-pond, and spread over the field; I kept the water always stirring, to raise all the mud I could.

This scheme answered two or three good ends, as far as it continued to take place.

First, it got the people a little money.

Secondly, it raised me an exceeding good crop of hay.

Thirdly, it effectually cleared the house of beggars; for it was soon reported, that if they came near my house, they would be made work; but, as it proved, this was the worst part of the story, for they left me too soon; if they had staid, I should have had a good crop of hay through the field, but they left me by the time an acre was manured:

manured: it cost me between four and five shillings, but a good many tubs were carried gratis; for when some of them had carried two or three tubs, if I turned my back or went into the house, they threw down their vessels and sneaked off without asking for their wages.

I would advise every gentleman or farmer to provide themselves with a staunch pit or reservoir for this purpose, so situated as to receive all the drippings of their dung-hills, hog-yards, or washing water, or the like.

In order to carry it on the land, fix a hoghead in a cart, the hind part of which must be lowest: inclose the cart with boards and the hind board must be bored full of gimlet holes all the breadth of the body: the top or bung hole of the hoghead being behind, let go the water and the gimlet holes will divide it the breadth of the cart, in the nature of a water pot.

Keep the horses moving slowly on, and the water unloads itself equally over the land.

Carry out your water in the first dry time, so the land will not cut: it is valuable for grass or corn: broad wheels are most proper for this work.

## C H A P. XXXV.

*On Clay and Sand: shewing how, when mixed together, they operate to make good soil, though when separated they are of very little use.*

**T**H E most desirable state of land, is that of a loamy clay: it is known in some parts of England by the name of wrap-land; it is in a middling state, neither a binding clay, nor a loose sand, it is a mixture of both, but the clay is most predominant, which is the reason why it is called a loamy clay; it is of a bluish greasy colour: it is generally of a deep staple, and if it be well tilled, scarce ever fails of bringing a

good crop of any sort: nothing can be sown in it (suitable to the climate) but what it will make flourish.

The next in value is that of a loamy sand; this is also a mixture of clay and sand; but in this the sand is most predominant, therefore the emphasis or stress of the word is laid on sand: this staple of earth extends itself to that of hazel earth; for tho' hazel earth and loamy sand differ in name, in quality they are nearly alike, only the lighter and opener they are, the more sand is in the compound.

Sometimes indeed the sand is mixed with a black, light, smooth earth, inclined to a turf, or peat-mold.

This is a light water-shaken earth, and lower in value, than if mixed with a strong clay.

In my travels through England I have often seen a farm, one part of which was a strong, tough, obdurate clay, and another a light blowing sand: so that in fact, the two bodies separate, lie in a barren useless state.

If we lay dung upon the sand, its loose open nature soon lets the salts drain through it, so that its virtue is soon exhausted.

If we lay it on the tough clay, its particles are too weak to adhere to it, or to open or divide

divide the solid congealed body of clay, so as to work it by fermentation, and open or divide it into small particles, without an im-  
mense quantity.

And where there is so little laid on, as not to establish itself into this consolidated body, or move it by fermentation, it melts away with every shower of rain that falls, and runs off by the surface, or purges itself out of any vent-hole it can find.

But if a coat of sand was laid on the bed of clay, it would be sure to make its way amongst it, because it is of a cutting, ponderous searching nature; therefore it will divide the glutinous clinging body of clay, into small particles, which would cling or stick to every grain of sand.

The nature of the two bodies mixing together thus, admits or rather opens a passage for the air to penetrate amongst it, so as to cause a fermentation; for nothing will or can ferment without air.

It is the air that raises every thing to life and action: it is the air that is conveyed into drink in the body of barm that makes it work or ferment: this is the case in flour also; for conveying the air among the flour by the means of the barm, causes a fermentation: for barm is scarce any thing else but air; you see, if you put new ale into bot-  
tles,

bles, before it has purged itself of barm, or more properly speaking of air, it will burst the bottles.

Or if you drink it, you convey among the body of the drink, air into your own belly, which you generally discharge soon after in a breach of wind.

I mention these things to open the ideas more fully to my reader, that he may know what I mean by fermentation: for if he does not open a passage into the body of clay with some instrument, or compound, so as to admit, or make a passage for the air to penetrate therein, to raise it to action by fermentation, it will remain a dead inactive body; and if any seed happen to be bound or inclosed therein, it will never grow or vegetate till the earth is opened about it to give it air.

I say any sort of seed that contains an oily matter, such as rape-seed, cabbage-seed, turnip-seed, ketlock-seed, mustard-seed, or the like, will lie in the ground a thousand years or more, and will neither rot nor grow, till it gets air.

The oil preserves it from rotting, and grow it cannot, unless it be raised to action by fermentation, and such fermentation cannot arise without air.

This

This is evidently experienced almost every day: for if we plough up a piece of lay land that has not been ploughed for several generations, there is great odds; but upon being turned up, some of these oily feeds I mentioned will grow: and it is evident that they would have grown before, if they had air.

I mention these things to prove how necessary it is to open the earth, either by tillage, or by mixing different natures together.

And as we see that loam is the best sort of corn mold, how easy is it to make a loam, by mixing sand and clay together.

If a field be a strong clay, lay a cart load of sand upon every square perch and this will make a compound or body of earth, commonly called loamy clay, because clay is the predominant article.

This will open and divide the body of clay; the air will incorporate therewith, and bring on a fermentation, which will swell, open and reduce the earth to a friendly consistence, which will admit the roots of plants to incorporate or search among it for their food.

Suppose a field be sand, it is of little use, perhaps to its proprietor, as it will not feed either the roots of corn or grass; that is, it

is of too open a nature, and wants a slimy, smooth, gluey substance (such as clay consists of) among it to unite the gritty, pebbly particles of the sand together; each of which particles before was a calised, hard, separate body, out of which issued no nourishment for plants, as the grain or staple was too coarse or large for the fine fibres of a root to feed upon; but when clay is introduced amongst it, the slimy, smoother particles thereof wrap round or clog about the grains of sand, which being assisted by the air, and the salts thereof, divides these little stubborn round bodies into smaller particles, by shelling or melting scale after scale from them: so that the body of the sand, and that of the clay, being melted into a thin, fine, smooth matter, between them they create a nourishing fine food for plants.

Thus farmers see how essential it is to mix sand and clay together. A two-horse cart-load of clay upon every square perch of sand land, would change the nature of the soil to such a degree, that it might be called a loamy sand, which is the second best earth.

The above is taking in all sorts of clay and sand, as it speaks in general, because a mixture, let it be what sort it will, is valuable



able; but however there are different degrees of both clay and sand, and where we are so lucky as to find on our lands, that which contains the most salts, it is the greatest treasure.

Most marls are a sort of clay, and differ according to the colour and weight of salts or oils contained in them.

According to the quantity of salts or oils you suppose your marl or clay to contain, and the depth of soil or corn-mold you have to work in, so proportionably mix your marl or clay and sand together.

The blue marl and brown marl are nearly of one strength: they are generally very hard to be dug: sometimes the labourers are obliged to use pick-axes to loosen it with ready for the spade.

These are good sorts of marl, and to be found in many places in England and Scotland, where they lie disregarded, owing to their owners not knowing their value.

When they come to be laid on the land, and exposed to the air, they fall to dust, and melt with rain or frost: any clay or marl that does this, is sure to contain a great body of salts; for it is these that shiver and melt the earth about them to come at the air, and the air at them.

A deep

A deep corn-mold, and particularly if sandy, will take about three cart loads to two square perches, at five yards and a half per perch.

The next marl in quality, and which is most suitable to strong land, is white shelly marl, it generally lies under bogs and morasses: it is light, but of a very rich nature, has a great likeness to lime, and indeed will almost go as far as flecked lime in manuring: however it may be laid on a cartload to each square perch, without hurting the land, tho' less may do.

The next is a free-stone-marl: it is white as lime, but has no shells in it; it is most proper for clay; it has a sharp acid spirit, and therefore must be laid thin on the land; it is the worst of all marls.

There are three clays, the blue, red and white; the best of these for manure to sand land is the blue, as it comes the nearest to marl: but they will all melt and open when mixed with the sand.

## CHAP. XXXVI.

*On Clay, Sand and Marl.*

**T**HERE are several denominations of sands and gravel; of these the limestone gravel is the best; it abounds greatly all over Ireland, except in the county of Cork.

This is of a very rich quality, particularly if it be of the marly sort: in fact it is no other than marl; only that is mixed with a small blue limestone, from the size of a hazel-nut, to a good sized paving-stone, which would all burn and make good lime: it is those that give it the name of limestone

stone gravel: it is a very valuable manure: and which contributes greatly to enrich Ireland.

A coat of this will change ling or heathy ground, to shamrocks or wild clover; it is to be met with in Scotland and England, in some places.

There is another sort of lime-stone gravel, which is of the gritty, sandy kind; but it is not so good as the marly sort: it is suitable for clay-land.

There is a sort of sand in Ireland, that is also very good manure for strong land. I have seen it in England, but never saw it made use of.

In fact the English farmers are not so prying into the bowels of the earth as they ought to be, to find out these valuable manures: this sand is of a rough, round, gritty kind, a bluish cast; it abounds much with salts. I have seen it produce amazingly great crops both of corn and grass, for fifteen or sixteen years together.

Sea-sand is another good manure, where farmers are situated conveniently, so that carriage will not bring it too high.

The red or blue sand that lies on the surface of the earth, in many parts of England and such as we raise corn in, is no manure, except.

except to clay-land, as above observed; and it is on such land as this that clay is so valuable, where marl cannot be got.

Chalk is an excellent manure for clay-ground, and will last many years; it is very good for sand, but not of that value as for clay.

What adds to the value of chalk, clays, or marl as manure, is their lasting so long in the ground.

If land be well covered with any of these heavy manures, it will shew their value by throwing up good crops for ten or fifteen years.

Such bodies of manure are very ponderous, and therefore generally keep sinking till they get below the reach of the plough to turn up: when this happens it should be trench-ploughed.

The best method of liming, marling, claying or chalking land, is to lay those manures on the sod: and let them remain (after being spread) for one year or two before the land is ploughed, in order that they may adhere, grow or incorporate with the earth, which will make them much more valuable and lasting. Besides, the air operates more violently and quickly upon them by their being exposed, which if they were covered

covered with earth they would in some degree be screened from ; and it is the air that causes them to open and shiver to pieces, and ferment with the corn mold, as will appear more fully in the next chapter.

## C H A P. XXXVII.

*On the weakest and worst of all Sands, or worn-out or tired Earth: how to make Marl or Clay unite thereto, &c.*

**A**S I have seen a bad blowing white sand in many parts of England, and particularly in Norfolk, which has baffled all the Norfolk farmer's boasted management to improve, and the same is in some parts of America; I shall bestow a chapter on this sort alone, and shall think my time well spent, if I can put them in a way to make such land useful, as at present lies useless and neglected.

There are two sorts of what we call blowing sand, viz. white and grey which is of a very smooth, fine grain, and destitute of any

any clayey, oily, or glutinous substance to hold it together, or for plants to feed upon.

Among the many tracts of this sort in England, I shall mention one which lies round Thetford in Norfolk. Though the Norfolk farmers imagine themselves superior to any other for management, yet they confess themselves not qualified to improve this sort of soil; and the reason they give, is that it is so poor and weak, that the marl or clay will not unite therewith, of which they have great plenty under these beds of sand in most parts of Norfolk.

I was told of a farmer near Thetford, who was noted for being a better manager than the rest of the neighbours; I went to view his crops, and was agreeably surpris'd to see about two hundred and forty acres of barley, that was extremely good, in the midst of a very sandy, barren country; in short, one acre might justly be deemed as good as any of the best two I saw in the country; the crop might be judged to produce forty-four bushels an acre, upon an average.

This farmer had been brought up a shop-keeper, and had taken this farm a few years before, to the no small diversion of some of the bigotted farmers about him, who hoped to see him break, for his presuming to be a farmer. He



He was a rational, sensible man, and laid his plans upon reason, and not upon old customs, which are very prevailing amongst the illiterate, however absurd.

The rent of the farm was two hundred pounds a year, for which he had perhaps about twelve hundred acres of land, some part of which was valued at five shillings an acre, and other at little or nothing.

His chief improvement consisted of marling on the sod, for the land had been a sheep-walk for many years; it had been ploughed formerly till they could get no more corn, and then left to chance. It had been perhaps twenty or thirty years in coming to a thin sod, which was scarce then sufficient to keep the wind from blowing the ground away; and though the sheep were small, two acres would scarce keep one of them alive.

His crops consisted chiefly of barley, rye, turnips and clover: he had a little wheat on his best land, that had been strongly marled.

He marled upon lay; though most farmers in Norfolk marl upon fallow, or broken ground; this is the rock they split upon, where they use it at all. But indeed marl is much neglected in Norfolk; I do not know a county in England, that is more capable

capable of improvement by marl than this, were they to apply it with judgment.

The fact is, the country is mostly under tillage of barley, clover, rye-grass and turnips: the clover and rye-grass seldom lie above one crop, or at most two, before they break it up again for turnips; therefore they are necessitated to marl upon broken ground, except they would lay it upon the clover-stubble as soon as the barley is off; which by the bye, is the best way, tho' they have not the least notion of it.

Were they to do this, the stubble would keep it up, till the young clover grew thro' and united and incorporated it with the sod or corn-mold; the frost would also shiver and temper the clods, and bring them to a separation: this is one great reason why all clays or marls ought to lie on the sod a year or two exposed, and to unite therewith.

But on the contrary, the Norfolk farmers lay it on a loose, fine, weak soil; there it is in clods, tumbled about with the plough, in the course of the fallow; and as it is a close, heavy body, it is generally covered and screened from the air by the corn mold, so consequently as the mold about it is a dead inactive body, having no moist or oily matter, such as grass or clover roots amongst it to incorporate or raise into a fermentation;

mentation; I say, for want of these assistances, the dead, weak, light body of sand, or corn-mold, has not sufficient strength to adhere or unite with the heavy body of clay; therefore the two parties lie each inactive in itself.

This evidently shewed itself to be the case between the above farmer's good crops, and his neighbours starved bad ones; many of which were scarce worth reaping, which had been marled on the fallow, though the marl and land were all of one nature; therefore, it was plain that his superiority of crops proceeded from no other cause, but that of being marled on the sod; the roots of grass, or other vegetables moisten and unite the two bodies of earth: and its acid and nitrous nature causes a fermentation, which is productive of a mixture and union, that could never take place between two such dead and inactive bodies, as the sand and marl are alone in themselves.

If it should be alledged, that the freshness or rest this grass land had got, by lying so long dormant, or in a sheep walk, was the cause of so great a produce in the crops: such a supposition is answered by several experiments, that were tried in the same sort of ground; nay the same sheep walk which neither hedge nor ditch parted, viz.

That all the farmers, except he who had the good crops, break up their grass land by fallow, and sow it with turnip seed; and two or three farmers, particularly, had marled upon the fallow, but their crops were not half so good as his, which was marled on the sod; and upon turning up earth, it was easy to discover the marl lying in lumps, in the same inactive state as when lain on; this was also the case with all the old going corn land in the neighbourhood, which had been more marled in the course of tillage. But upon repeated trials they find it does not answer, therefore seldom marl at all.

It is a prevailing opinion, and a common saying among them, that their land is too weak for marl, that the marl and sand will not mix or unite together.

An open town-field lay next to the two hundred and forty acres of good barley, the owners of which had several ridges mixed among his neighbours in that field, several of which he had marled upon fallow; but had no better crops on these than the rest of his neighbours.

All these circumstances proved beyond a contradiction, to the opinion of the farmers there, that marl will not answer with them, but upon grass-land, which had only been  
been

been lately tried ; for the two hundred and forty acres of good barley was the first instance, and fourth crop after marling.

It is worth observing, that this sensible farmer foresaw the success which would accrue from marling the said land on the sod, as he took a lease of the farm at double its former rent, though several people had been broke on it ; but he on the contrary, was making a good fortune ; for the crops I saw on the ground, were at least worth ten rents.

He had better turnips than any one else ; which enabled him to keep a large flock of sheep : he kept every thing as private as he could, and desired me to take no notice of what I had seen ; for which reason I suppress his name.

Many farmers looked upon his crops with wonder, and a longing eye ; but partly despaired of making his case their own ; as his land had been so many years coming to a sod : and theirs was chiefly broken land.

To sum up what has been said, all the above observations, as well as reason, prove clearly, that marl is a treasure, when found and applied properly to light sandy land ; but yet the same observations prove, that it cannot be applied with success to weak, worn out land, without some sort of vegetable

able or grassy particles, to bear up the marl, putrefy, keep moist and cause a fermentation, in order to mix or unite the the two bodies of sand and marl together : and as it is generally worn out corn-soil that stands in the greatest need of improvement ; and as it is also very disheartening for farmers to wait so long for their land coming to a sod for the said purpose of improvement, I refer them to the next chapter, where they will find artificial management will make up for deficiency of time and nature.

So much as this chapter contains, I thought necessary to say, in order to prove, both by reason and precept, the necessity there is for the farmer's keeping up to the rules laid down in the next, and consequently of his crops also.

## C H A P. XXXVIII.

*On different Sorts of Grass and Pulse, which must be sown before Marl is laid on broken, old going, sandy, worn-out Lands for the Improvement thereof, &c.*

SHOULD the reader happen to turn to this chapter before he reads the foregoing one; I would advise him to turn back, and read it first, in order that he may more fully be acquainted with the reason why I direct, or lay down the following management.

There are few sandy farms in England, but what have beds of marl or clay under one part or other of them: did the owner but apply himself for finding them out.

The

The first step he should take, is to view his hedges and trees, as their aspect of vigour or runtishness, generally shews the sort of ground they grow upon: as for instance, all tap roots thrive best where the interior earth is good, though at a great depth under; particularly oak; it strikes its root perpendicular to a great depth to find out nourishment; and if a good clay or marl be under at the distance of fifteen or twenty feet, the flourishing state of the tree will shew it, by rearing up its head high in the air.

One can hardly be deceived in this remark: for though the surface appear sandy for miles round, yet if there be any good oaks growing thereon, we may be assured that either a good clay, or marl is under; therefore the farmer may apply himself to a diligent search near the said trees.

What he wants being found, his next method to take, is how to apply it to his ground; and if his land be of ever so poor, light, sandy nature, the following method will enrich it, viz.

As soon as the crop of corn is off, plough the land once, and sow it with vetches pretty thick; then harrow them in; if this can be done a fortnight before Michaelmas, the better; that the Michaelmas spring may push them  
them



them forward to a good head before winter: and though the land be ever so poor, open or sandy: if sown at this time of the year, it will produce a crop of straw, though perhaps it would not have strength enough to support a crop of corn; but straw will answer his end.

The vetches must not be eat: but as soon as the bushy spring seed time is over, the farmer must prepare for marling, or claying upon them, viz.

He must first roll the vetches flat with a roller, so far as he thinks he can cover with marl the same day, but no farther; and also spread the marl even the same night, so as to cover all the vetches close therewith, to prevent the sun or weather from exhaling or drying out the juicy substance, which it soon will do from any part that is exposed thereto.

When marl or clay is first drawn out of the pit, it is generally wet and tough; but when it has lain a little exposed to the weather, it shivers and falls to powder, particularly if it be of a rich sort, for then the air opens it, to come at the salts it contains.

As soon as you see that the clods are come to a consistence, so as to break and spread, draw a harrow over the marl, turned the

wrong

wrong side up in order to break and spread the marl more even; and cover the vetches close.

The next consideration is what to sow it with; and doubtless your choice will fall upon such as suits your stock of cattle, or your opinion of farming, and crops the best; but was I to choose it should be sown with turnips at midsummer: however, whatever it is sown with, it must not be stirred with the plough, but as soon as the marl is levelled on the ground as above, sow the seed, and shovel the furrows, and spread the mold you throw out an inch thick all over the ridge.

If you cannot get mold enough without, you must either dig a spit deep, or run a plough up and down the furrow, in order to raise mold sufficient for the purpose.

Two men will shovel an acre in one day, which is cheaper than ploughing, and the work is done effectually; the marl lying between two bodies of sand, and the vetches being reduced to dung under the marl, that causes a thorough fermentation and union amongst them.

If you eat off the turnips with sheep, in the moving houses, you complete an effectual improvement; be the land ever so poor

or

or sandy; in short, this is the best method that can be taken to improve any sort of barren, light land; by marl or clay.

If clay-land, it will answer the end, by applying sand upon it in the same manner; only with this difference, that instead of vetches you sow grey peas, which will produce a greater burden of haum for manure.

Roll your pease, and when your sand is laid on, cover them, and the sand together, by shovelling the furrows as above: but the deeper you cover the better. Suppose you dig or plough a good spit deep, and make a furrow two feet wide, to throw over a ridge sixteen feet wide.

This is also an excellent method to cover in buck-wheat, vetches or pease, or any other crop that is sown for manure: suppose you would not lay on any sort of sand marl or clay.

As for instance: if you would sow wheat at Michaelmas, you must first sow your pease the latter end of May, or beginning of June: at Michaelmas they will be in full blossom, then roll them flat, and sow your wheat upon them, and trench the furrows as above, covering the seed and pease together two or three inches thick. These pease being covered, or smothered in their most juicy tender state, ferment and rot very

soon; they will be turned into a mass of manure in a fortnight, at which time the wheat begins to strike root, and feed upon the ground.

This is a very sure method of getting a good crop, be the ground ever so poor, as the seed takes root immediately among the manure.

This also effectually destroys the weeds; and as the furrows are deep and open, it is a good drainage for cold, low, wet land, in short it is the next best method to trenching land, and for the first crop perhaps may exceed it.

It is likewise a good preparative for such land as may be thrown into the course of trench-ploughing, as the furrows are ready open, &c.

Any spring-crops may be treated in the same manner with good success.

Six men may trench an acre thus in one day, and cover the ridge three inches thick; but if the mold be loosened with the plough, so that nothing but the shovel will want to be used, it will come much lower.

## CHAP. XXXIX.

*The Management, &c. of the white and blue  
boiling Pea.*

**T**HIS sort of pea is chiefly raised for the good of mankind, and is used for puddings, &c.

It is only here and there we can meet with land suitable for this crop: for though it may produce a full crop and good looking pease; yet if the land be not natural for them they will not boil soft; in which case they are of no value but for cattle.

The land most likely to answer for them is a dry sharp sand, or gravel: but experience must be the farmers guide herein; for  
if

if two pieces of land be both alike, to a man's thinking, and only an hedge parts them, yet one may bring a soft good boiler and the other not.

The season for sowing it is about the middle of March: it must be managed in every respect as the grey pea; it is generally sold for about the same price as wheat.

I have known more than once, twenty pounds an acre made by a crop of them; besides the crop is generally early enough reaped for the land to sow turnips on the same year; which is another great advantage: cattle do not like its straw so well, as that of grey pea-straw.

There are two sorts of this pea, but both nearly answer the same end: and the land that will produce one a boiler, will not miss in the other; one is called the blue boiler, being of a bluish cast or colour, and very small and round, and without any dints in it.

The other is called the white boiler, and is generally a little larger than the blue sort: this is also round, and is not dented: it is not quite so much valued as the blue sort.

They are both of the early hotspur kind; the seed must be changed every year to choose: and that which comes from the South of England is generally the best; the  
land

land being in that country, a very warm, sandy gravel. The farmers raise great quantities to send abroad, and find their account in it.

## CHAP. XL.

*The Management and Perfection of the grey  
Field Pea.*

**T**HERE are two sorts of pease which may be cultivated in the field with success.

First, the common grey field-pea, raised for the sustenance of the brute creation, answering the same end, or made use of for the same purposes as field beans.

The next is a boiling pea. I shall treat of it in another chapter.

The grey pease delight most in a light gravel or sandy land: but if sown with  
beans



beans, (which will be a rodding for them) they will grow with success on strong lands; but the richer the land, the greater need they have for support, as their straw grows longer, and therefore they must be sown thinner also.

Sow the poorest land you have with pease, as they will enrich the land, and on such poor land they corn best, for when the land is too good they run too much to straw, and the more straw the less corn.

Oat or barley stubble, if the land be poor will bring a good crop, provided you give it a couple of ploughings in autumn and winter; but if the land be in a good heart, you need only plough the stubble in just before sowing.

They may be sown with success, from the first of February to the first of April: but about the beginning of March, is the best season.

The land being ploughed, sow the pease at the rate of eight stone to the acre, Irish measure: when sown water furrow and grip the land.

This crop must not be rolled; in May is the time to weed them.

If they happen to be a short standing crop, they may be mown; else they must be

be reaped and rolled, or lapped up in round little bundles, like a sheaf of corn: thus they must be left in single lumps or sheaves till they are enough weathered, and dried for stacking, or housing; but while they are on the ground, they must be turned two or three times, lest the under part of the sheaf grow.

## C H A P. XLI.

*Directions for the ploughing, sowing and management of Buck-Wheat, through all its Variations.*

**T**HE chief use of buck-wheat, in England or Ireland, is for manure; tho' some make use of it for bread; but it is very ordinary bread, not much better than that of pease; it will feed hogs; but pease are full as good and will yield more corn on an acre: besides, they are a surer crop; as they will grow on almost any sort of land.

I will say so much, however, for buck-wheat, that where it hits and is a full crop, it is the finest thing for manure that I have ever seen.

I once had a crop, that, when it was rolled down, gave a task to a horse to walk through it; and the land gained so great advantage from this dressing, that the proprietor has good reason to remember it.

The plant is very luxuriant, and predominant over any weeds; so that the benefit does not wholly lie in the dung it makes, but partly in its being an effectual clearer of ground from weeds.

The land that suits it best, is that of a light soil, of a sandy gravelly nature, tho' in truth, (except a very strong clay) any land will bring a crop; provided it be well tilled to a fine mold.

Any sort of stubble that is intended for it, must be winter fallowed, ploughing it early in autumn, in order that it may meliorate with the frost, &c. and again, as soon as it begins to shoot in the spring, and the last time in April, just before sowing.

The middle of April is the best time for sowing it.

When ploughed before it is sown, harrow it once in a place; in order to level it, that the seed may not be buried too deep; then sow the seed, at the rate of two bushels to an English acre; after which harrow it very fine.

When

When harrowed, roll it: then you have no more to do with it, till it is fit to plough in for dung, which is, when full in blossom about midsummer.

This is done by first rolling it down the striping way of the plough: and then ploughing it in.

If the land be for turnips, as soon as the dung is rotten (which it will be in about ten days) if it be ploughed in the fullness of sap or juices, plough it up and harrow it once in a place: a man must follow the harrow with a rope tied to it, to shake it, lest it drag the dung in heaps. Being thus harrowed, sow the turnip-feed, and roll it afterwards.

But if the land be for wheat, let it lie unploughed, till the grass or weeds begin to grow, then plough the dung up, and in a proper time after sow wheat, and plough it in with the dung.

If you intend the buck-wheat to stand for feed, treat it in every respect like pease, as it is harvested the same way.

## C H A P. XLII.

*Directions how to raise Rape and Cole-Seed,  
and also how to manage Burnbeating, &c.*

**I** Shall treat of these two seeds under one management, in the same chapter, as they are nearly of one quality: all the difference is, that cole-seed requires a greater depth of soil.

Rape and cole-seed are very profitable, where they meet with land that suits them; which is a black and deep soil: cold, rushy bottoms, bog, or deep mountain are very good, provided it be duly pared and burned.

For paring and burning, (by others called burn-beating) take heathy, boggy, mountainy, or rushy, wet and cold low ground; the more ling or heath and coarse grass the better.

If it be for reclaiming of bog, follow the directions under that article.

If the ground be deep, and will allow it, pare a sod two inches thick, in order to raise all the ashes that is possible; but before you begin to plough or pare for burning, take a roller six feet long; in this fasten three belts of iron, quite round the roller, at two feet distance: these belts, or rather cutting knives, as they are to perform this office, are about the breadth of a scythe, and are to have prongs to drive into the roller, so that the edge will stand upright.

With this go across the ground intended to be pared; which, when pared, it will turn up in sods two feet long and save a great deal of labour of cutting by hand; the knives may be taken off or put on occasionally: and the roller will serve for other uses, of rolling corn, &c.

About the middle of April begin to pare, and do not miss an opportunity of burning the sods, when once dry; which will be in  
three

three weeks after cutting, if the season be not wet; but in a wet season, they must be set upon an edge, and they will dry the readier.

Being thus dry, and ready for burning, make heaps of about a cart load in each, with the grass-side downward: lay them as light and hollow as possible, that they may burn the readier.

Put some sort of kindling under to set it on fire, such as straw or sticks, &c. but little will do; if there be any rough stuff, such as heath, rushes, &c. on the foot.

The way to burn it to the greatest advantage, is not to let the blaze break out, but keep it smothering within; for the more it blazes, the more of the nitre ascends into the air.

Being thus burned, spread the ashes, and plough them under with a very thin furrow at the most not above two inches thick; then harrow it, and when harrowed pretty fine, sow the seed. After sowing bush-harrow it.

A peck of seed is the due for an English acre, which is about one third less than an Irish one.

Take care to water-furrow and grip it well.



In the spring weed it, and where it is too thick pull up some plants, and transplant them in thin places, if any there be; if not throw them away.

Some will hoe the rape; but I take this to be a superfluous piece of labour.

The most famous place in England, for rising this crop, is the fenny countries; and they never hoe any; but I have seen farmers in other countries, take great pains in hoeing it; but this may be partly owing to their being strangers to the right management, and to their taking over abundant pains, through a fear of not doing enough.

The chief thing is, to sow it even, and till it well, there is then no fear of a crop; for the plants coming up thick, and having a broad leaf, smother the weeds, cover the ground, and keep it light and mellow; so that in this case, I see but little need of hoeing.

I had a field one year, and in order to be satisfied which was the best way, I sowed a piece in drills, and hoed it with the plough: and another piece I hoed by the hand.

I did not tresh it separate; but in all appearance to the eye, there was no great difference, or at least, not in any wise equivalent

lent to the labour it cost me ; but in fact, it was all as good a crop as could well grow.

Where there is not burn-beating, a good crop may be got by summer fallow, managed directly in every degree as for wheat, with the same manures.

One advantage in sowing rape is this, that the seed costs a trifle, perhaps not above eighteen pence an acre ; and if it hits, it is a valuable crop ; and should it miss, the loss of seed is insignificant, and the land can be sown with barley at spring, as there is time enough to discover what kind of a crop the rape will be, before barley seed time.

Observe that it is ready to reap when the upper branches turn brown ; be sure you let it not be too ripe ; of the two evils, the least is to reap it too soon, rather than let it stand too long : for if the pods be too dry, they will open in reaping, and shed the seed.

Birds of all sorts are very fond of it therefore it must be watched for a month before its reaping, to the end of threshing : it is not altogether the value of what they eat, but in opening a pod, perhaps they will not get above one grain, and all the rest will drop out.

It is reaped in the same manner as wheat ; but the handfuls are laid singly and light upon

upon the stubble, behind the reapers: thus it must lie without stirring, till it is ready to tresh; which will be in about three weeks after reaping: for it must be very rash or dry, or there will be a loss in its not treshing clean.

When it is thus ready for treshing, prepare a floor in the middle of the field, (or in any other place most convenient for the carriage,) by levelling the ground, on which must be spread a large rape-cloth in the nature of a winnow-sheet, to tresh the rape upon.

Spread the rows round, and tresh round.

One man spreads before the treshers; another turns it after them; a third shakes off the straw, and a fourth carries it away.

These four men are to supply six treshers and four carriers in; with four to fill the sheets, and one to rake off the pulse and riddle them.

These set of people being in all nineteen, will tresh six or seven acres in a day.

It is better to proportion the labourers according to the quantity of rape you have, that it may be dispatched in a day or two, as rainy weather may prove obstructive; but if the rain should happen to catch you, throw up the corners of the cloth, and cover

ver

ver it with pulse, such as stays in the riddle, which will turn off rain extremely well.

There is no need of taking the seed off the cloth, but keep treshing upon it till all is done.

Some will sell the seed to the oil-mill, as soon as winnowed from the cloth: others that do not want money, will heap it upon the floor, mixed with chaff, and covered up with the pulse, so that it will be round and sharp at the top like a hay-cock: and thus they will let it lie perhaps two months till it gets a sweat in the chaff, which is very necessary; for being of a clammy oily substance, it would turn moldy, when clean in a granary, if it did not get a sweat in the chaff as above: but this precaution will prevent the said evil.

It is immaterial to say any thing about winnowing; as it is easily done by any one that can winnow flax-seed or corn; as it is only sifting it with sieves to the size of the seed.

The straw was thought of no value formerly in England, but rather a nuisance; but of late years the ashes it makes are found to be valuable for making soap; and the soap-boilers will buy the straw, perhaps two or three months before it is reaped  
and

and will give from three to six shillings per acre, according to the quantity that may appear to be thereon.

About the latter end of November, if the rape be strong so as to bear eating, (which you may judge of by the strength of the plant, or grossness of the stalk,) turn sheep in and eat it till Candlemas; provided you do not overstock it; but take care that they do not eat the stalk too near; they ought to go no further than just to eat the leaves off, without entering on the body of the stalks, for fear of wounding them too deep.

Cole-feed may be eaten a great deal safer than rape, as it produces a grosser stalk; and when all the leaves are eaten off, about Candlemas it makes fresh shoots, and produces larger heads than if it had not been eaten; and if the land be good and deep, it will produce a more profitable crop than of any other grain whatever.

I have discoursed with several farmers in England, who know no other difference between cole and rape-feed than the name.

It is true that the seed is nearly alike; and no difference is made in the price to the oil mills as they produce one sort of oil; but there is a material difference in the plant, and it is the advantage of a farmer to be well acquainted with it too. The

The cole-seed is a species of cabbage originally from Holland.

It produces a very large luxuriant plant, in good ground: it will produce a stalk like that of a cabbage, and the seed in proportion to the size of the stalk.

A very full crop will turn out a last on an acre.

When the sheep have eat the stalks bare, it is an easy matter to take them up, where too thick on the ground, and transplant them.

I once took as many superfluous stalks out of two acres, as transplanted six; which bore as good a crop as the rest, only a little later.

I am certain a very great advantage might be made in this method, in the manner following, viz.

It is to be observed, that land for rape or cole-seed is fallowed all winter, and till the time of sowing, which is the latter end of June or in July; by which means the rape takes up the land this year, and till it is reaped, which is about the latter end of June the next year; therefore it is too late for sowing any sort of crop but turnips when the rape comes off.

Now suppose you had half an acre of good land, or made it so by dunging it better

ter than common, and tilling it a little extraordinary.

At the proper season of the year, which is at Midsummer, sow on this half acre one peck of either rape or coleseed: but if I was to choose it should be cole-seed.

Now we suppose this to produce a very plentiful crop of plants, perhaps very few grains would miss: thus let them grow till Michaelmas: and suppose you have ten acres of either wheat, bere, barley or oats: as soon as the corn is reaped, plough the stubble: let it lie a month or six weeks to rot, and then plough it again: this will be nearly as good as summer fallow.

Begin at one side of the field, and plough a furrow: in this set a row of these plants one foot asunder, leaning against the side of the furrow: then plough another furrow against it: make the furrow about a foot broad: so continue till all the field be set: but it is the best method to set them with the transplanting machine, as directed for wheat.

If the land be good, there will be no need of dung, &c. but if it be poor have rotten dung in the field, ready laid in heaps; take baskets, and lay a little at the root of every plant: about the size of a large potatoe will be sufficient: by this means, a little

the dung will go a greater way, and not any of it will be laid in vain, as every plant will have the good of it.

This is a mighty ready way of transplanting: for except the ploughing it will not cost above two shillings an acre.

The plants will be the better for leaning on one side.

About March, if the mold be drawn up to the stems, they will be the better, tho' they may do very well without.

I do not doubt but there are as many grains in a peck of rape-seed as will set at a foot distance from each grain, a hundred acres; therefore without doubt, there will be as many plants to pick and choose, as would plant ten acres at the same allowance.

When the rape is reaped sow turnips.

This is getting three profitable crops, and part of a summer's fallow in two years: and the two last crops are of an improving quality.

It is true I never saw this method put in practice by any other person. However I made trial enough in this way to prove it valuable.

This experience joined to the reasonableness of the thing, makes it clear to me, that a farmer, by this management might make great profits of his land.



If it should be a busy time about Michaelmas, the transplanting might be deferred till the beginning of February, and keep the land fallowing all winter, and indeed I doubt not but this is full as good a season as Michaelmas, and the land may be kept fallowing as I observed.

The spring planting will drive the crop a little later, but I am convinced that there is no doubt of the plants growing from either season: it is my opinion not above one in an hundred would miss.

I should be glad to see this profitable piece of husbandry put in practice in a large degree, as reason speaks so clearly in its favour.

It would also make good winter feeding, if the farmer did not choose to let it stand to feed.

What a fine affair would it be for a farmer to make ten or fifteen pounds an acre of his stubbles: the land the better for it, and the expence not above three or four shillings per acre?

If it should miss, the loss is scarce worth notice, and the land will be the better for the fallow at any rate.

The middling produce of an English acre of rape is half a last: it sometimes happens that an acre will produce a last; but it must be very good.

Cole-feed will very often produce a last ; being a stronger plant, it consequently throws out larger feeding branches, where the land is deep and proper for it.

The rape or cole-feed is very proper for the land and climate of America.

## CHAP. XLIII.

*Directions for making a new invented Tresh-  
ing Floor.*

**T**AKE boards three inches thick, and ten or twelve inches broad, and so long that two will reach across the barn floor, from door to door; in these six feet to make benches three feet high: there must be six of these forms or benches, which will reach three times across the floor, one at each side, and the other down the middle, put a hasp & staple to the middle end of each bench to fasten them together that the motion of the flails will not shake them a sunder.

These benches is by way of platforms to lay the flooring boards upon, which boards

must be three inches thick, and as broad as may happen, and as long as will reach across the benches from side to side.

Joint and plane the upper side of the boards, then bore them full of holes with a cooper's tap bit at three inches distance from each other, the tap bit being taper, the wide part of the hole must be at the unplanned side of the boards which must lye downwards, by which the straight part of the hole which must be half an inch wide being uppermost, will not choke or stop up with corn or chaff when treshing thereon.

This stage or upper floor is to tresh upon and the old under floor is to receive the corn which is riddled through the holes as soon as it is treshed or lose from the straw.

When you want to winnow, the boards being loose are quickly thrown to one side, and the two middle forms being taken away the corn is winnowed on the bottom floor.

This is a simple, cheap and easy made floor, and is of great utility, as it saves both labour and corn, for as the corn falls thro' the holes as soon as treshed, it keeps the floor sharp and clean so that the flails will rise easier to the tresher, than when it falls on a heap of corn and chaff, and the boards being loose and hollow will spring, and make the flails also rebound and rise with more ease

ease to the treshet than when it falls on a solid laid floor: the next consideration is that it saves near one part in four times which is usually taken up in raking or making up the floor.

Another advantage is, there can be no loose corn lost or thrown out with the straw by not shaking it well, as is the case when the straw and corn lies together; neither is the corn a glut on the floor 'till winnowing days, as the under floor serves as a reservoir for that purpose.

## C H A P. XLIV.

*The Management of Tobacco.*

**T**OBACCO is a profitable crop when rightly managed, but requires good land, and in some stages very careful attendance, particularly in drying and making it fit for the hoghead.

The ground must be well tilled and manured, except it be new cleared, good fresh ground; then it may bring three or four crops without manure.

The seed of tobacco must be sown in seed beds, as early in the spring after the frost breaks up as possible, so that the plants may be large enough to plant out from the middle of April to the first of May.

The

The ground must be ready to receive the crop by digging deep, and loosening the earth, with a spade, particularly in the spot where the plant stands.

In the middle of every square yard set a plant, pressing the earth close to the roots thereof. When weeds grow they must be cut up with a hand hoe, and at the same time draw the mold up about the stalks of the plants.

As soon as you see the plants begin to bud for flowering, you must go over the ground and pinch all the buds off, between the finger and thumb, in order to make the plants strike more into leaf, at the same time strip any dead or withered leaves from the bottom of the stalks and throw them away. Some indeed will take off two or three of the largest leaves from the bottom of each stalk, and dry them for tobacco, which I think the best method: first because it lets air circulate more freely among the crop, which encourages vegetation: secondly the leaves will improve no more, they being ripe some weeks before the upper leaves: thirdly, though these bottom leaves make a coarser sort of tobacco than the rest of the plant; yet they will very well pay the trouble, and it is getting so much work out of the way, before the remainder.

mainder of the crop comes on to be managed, which is generally a busy time.

From August to September is the time for cutting the plants.

They must be cut down below the leaves: when cut they must lie a few days to wither and then take them under cover, and hang the plants singly across sticks till they are quite dry, so that when they are put together in a heap to sweat, they will keep their colour, and not turn to a white mold, which will rot and spoil the tobacco.

If the weather be wet or hazy, the tobacco will not dry without fires being made on the floor of the tobacco-house, which will warm and dry the whole tobacco that hangs over them.

While the tobacco is drying in the house it must be looked at every day, least it turn to a white mold, and rot where it hangs too thick. In this case it must be shifted and thinned in time, to prevent the worst of malady's.

The Tobacco being properly dried, it must be put in a heap to force a sweat, and the leaves must be stripped from the stalks, and made in hands (as they call it) by tying four or five together, and then it must be pressed very hard in a hoghead for use.

The



The crop is ripe for cutting when the leaves turn a yellowish brown at the edges, or when you can double or bend the ribs of the leaf without breaking.

When the crop is ripe to cut early, there will other leaves spring from the roots, that will produce a second crop (but this) except the weather prove favorable, is hard to save.

It is a tolerable good crop of tobacco that will produce a hoghead an acre.

There are several sorts of tobacco, but the best which I have seen, is what they call the bull-face; it produces the strongest plant, consequently the fullest crop. The finest tobacco, is that of a yellowish green (some, when they strip the stalks) will preserve all the leaves of this colour by themselves, and sell the tobacco at an advanced price from the rest.

## C H A P. XLV.

*The Management of Indian Corn.*

**T**HIS is a crop the Americans are in general masters in the management of, so I shall be short on the subject, and only add one particular to the common management, which reason tells me will be an improvement if closely adhered to.

In this, as in all other crops, the richer the ground and the better and deeper it is tilled, the greater chance of a good crop.— However in many parts, and in particularly in new cleared ground, the roots of trees prevents ploughing deep for Indian wheat, and wheat absolutely requires it to bring it its best perfection; therefore, when all the ground cannot be tilled deep with the plough  
I would

I would advise three or four spits with the spade to be dug deep in the place where the corn is to grow, one man would do an acre each day, and it would well pay for his trouble, but in doing this he must turn the upper surface to the bottom of the hole, for the same reasons that are mentioned in the chapter for trench ploughing.

When the ground is fallowed and thus ready to receive the crop, the next step is to make marks where the corn is to grow at six feet distance every way from each other, and at the center of every six feet, make a circle of a foot diameter, in which set at an equal distance from each other four grains of corn three or four inches deep in the ground: three grains is sufficient for a crop, but the fourth is easily pulled up when they are a size to be discovered which is the weakest.

When the corn is growing plough between the rows as close to the roots as you can, in order to kill the weeds and freshen the plants by cutting superfluous fibres that runs horizontally near the surface of the earth, this will make the tap roots strike deep in the ground, which adds vigor and strength to the plants.

If there are weeds growing among the roots of the corn or in such a situation that the

plough cannot come at them they must be destroyed with the hand hoe.

The best time for sowing the seed is from the middle of March to the first of May.

The crop being thus set and properly hoed, the chief part of the care attending, it is over.

The crop is generally ripe in September, the harvesting is very simple, being nothing more than to cut off the ears and throw them into a carriage and house them.

The best managers strip the blades from the stalks and tie them up in small sheaves and preserve them dry in stacks or houses for fodder for cattle in winter, others will let them stand till wanted in winter, and then pull and throw the stalks and blades together to the cattle and let them pick the blades from the stalks themselves.

Some strip or shell the corn from the ears by hand, others tresh them on hurdles made of small sticks when they want to sell a quantity, but in feeding their own hogs or horses they generally throw the whole ears to them who will quickly shell the corn off and feed upon it.

A very good crop will produce sixty bushels an acre, but thirty is a fine crop.

## C H A P. XLVI.

*General directions for ploughing, sowing, harrowing and mowing, or harvesting Barley.*

**I**N October begin to plough your land for the winter fallow, which is intended for barley, except turnip land, which must be ploughed as soon as the turnips are eaten off.

Observe to gather, or raise your ridges high in the middle of your winter fallow, by which means it will keep itself dry, so that it may be ploughed any time in winter; and the more it is ploughed the better and richer

it

it is made: take care that your land be got into sowing order by the first of March, as the best season for sowing barley, is from that to the middle of April, though some will sow till the middle of May; but a good deal may be owing to the season; for it is better to wait a month, than to sow in a dirty, cold, bad season; as barley is a grain, above all others, that will not bear inclemency of weather or hardship.

If you intend to lay your land down with any sort of small grass seeds, such as clover, lucerne, &c. as soon as the barley is sown and harrowed, as above, sow your grass-seeds, and harrow them once in a place, with the harrow turned the wrong end foremost, that the pins do not sink too deep, which would bury a great deal of these small seeds; but larger sorts of grass-feed, such as saintfoin, burnet, and the like, may be sown, when the land is about half harrowed for barley, and then harrowed along with it; by which means they will be the better covered; and, being a husky seed, they require it.

When the barley has been sown about a month, roll it.

Sow your barley immediately after the last ploughing, and harrow it extremely well.

Six stone of seed is sufficient for an English acre.

One great article, on which the farmer's success depends, is, to keep his crop clean; he must therefore take care it will be well weeded, and throw the weeds into the furrows; being thus cleared from weeds, the business is over, till ready for harvesting.

As most persons know when it is ripe, I shall only say, that the chief token is, to observe the joints of the straw; when these turn from a green to a dry straw-colour, it is ready for cutting; but no corn is ripe, as long as the joints are full of sap; for those are the juices which supply or feed the grain with its last nourishment; as it keeps feeding or filling, until the joints are sucked dry; and then the green cast departs along with the sap, and nature has done its work; therefore fall to, and mow it, as directed in the next chapter.

## CHAP. XLVII.

*On mowing and harvesting Spring-Corn.*

**W**HAT may be properly called spring-corn, is, that which is sown in spring; such as barley, oats, beans, pease, buck-wheat, and the like.

These are what the English farmers call mowing crops, which is done by a cradle on the scythe; or, for want of this, a hoop, made of a strong brier, fallow, or the like; the root-end of which is fastened in a hole, made by a spike-gimlet, in the shaft, about eighteen inches from the heel of the scythe; and the top end of the stick must be brought with a bend over the heel of the scythe.

The



The hoop must be crossed several times, with cord, like a net work, in order to keep the corn from falling through.

Upon trial experience will teach him farther.

The mower being thus equipped, let him begin to mow, leaving the standing corn on his left hand; that is to say, he must leave the swarth leaning against the standing corn; and if he is a dexterous workman, he may leave it so even and straight, that a cross straw will scarce be seen.

After each mower comes a gatherer, with reaping-hook, or a small rake to make it into sheaves.

The complement, for every two mowers and two gatherers, is, one binder; sometimes, when the corn is rank, or a heavy crop, the two gatherers will have a band-maker between; and these five or six persons day's work to mow, gather, and bind, is, four English acres of fair standing corn, either barley, beans, blendings, or oats.

Being thus bound, it must be set up in stooks; the sheaves propping against each other, press the tops well together, in order to make them thin and sharp; which will shoot off the rain the better.

The farmers in England, seldom put any covering-sheaves on their barley-stooks; but leave

leave the corn-ends exposed to all weather ; believing that the corn hardens the quicker, and more kindly ; however, as Ireland is a wetter climate, I would advise the farmer to cover them at night, and uncover them in the morning.

After stooking, the barley-stubble must be raked with a swarth-rake ; so called from the length of its head, which is six feet, to take a swarth-breadth at a time.

It has one row of iron pins, each pin eight inches long out of the wood, and three inches asunder.

It has a handle, in proportion to the rest of the rake, in which is fixed a belt to go about the man's shoulders, to draw it in the nature of a harrow.

When he finds his rake full, he must lift it up, whereupon the corn drops out ; he then goes on again, always leaving the corn in the same place or range, in the nature of a wind-row.

When the field is raked, cock the rakings like hay ; and this is very useful to lay on tops of the field stacks ; as it will lie better than sheaves, and shoot the water off ; but in England they never slack their corn in the field ; but let it stand in the stook, till it is ready to take home to the barn or hay-yard.

However

However, as Ireland is a moister climate, I believe it is a very good way, particularly if the corn is to be housed.

And perhaps, if England was to do the like, it might be better; as it would put the corn out of danger of bad weather.

N. B. Spring corn, such as barley, oats, beans and pease, are all harvested the same way by mowing; therefore, I shall refer my reader, for directions on those heads, to the foregoing instructions. I see no better method than the above, for harvesting spring corn in America, both for dispatch and cheapness.

The Expence and Profit arising from an Acre  
of *Barley*, sown after *Turnips*.

	l.	s.	d.
To eight quarters, at 20s. per			
Total produce	8	0	0
<hr/>			
To two ploughings, if only with one man and two horses	0	5	0
To harrowing, sowing, rolling, and water-furrowing	0	3	0
To chance of weeding	0	2	0
To seed	0	5	0
To mowing	0	1	0
To gathering and binding	0	0	6
To raking with a swarth-rake	0	0	4
To stooking, carriage home, and extraordinary attendance	0	4	6
To carriage to the market, and expences extraordinary	0	6	0
To land rent, upon a par	0	15	0
<hr/>			
Total expence	2	2	4
<hr/>			
Clear profit	5	17	6

*Note.* The straw pays for treshing.

## C H A P. XLVIII.

*On five Sorts of Barley.*

**F**IRST, sprat or battledore-barley.

Second, long-eared barley.

Third, round-eared summer barley.

Fourth, round-eared winter, or by some in England, called big; but its true name in Ireland, is bere.

Fifth, six-rowed barley.

Were I to add a long chain of names, (as is usual with some authors) it would be swelling my work into a useless chit-chat, as every name that is added to those, is only explaining the same thing over again; for it is the different language, or rather gibberish

of

of different kingdoms or counties which give rise to so many names for one sort of grain.

This may well confound the ideas of a farmer, who does not know how to account for all the names that are given to the same sort of grain. May not this lead him to seek, under a disguised name, for the very seed himself has growing?

It is true, different land and tillage will, in some degree, change the form of seed, as to a thick or thin skin, a small or a large size or the like: but the species is yet the same.

The sprat or battle-dore barley, has only two rows of grain; for which reason the ear is flat, the corn is short, plump and thin skinned, not inclined to have a long gross straw, (but indeed this varies according to the richness of the ground it is sown on) it is said it will grow well on many other sorts of land.

I have had great crops on tough, strong, cold clay, or gravel land; but such must be well pulverised, sweetened, enriched, molli-  
fied and warmed by tillage.

Manures on such land, will not do for barley, unless the cold sour nature of the ground be changed by tillage.

The

The manure which ascends and descends from the clouds, is of a warmer and earlier nature than any other; therefore it will produce the earliest and thinnest skinned crops.

The long-eared barley is so called from its having a long ear, by which it may yield more corn under the flail: but the grain is small and long, and has a thick skin: it delights in much the same land and tillage as sprat-barley.

Round-eared summer-barley is an excellent good yielder: it is a middle species between bere, or winter-barley, and sprat-barley; and therefore must be sown early in spring.

The lands of Ireland, Scotland and the North of England, are very suitable for it, provided they are well tilled. It has also a plumper, fuller, or bolder grain than bere, though not in this case, equal to sprat-barley.

It is not so delicate or tender as sprat-barley, neither is it so hardy as bere: indeed, it is my choice, next to sprat-barley, for almost any sort of land which is proper for barley-crops.

Bere, winter-barley, or big is best known in Ireland, or the North of Scotland: and, indeed by their tillage, it is most fit for them. I have

I have held several arguments with Irish farmers about this grain, and I generally found the strength of their arguments to hang upon prejudiced old customs, believing as their forefathers sowed it, though in darker days of improvement, that they would not be right, if they did not follow their steps: and in short, it is as hard to shake their resolution from the pursuit of this their favourite grain, as from being drunk by the whiskey or spirit it makes.

This bere is generally sown at the same time with wheat; and though flovens sometimes get good crops, perhaps chiefly from the strength of manure (as they mostly sow it after potatoe-crops, or on their rankest land which would in fact bring onions) yet I observe, those who manage better have in general better crops; and bring it nearer to the resemblance of barley, for plumpness, but at best, it is far short of barley in value, insomuch that it would hardly be sold in the English markets at any price, except for hen-corn.

It is a poor, long, small grain, with a thick skin; but notwithstanding this, it is not without its good qualities, where it is used in its proper place.

It



It is to be observed that the poor of Ireland live about eight months out of twelve on potatoes.

A potatoe-garden for a poor family, is generally about half an Irish acre; they keep no team; therefore cannot till the potatoe stubble fit for a crop of barley; for it is to be observed, that there is no more of the ground stirred, than what they throw out of the trenches to cover the potatoes with.

The bed on which the potatoes grow, lies unmolested till the third crop; therefore, when they dig the potatoes, they sow the bere, and shovel up the trenches to cover it, which is all the husbandry it gets or wants.

But such husbandry would not do for barley; therefore in this case it may have the preference.

## C H A P. XLIX.

*On different sorts of Land for Barley.*

**B**Y dint of ploughing, good husbandry and rotation of crops, almost any sort of land may be brought to produce barley; however, some is better or more suitable for this crop than others; therefore I shall begin with the best first, and go regularly on to the worst, which shall be placed last, viz.

First, loamy sand.

Second, loamy gravel.

Third, chalky land.

Fourth, sandy land.

The above four sorts by nature, will produce a long ear and short straw, a plump, stout grain, and thin skin, which is certainly of the best quality.

Fifth,

Fifth, loamy gravelly land that lies over limestone.

Sixth, wrapy land.

Seventh, black hazel earth.

Eighth, strong clay land.

Ninth, black mountain land.

Tenth, black, deep, moory bottom land.

The last six sorts of lands generally produce a long straw and a small ear, a long small grain, and thick skin, but may be helped greatly by tillage, sowing thin, and particularly if the barley follow turnips; as they in all cases are an excellent preparative for this crop, and deserve to be made a more general choice of.

## CHAP. L.

*On the Management of Rye, both for Winter-Feeding, and a Seed-Crop.*

**T**HE Management of rye is very simple and easy, which few words will explain.

A farmer having stubble-land, particularly if of a warm sandy nature, would wish to have it under profit the winter half year; let him plough it as soon as the corn is reaped: begin in the middle of the ridge, and gather or take it up, that it may lie very high and dry: this done, sow two bushels of rye on an English acre: harrow it in; and by being thus early sown, the Michaelmas-spring will push it up so forward, that it will be mid-leg deep by December: but though it may be a full eatable crop by this time, yet the best way is not to turn cattle upon it till spring: then the scarcity of other herbage will make this more valuable. You

You must eat it off, time enough to sow such a spring-crop as you intend; but barley is the most suitable, as it will bear to be latest sown, and therefore will give the rye more time to be eat off.

If you would have your rye to stand for seed, there are two seasons for sowing it, namely at Michaelmas and in February.

The large winter-rye must be sown at Michaelmas, and the small spring-rye in February.

Six pecks of seed are enough for an acre. You must cover it with the harrow.

This spring-rye is sometimes made use of amongst the English farmers, if a crop of wheat should miss to sow in its place.

In spring roll your rye, (which you intend to stand for seed) if too forward, eat it with sheep or calves, in the beginning of May.

As the farmer's success partly depends on keeping his crop clear of weeds; this, as in others, must engage his attention.

As to reaping or harvesting rye, it is done in the same way as wheat.

Grass-seeds may be sown among rye, before it is rolled in spring, and will answer as well as if sown amongst wheat: a crop of rye is of about the same value as a crop of oats: but it is a greater impoverisher of land.

The

The land most proper for rye, is, that of a dry, open, loose, weak, sandy or moory nature: and though strong land of a good fort will produce rye, yet other crops may be adapted for such land, which are more profitable.

## C H A P. LI.

*Remarks and Illustrations on Rye.*

**R**YE, formerly was greatly esteemed in the light sandy counties of England; as the farmers thought such land would bring nothing else: but since the new husbandry of turnips and clover has made its way into the world, it is found that they change the nature of the land, and consolidate it in such a manner, as to prepare it for a crop of wheat, which is much more valuable than rye; however, rye is still useful in its place; and particularly for spring feeding, as it creates much milk; which makes it particularly useful to feed early lambs on: and what still adds to its value in this case, is that the land most proper for rye is that of a dry, light, sandy nature, which if the weather be ever so wet, the rain no sooner falls upon, but it sinks thro' and leaves the surface dry; therefore the lambs can feed and lie dry and warm; whereas

whereas if the ground was clay, such as would hold water on its surface, the consequence would be bad; for it would destroy the lambs, or at least be prejudicial to their feeding and growth. Also in such land, they would tread and dirty the crop; so that their feet would destroy as much as their mouths.

Again rye is the best of all other corn to sow on reclaimed bottom, bog, or mountain. I say the best of corn, but I apprehend no corn is equal to turnips, rape, or cole-feed, for such reclaimed lands; but when rye is propagated on such land, it must be sown very thin, as it will stool very much.

The consequence of sowing thick, on such land would be dangerous; as it would produce much straw and little corn.

The great use for rye, is to mix it with wheat for bread: about two-thirds wheat and one of rye, make well tasted bread, but black.

In this mixed state, it is called messlin. Some sow wheat and rye mixed, which is called messlin: but I do not like this method; neither do I see any meaning in it: for in the first place they do not ripen kindly together; besides if the land will bring one ear of wheat, by the same rule it may bring



two or more; and certainly wheat is a much more desirable crop, if it can be got on the same land.

Notwithstanding, rye is still useful (as before observed) in sand countries, and for reclaiming bog with, where the farmer is obstinately bent against the turnips and clover.

Rye makes good malt for the distillers; being of a particular sweet taste or nature, it therefore produces a great deal of spirit.

Again, a farmer may make use of rye with success, to bring his sows in season for the boar; it having a surprising effect that way: so that they tell you, one peck of rye will make a sow take the boar, be she ever so poor, or soon after pigging; others say, that it will have the same effect on cows and ewes.

For the truth of this last assertion, I cannot vouch; but I have tried it on the sow more than once.

Note, there are only two sorts of rye worth the farmer's notice, namely, small and big, and by others called winter and summer-rye.

The winter-rye is a large full grain; but the summer-rye is a small grain, and is generally sown in spring, and will be in as early at harvest, as that sown at Michaelmas.

The

The winter-rye, sown to stand the winter is a hardy kind, and will answer either to stand for feed or to be sown and eaten for winter-feeding,

Rye-straw is a very good thatch or litter, but bad fodder for cattle.

## C H A P. LII.

*Directions for Ploughing, Sowing and harvesting Oats.*

**O**ATS is a grain that will grow almost on any sort of land, or with any kind of husbandry; but though sometimes tolerable crops are got by flovens, yet those who manage better may be sure of a larger return; and this is, or may be got chiefly by tillage, and letting proper crops come in their right succession, by which means the one crop is an useful preparative to another.

If stubble of any sort be intended for oats, it is the better for being ploughed as soon as the grass is eaten off; which is generally about November; and then it being turned under, and the roots of the grass or weeds exposed to the frost and the inclemency of the weather, they are killed, and instead of a nuisance, become a friendly manure.

Many farmers make a practice of sowing oats upon lay: that is in or about February; they plough up the lay, sow the oats, and then harrow them in very well, so as to be all covered.

This may answer where the land is good, and of a tender sod, not given to coarse grass, or rushes: but however in general, I do not approve of it, as I look upon fallowing out of the sod to be the most capital management in nature, for the reasons I have mentioned in the proper place.

The land must be ploughed and the seed sown in February, or from thence till the latter end of March.

I look upon three bushels of oats to be a sufficient quantity for any kind of land; for though it is a grain that does not stool, or branch so much as barley or wheat, yet it corns in proportion to the nourishment it finds in the ground.

When the oats are about three weeks or a month in the ground, sow any grass-seeds you intend and roll them in, as it will cover the seed, level the ground, and help the oats at the same time.

The oats must be weeded about the middle of June; then any farther business is over until harvest; for which observe the directions under the head of mowing corn; they

they must be mown and harvested the same way.

Without doubt, by mowing, there is more fodder, and consequently more manure; besides all the hands it saves; which is a valuable consideration, at this busy season of the year; moreover, it should be the farmer's chief study, to work his lands with as little expence and labour as possible; and yet not to be so penurious, as to stint his land of its proper due.

There is a medium to be used in all things; and also much to be said in favour of genius and contrivance, particularly in farming matters; as it is, of all occupations of the most general benefit to mankind.

## C H A P. LIII.

*The Explanation of six different sorts of Oats.*

**O**ATS like most other grains have got a multiplicity of names, to express one and the same thing; but this (as observed in barley) is owing to a different dialect or confusion of tongues, peculiar to each country or kingdom. In fact, I imagine there is none more proper for these climates, than these six sorts, viz.

First, the single English white oat.

Second, the Poland-oat.

Third, the Scotch black oat.

Fourth, the naked oat.

Fifth, the red oat.

Sixth, the brown oat, sown much in the south west part of England.

If there be any others that vary from these it is not because they are different sorts or species, but because they have been altered  
in

in either colour or size by the nature of the ground or climate they were sown in.

However there is a particular choice to be made in all sorts of oats, which is very material for the farmer to know, in order to heighten his success in this crop.

It is to be observed, that in most oats, there are some which grow in couples, that is a large and a small one together, but in some a great deal more than others.

The farmers, who know the bad consequence of these double oats, are very careful in choosing their seed, to be all (if possible) of the single oat: and indeed, they have just grounds for this nicety; as a barrel of single oats will weigh more, by about two stone, than a barrel of the double sort: and every one will allow, that it is the weight that distinguishes the goodness or badness of any corn.

The oat grows double from three causes.

First, by being sown too often on one sort of land without changing.

Secondly, by being sown too thick on the ground.

Thirdly, by the ground being too rank.

When oats have once got into the double strain, they ought to be sown no more, as it is hard to bring them back to the single oat again: though this may be done by sow-

ing very thin on good strong land, and tilling well to prevent weeds from smothering the oats, and drawing them up weak.

I look upon the English single white oat to be the best of all others, for the climate and lands of England or Ireland, as it is a good yielder, both in corn and meal, and ripens even: which is a very material point in this crop, it being so subject to shed, or shake its seed.

The next in value, particularly for the wet or cold lands of Ireland, or the north of England, is the black Scots oat: this yields well, both in corn and meal, and is early ripe; therefore may be sown later, if a cold wet spring, by three weeks, than any other sort: the meal also has a peculiar rich sweet taste.

The Poland oat is a fine, short, plump grain: the straw short and fine: but it will not turn out near so much corn on an acre as the two former.

Again it is very subject to shed, with the least wind, the top and the best of the corn whilst that on the bottom branches is green; particularly if the land be cold and wet: but indeed on warm, gravelly or sandy land, it ripens more even: therefore a farmer has a better chance to catch his crops before it sheds: but this oat must be cut, while the  
chaff



chaff or husk on the lower branches is greenish: for if they be let stand till they turn as white as the top-branches, half of the crop will be lost in harvesting.

The naked oat is a small grain: it is called naked, because it has no bran upon it, like other grain; but grows in the same state as the kernel of the common oat when shelled: therefore it is a ready grain for bread: as, when it is threshed, there is no more to do to bring it to meal, than to grind it, and then it is all meal, and no bran: it is a sweet meal, and consequently makes good bread.

When it is sown on land proper for it, it will produce as good or profitable a crop as other oats: for though the bulk will be wanting, the meal is there: and if it be a good crop, the grain may be as large as the kernel of common oats, when shelled.

The straw is short and fine: therefore good fodder for cattle. This oat does not stool or branch much: therefore it must be sown pretty thick on the ground: two bushels will do this, as the grain is small.

They must not be sown under furrow, but harrowed in: as the grain's small weak nature would not be able to work through a thick furrow.

The

The land for this crop must be finely tilled; and as all land, after ploughing, has an uneven surface, it is necessary before this grain is sown, to harrow it once in a place, to level it, to prevent the seed falling too deep, and also to make it spread even, and go farther: after the grain is sown, harrow it fine.

Delay sowing grass-seeds, till the first of May, that these oats may get a-head, or they will be smothered, being a small plant. The season for sowing the oats, is about the first of April.

The red oat takes its name from the colour it bears; though in fact it is not absolutely red; therefore I think the name is wrong applied; the colour is of a sandy cast, much like oats that have been heated in the stack.

It is a heavy thin skinned oat; therefore yields well in meal, and will nearly produce as much on an acre as the English white oat; however, it requires a rich, warm, well-tilled soil.

I have heard gentlemen say, they have had greater produce from this than any other crop: but as that was not my case, I cannot speak from experience in this particular.

The Expence and Profit arising from an Acre of Oats, English Measure, at five Yards and a Half to the Perch.

	l.	s.	d.
To seven quarters of oats, at 18s.			
per - - - - -	6	6	0
To ploughing twice, with one man and two horses, - - - - -	0	5	0
To harrowing, sowing, rolling and water-furrowing, - - - - -	0	2	0
To chance of weeding, - - - - -	0	2	0
To feed, - - - - -	0	9	2
To mowing, - - - - -	0	1	0
To gathering and binding, - - - - -	0	1	0
To swarth-raking, - - - - -	0	0	4
To stooking, carriage home, and attendance, - - - - -	0	2	0
To carriage to the market, and expences, - - - - -	0	6	0
To land-rent, - - - - -	0	15	0
	<hr/>		
Total expence	2	3	3
	<hr/>		
Clear profit	4	2	8

## C H A P. LIV.

*On the White Vetch.*

**T**HE white vetch, in some degree, partakes of the nature of a white or boiling pea, as it will boil soft and smooth like that grain; and is chiefly used for making puddings of; it is mild, good and palatable, consequently very proper for that purpose.

It only differs from the common vetch in colour, which is milk white, but the shape of the grain and the straw is like it; however it will not stand the winter so well, being of a tender nature.

The proper time to sow it, is in April. It thrives best in light sandy land, and likes to be set in drills, and hoed; if it be managed thus, it will produce a great return.

## C H A P. LV.

*On the Siberian, or naked Wheat.*

**T**HE naked wheat is a native of Siberia, a very barren and cold climate. The land is covered with snow nine months in the year; consequently there are only three months to till, sow and reap in.

Their chief support of corn, is this naked wheat. This grain partakes of two species of corn, viz. wheat and barley; one side of the grain resembles the former, and the other the latter.

It is a very quick grower, and lies but a short time in the ground before it vegetates.

It is a full plump corn; about five hundred grains weigh an ounce; therefore it is about one sixth bolder than English wheat.

It comes up with a very broad, strong, healthy blade, owing to the longness of the grain, and the quantity of nitrous particles it

it contains. The straw is as strong or as gross as that of wheat, and the grain grows in a chaff like it.

As it partakes of the likeness, so does it of the quality, of both wheat and barley, for it makes good bread, and good drink.

In order to prove its value more particularly, a bushel was ground and made into bread; twelve pounds of wheat seconds were made into a loaf; and a like quantity of this Siberian wheat was also made into a loaf, and both put into one oven. When they were baked, the English wheat loaf weighed fifteen pounds, and that of the Siberian eighteen; and the bread of the latter was as good as that of our English wheat; neither does it produce half the quantity of bran as common wheat.

There are two sorts of this Siberian wheat; one has a flat ear with only two rows, like that of flat, or what is called battledore-barley; the other has six rows in one ear, and the grain in them much smaller than that in the ear with two rows. Both sorts are bearded like barley.

One bushel was melted and made into small beer and ale, both of which were very good and pleasant to drink; and it was found to produce a greater yield than our common barley; perhaps owing to its thin skin, and fullness of flour. In

In 1767, a nobleman brought from Siberia one pint, and gave it to the Society of Arts and Sciences.

Those gentlemen judged from the look of the grain, and from the nature of the country and climate it came from, that it would be of great utility to England, could a quantity be raised sufficient to feed the the kingdom.

Upon which they divided their small portion among such persons as they thought would be industrious and careful enough to make the most of the produce.

A common wine-glass full was given to Mr. Halliday, of Liverpool, half of which he gave to another gentleman.

Mr. Halliday, like a faithful servant, did not hide his talent in a napkin, but by proper judgment and industry, he sowed and made it produce thousands, and ten thousands, as from this small quantity has sprung, in the four last years, many hundred bushels.

The Rev. Mr. Meredith was not idle in this public spirited undertaking. He procured a quantity from Mr. Halliday, and divided it among such of his acquaintance, as he hoped would propagate it to the best advantage.

He

He was so kind as to send me one bushel, which he got from Mr. Halliday; for which I return both those gentlemen my sincere thanks, and shall ever think myself under a great obligation for the favour.

But the last season I had not an opportunity to do it justice, which was owing to a disappointment occasioned by the neglect of carriers; for though it left Liverpool the last day of April, yet it did not arrive in York till the 7th of June, which gave me great uneasiness, as I looked upon the season as over, the seed lost, and my great expectations at an end for that time.

However, as soon as it arrived, on the 7th of June, I trench-ploughed a piece of bad land, covered with heath and other rubbish, and which had been lately inclosed from a common.

On this I sowed it, and notwithstanding all disadvantages, it was a tolerable good crop, and much better, I am satisfied, than any sort of English grain would have been, had it been sowed on the same land, and at the same time of the year.

I had received a few grains from another hand. This I set in a proper season, and upon good land, each grain at a foot asunder, which gave a produce of about two thousand fold.



In short it is the greatest multiplier I ever saw; for though it will grow better than other grain upon bad land, yet if the ground be good, it will stool out, and flourish in proportion, but the greatest care must be taken not to over seed the ground.

The proper season for sowing it, is about the beginning of April. Trench-plough the land to smother the weeds, and to raise a good deep mold.

Then harrow it well, but with care, not to drag up the sods or weeds with the harrow pins.

Being thus prepared, set your Siberian wheat with a dibble or setting-stick, and make the holes at one foot distance from each other; into each hole put three grains, and let the land be of what degree of richness it may, doubt not but nature will force out stooling branches sufficient to fill the surface of the earth, and give a greater produce than if you crowd the ground too much with seed.

By the above method, it will not cost for setting above two or three shillings an acre at most; but if the ground were holed with my transplanting machine, the labour and expence would be still less; and the seed is a mere trifle, for about twelve pounds of naked wheat will seed an acre, and thirteen pounds

pounds and a half of English wheat will set an acre likewise, and so in proportion for every sort of grain, according to the largeness of the seed.

After the seed is set, cover it by filling the holes with a rake. One man will cover at least two acres in a day, by this method; and if you please, you may sow grass-seeds before the ground is raked, and be assured they will grow, and thrive better amongst corn thus regularly set, than if sown promiscuously in the common method. This is a suitable seed for America, as it is a quick grower, and likes heat and a light soil.

## C H A P. LVI.

*A Dialouge between a Farmer and the  
Author.*

*Farmer.*

**W**HAT is the first principle of agriculture?

*Author.*

The first principle in agriculture, is to make heavy land light, and light land heavy.

*Farmer.*

How may this be effected?

*Author.*

It may be done two ways; neither of which can fail of success. First, by laying sand upon heavy clay land, and clay upon light sandy ground; which tempers the

two extremes, and brings them to a friendly loam. Secondly, by trench-ploughing as directed in this work.

*Farmer.*

Why trench-ploughing; will not our common method do better; particularly on our thin down-lands, where, if we plough above two or three inches deep, we spoil the ground?

*Author.*

This is a bugbear that many farmers are frightened at without any real cause, as any land will bear trench-ploughing. For, though the under stratum of some land, at first turning up, may be stubborn and unkind, yet, being exposed to the atmosphere, together with a top-dressing of a compost, or some other fine, rotten manure will bring it to a mellow temperate corn mold.

*Farmer.*

In what sort of soil will trench-ploughing answer best?

*Author.*

In all sorts without exception.

Farmer

*Farmer.*

In what sort will thin ploughing answer best?

*Author.*

In none, for the opposite reason.

*Farmer.*

Pray favour me with your reasons, upon which you ground this bold assertion? And take care they be substantial, or I shall bring a jury of farmers upon you.

*Author.*

It is not the first time I have been criticised upon by them; and yet I have convinced a great many of them, either by ocular demonstration, or argument, of their error; and some, to my certain knowledge, have ventured out of their old road, and are now reaping the profit of it.

*Farmer.*

Your reason upon shallow ploughing, if you please?

*Author*

*Author.*

On high, thin, gravelly, or sandy land, which lies near chalk or lime-stone, and the surface, or corn mold, mixed with any sort of small stone or pebbles. If such be tilled shallow, it is not consistent with reason that it can produce a good crop: for it is well known, that corn roots strike no deeper than the plough has gone.

Suppose a plough only turns up two or three inches of earth, so thin a body of mold is, by the sun, soon heated through to the roots of the corn; and, being mixed among flint, or stone, adds to the evil, as they reflect a double portion of heat, which burns or extracts the juices from the tender fibrous root; consequently must render the crop weak and sickly: in a dry summer the crop is scarce worth reaping, and in a wet one, which suits such land best, it does not produce above half the crop it would, if properly tilled; for, by nature, such land is good and full of salts, and could not miss of a crop, were it tilled or brought to a proper depth of corn mold.

*Farmer.*

In what case does trench-ploughing prevent the sun from burning the roots, &c. complained of in the opposite case?

*Author*

— *Author.*

Indeed, Mr. Farmer, you seem to trifle with your own understanding, or you would not make me waste time in answering so simple a question: besides, I have already treated pretty largely upon this subject, in my first volume; however, as few words will do, you shall be indulged.

By trench-ploughing, the upper sod, or corn-mold, falls to the bottom of the furrow, perhaps eight or ten inches deep. That sod, which is interwoven with, and full of roots of grass, weeds, stubble, &c. contains a great deal of nitrous and juicy particles; and these roots, being covered with a sufficient quantity of maiden earth, cannot vegetate, but are smothered and killed. The death of them brings on a fermentation; then follows a putrefaction, which turns them into manure; and consequently makes them food proper for other plants.

And as these juicy particles lie too deep for the sun to extract them from the earth, their enriching substance is a kindly food for the corn-roots to feed upon all summer; neither can the earth, so long as they remain in it, run together in a close solid body nor can it be called barren or thirsty; but the root will always find admittance and

nourishment in it, and will not fail to enlarge the ear upwards, in proportion to the depth it goes; for no fibre will go farther than the earth contains food suitable to its nature. In short, if the ground be hot and sandy, trench-ploughing makes it cold and moist; and, if strong and clayey, it opens it, and keeps it loose and mellow.

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## C H A P. LVII.

*A few Remarks made in the West of England.*

**B**EING glad both to give and receive any instructions, that may be of utility to the public, for the improvement of agriculture, when upon my travels, I generally wait upon such gentlemen-farmers as I am told are best able to satisfy my curiosity; and also most likely to take advice.

And as I am well convinced of the great advantage that would accrue, not only to the husbandman, but also to the public in general



general, could the farmers be prevailed upon to put in practice trench-ploughing, and setting the seed regularly.

I generally introduce those subjects, and am as often answered, that setting the seed grain by grain, would be too tedious and expensive; and as to trench-ploughing, their land will not bear it.

However, I seldom quit the field till, by trying the ground, I have convinced them of their mistake in the matter of trench-ploughing.

I have sometimes started this subject among a company of farmers; and have had the satisfaction to find some of them quote circumstances to back my arguments; two or three of which I shall mention as follows:

Mr. William Lacy, of Ropley, in Hampshire, said that he had a piece of thin chalky land, which a few years ago he ploughed in a very dry time; his orders to the ploughmen, were to plough it as usual, perhaps not above two or three inches deep, for fear of coming too near the chalk, which would spoil the land.

However, as the ground was extremely hard and dry, the men could not obey their master's orders; for instead of three inches, the earth broke up from the bed of chalk, and turned up in large furrows, perhaps a foot thick.

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The farmer as well as his neighbours, thought the land was spoiled for ever; but contrary to his expectations, he never had so good crops on that ground before, as he had both that year and since.

The like case happened to one Farmer Baker, not far from Warminster Wilts. —For though the land broke up from the chalk, yet it brought better crops after this deep ploughing than before.

A gentleman farmer, near Froome, in Somersetshire, ploughed a piece of strong clay-land, in a dry time. His intention was to plough it thin; for as it had a white clay under the corn-mold, he was afraid to turn it up, lest it should spoil the ground. But contrary to his desire, the ground rose in large thick furrows, and brought up much clay with it. However, the clay melted with the sun in summer, and the frost in winter; and both the ground with the crops upon it, have been much better since than before.

Mr. Davis of Frampton, in Dorsetshire, a very worthy gentleman farmer, ploughed a piece of down-land much deeper than common, and his crops were a great deal better for it. I have forgot the particulars of this experiment, but well remember the substance, as it caused a laugh in the company at dinner.

I, as usual, was extolling trench-ploughing, but Mr. Davis was not without a great many doubts and fears, that his land would not bear it. However in the midst of his scruples, he recollected the above case, which had happened to himself.

Mr. Ingram of Clarendon-Park, near Salisbury, Wilts, rents a down farm. He has a large field near his house, which he fallowed last summer. The ground was very full of weeds and scutch-grass, and he had taken a great deal of pains to destroy them, by ploughing, and harrowing it many times over. At the time I was there, he was burning the weeds, and such rubbish as was harrowed up.

I told him he might have improved the land much better, and with a great deal less expence, if he had trench-plowed it, for by that means all the substance of the weeds would have remained in the ground, and turned into a rich manure ; whereas by burning them, such enriching qualities are evaporated.

In short, I explained to him the whole method and value of trench-ploughing, which he seemed to listen to with attention but was not without his doubts and fears, that the ground would not bear it ; however those doubts were soon removed, by trying  
the

the ground with a spade. But what strengthened my argument the more, was a garden which had been inclosed from the said field. He told me that for some years after the garden was inclosed, it produced very bad crops. Every thing that grew in it was small and runtish; neither could the ground be kept free from weeds. A gardener told him, as a great secret, that if he would have good crops, he must trench to the depth of three spade-grafts, and throw to the bottom all the upper mold which contained the weeds. He did so, and ever since it has been the best garden in the country.

When he considered well the whole affair, he liked the scheme; and immediately got a plough made according to my directions; and as wheat-seed time was then coming on, he trench-ploughed the land on which he sowed his wheat. He allowed to each acre only about half the quantity of seed that is commonly used. And at this time, there is not a crop in the neighbouring country that looks so well as his.

The last time I saw him in Salisbury, he told me that many farmers hearing of his proceedings, came to see his trenched-land and crop; and every one approved of it; and that he knew a great many who were then getting trench-ploughs made from his pattern

pattern, and that he was sure it would gain ground amazingly.

Mr. Hardy, of Martins-town, Dorset, is a very considerable gentleman-farmer, and seems to be indued with talents and a spirit for improvement. I shewed him how to alter his plough, for the purpose of trench-ploughing. He told me that he would certainly begin this piece of husbandry.

Mr. Thomas Nicholls, of Burton, Dorset, is a considerable gentleman-farmer; and one that seems to excel in husbandry. He is so much bent upon this method of trench-ploughing, that he offered my ploughman thirty pounds a year, which by the bye, I do not thank him for; as it has made the man saucy ever since.

William Helyar, Esq. of Coker in Somersetshire, a gentleman fond of improvements is also determined to begin the method of trench-ploughing.

Upon looking over my memorandum book, I find no less than two hundred and twenty-nine, to whom I have shewed in the West of England, how to alter the ploughs for trench-ploughing; and who told me that they would absolutely put in practice, what I have taken so much pains to make them understand for their own interest.

And

And now I beg leave to clear up a doubt which may arise in my reader. For (says he) self-interest is the first law of nature; therefore, if Mr. Varlo has no private view, why should he take all this trouble to instruct the farmers? But, I can assure him mine are public spirited, and not selfish views. For though I have spent considerable sums in travelling, and taken a great deal of trouble upon the occasion, I defy any one to say, that I ever reaped a shilling advantage, for any thing I ever shewed him; and to avoid any appearance of private interest, I would rather go to an inn, and pay for what I had, than live at free cost at the houses of gentlemen; whom, to give them their due, I have found in general very hospitable.

Should it be objected to me, that I have some interest in publishing this work. I answer that I have, indeed, a small profit therein; but I could have reaped three times as much, had I stayed at home and wrote it by my own fire-side. But though this would have turned more to my advantage, yet it would not have been so much for the public good. For I am convinced, that many farmers to whom I have explained these interesting methods of husbandry, will practise from what I shewed; who probably  
would

would have overlooked them, had they only read the books. Precedent joined with precept, is very prevailing; and both tend towards practice.

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## C H A P. LVIII.

### *On thin Sowing, &c.*

**A**S in my last chapter I gave some favourable hints upon deep ploughing, gathered from several counties; this chapter, in like manner, will prove the value of thin sowing, which particularly deserves the farmer's attention.

A tradesman in Gloucester, has one acre of land, which lies within the turnpike. The same has been some time occupied as a garden; but it being overrun with weeds, he was advised to sow it with wheat, and lay it down with grass-seeds, which accordingly he did; but contrary to the common

Vol. II.                      N n                      method;

method: for he bought a peck of wheat, and after the land was properly tilled, hired two women to set it grain by grain, with setting sticks.

They used only seven pints of the seed, and finished the acre in thirteen hours.

They had orders to make each hole nine inches asunder, and in each to drop one grain of corn. However, as they had no regular rule to go by, they might err in the distance, and also sometimes put more grains than one in a hole.

The seed was set in February, and the land hoed in April, to keep down the weeds, which sprung up very plentifully. Clover seed was sown immediately after.

In July, I viewed the crop, which was remarkably good; but had it been kept clear from weeds, the clover would have been much better, as I perceived it was much crowded.

The straw was at least six feet long, the ears, in general, about six inches long, and contained, upon an average, about eighty grains each.

I spent several hours in counting how many ears sprung from a root, which varied, all the way from fifteen to thirty. So that upon a medium, I judged that each root through the acre, taking one with another, produced twenty ears.

It



It was believed by all the judges in corn, that the acre would produce at least fifty Winchester bushels.

The Rev. Mr. Sandys, Rector of Yeovell, Somersetshire, set a piece of ground (in quantity about an acre and a half) with wheat, grain by grain, in the same manner as they dibble beans. It took a peck and a half of seed; the labour cost half a guinea. The produce was eighty bushels of clean corn Winchester measure.

A gentleman in Warwickshire, set four acres also, grain by grain. The seed it took was three pecks and a half. The labour cost seventeen shillings and six-pence. The produce was two hundred and two bushels of clean corn, Winchester measure.

A gentleman near Newcastle-upon-Tyne, set some naked or Siberian wheat, one foot asunder each grain; it produced about two thousand fold.

In short, were I to insert all the experiments of the sort, which have come to my knowledge, they would fill a volume: neither is there any necessity for it, as every sensible man will admit, that if any experiment will stand good for one acre, it will for any greater quantity in the same sort of land.

*The Gardeners Calendar, for Work to be done  
round the Year in the Kitchen-Garden.*

## J A N U A R Y.

**A**SPARAGUS forced, to have a regular succession of it, from November to April, must be planted every month, and will be near a month before it is fit to cut; the fourth hot-bed must be made.

Beans of the early sort, plant the second crop.

Beets and cabbages of all sorts, plant for seed, if omitted in October.

Carrots, sow the first crop, to draw young and plant some for seed.

Cauliflowers examine and defend from frost.

Celery cover with straw, and dig up some for use, when the frost first begins.

Cress, mustard, radish and rape, sow every week on a hotbed.

Cucumbers, if you choose them as early as March are proper to be sown now, when they are three or four days old, put each plant into a small pot, and sow a little seed every week to have plenty of plants.

Dung should be wheeled in frosty weather, when other work cannot be done.

Endive

Endive, cover with straw, and dig up some for use when the frost sets in.

Ground which is vacant, should be digged over, and thrown up into ridges.

Hotbeds and loam must be prepared for asparagus, cucumbers, melons and fallading.

Lettuces sow on a hotbed, if those under glasses be killed, and plant mint.

Mushroom-beds, cover well with dry straw, to keep out both frost and rain.

Onions, sow on a warm border to draw young.

Peas for the first crop, under the south wall, should have the earth drawn up to them in a dry day; and if sticks be placed to them, they help to screen them from the violence of the wind. Sow the second crop.

Plant asparagus for the fourth crop.

Bears, the second crop of mazagan.

Beets, cabbages, carrots, parsnips for seed.

Mint and potatoes on a hot-bed.

Onions, for escallions and seed.

Radishes, sow the second crop in a warm situation, and the first on a hotbed.

Small fallading, as cress, mustard, rape, radishes, sow every week on a hotbed.

Sow carrots the first crop, peas the second.

Sow on hotbeds, carrots, cucumbers for the first crop. Cress, mustard, radish, rape for fallads.

February

## F E B R U A R Y.

**A**SPARAGUS for the fifth crop on hotbeds, plant and keep the mats off the lights in good weather, to give it colour by the sun and air.

Beans of the early sort for a third crop must be planted, and at the end of the month the first crop of the larger sort, as Windsor, long-podded, &c.

Beets sow, but dig the ground very deep.

Boorcole and Broccoli will want earthing up, and the dead leaves picked off.

Cabbages, sow for the second crop of sugar-loaf and red, and plant out those sown in August.

Carrots, for a general crop, sow at the end of the month, on a deep sandy soil.

Cauliflowers under glasses will want examining; pick off all decayed leaves, stir up the earth, and in mild weather give them air, and plant some out, leaving only two to each glass.

Sow the second crop on a gentle hotbed.

Celery, for the first crop, must now be sown on a gentle hotbed, and earth drawn up to blanch what is in the ground.

Coleworths sow the first crop.

Cress and mustard sow every week on hotbeds.

Cucumber-

Cucumber-beds must be constantly attended to, to keep them up to a proper heat and another made for the plants raised last month: when they have four or five rough leaves, plant them out, three or four to each light. Then sow more seed.

Endive, tye up for blanching, and plant some for seed.

Eschalots, garlic and rocambole should now be planted, to have the roots large.

Ground which is vacant should be digged and thrown up into ridges, ready for sowing.

Horse-radish will now require to be planted.

Hotbeds, for cucumbers, melons, sallading, prepare and have plenty of dung.

Leeks sow, and mark some for seed.

Lettuces from under glasses, if the weather be mild, plant out and sow the second crop. Give plenty of air to the forced ones.

Melons, for the first crop, may be sown the first week in the month, and when about three days old, plant each in a small pot.

Mint, plant in pots on a hotbed.

Mushroom-beds defend from wet.

Onions for the general crop, sow at the end of the month, or beginning of March, and weed the others, and plant some for feed.

Parsley

Parsley sow for edgings, and some curled very thin on a bed, to grow large for garnishing of dishes, and the large rooted.

Parſneps, sow on ground digged deep.

Peas out of the ground will require frequent earthing as they advance and sticking. Sow marrowfats, and other large sorts, and the third crop of hotspurs.

Plant asparagus, for the fifth crop, for forcing. Beans for a third crop, windsors the first. Cauliflowers from under the glasses. Endive for blanching and seed. Eschalots, garlic and rocambole. Horse-radish. Lettuces from under glasses. Leeks, onions and parsley for seed. Potatoes on hotbeds and the first crop.

Radishes, uncover in mild weather, and put on the straw again at night. Sow the third crop, and the second on a hotbed.

Snails search for in the holes of walls.

Sow beets, cabbage, carrots, cauliflowers, coleworts, fennel, leeks, lettuces, mustard, onions, parsley, parſneps, peas, radishes, spinach.

Sow on hotbeds cauliflowers, cucumbers, melons, mustard. Radish and rape for salads

Spinach, sow the first crop, and hoe the winter crop, if too thick. Water carry off if it stands any where, by making drains or cutting trenches

March

## M A R C H.

**A**Lifanders sown in August must be hoed to a foot asunder, and more seed sown.

Aromatic shrubs and herbs on beds, weed and earth, and sow and plant more of all sorts.

Artichokes must be dressed, and the suckers taken off for a fresh plantation.

Asparagus-feed must now be sown. Plant out that sown last year. Fork up the beds, and rake them smooth. Water the beds in very dry weather in a morning, and make fresh plantations.

Beans, for the fourth early crop, plant, and the second of Windsors. Cut off the tops of those in flower

Beets finish sowing

Boorcole must be sown for the first crop.

Broccoli sow for the first crop on a hotbed. Cabbages, sow the third crop of sugar-loaf, the second of red, and the first of favoy

Carots, for the principal crop must be sown

Capficums, for pickling, sow on a hotbed.

Cauliflowers must be planted out, leaving only two to each glass; draw earth up to the stems, and prop up the glasses

Prick out those sown last month, and sow more for the third crop.

Celery, prick out the first crop from the seed-bed, and sow the second.

Chardons must be sown, and cives planted.

Coleworths prick out the first crop

Cress, mustard, radish and rape now sow in the open ground for fallading

Cress and mustard sow very thin for seed.

Cucumber-beds keep up to a good heat, by lining; and plant out the second crop

About the twentieth sow for bell glasses and some Turkey-seed

Hotbeds must be prepared for planting out cucumbers and melons

Jerusalem artichokes plant. Leeks sow.

Kidney-beans sow at the end of the month

Lettuces plant out under frames and sow the third crop of cos, or any other.

Melons plant out from the first hotbed— Sow cantaleupes for the second crop, and some on a tan-bed, and for bellglasses

Mint-beds weed, and plant more

Mushroom-beds make for summer use

Natturtiums for pickling, now sow

Onion-beds should be carefully weeded; the general crop finished sowing

Parley, both curled and large-rooted sow

Parsneps should be finished sowing.

Peas earth, and slick any which want, and sow the second crop of marrowfats

Pot and sweet herbs should now be sown.

Slip



Slip pot-marjorum and thyme

Plant artichokes, asparagus, beans, cucumbers, jeruf. artie. lettuces, melons, potatoes, tarragon, and aromatic herbs and shrubs, as balm, camomile, lavender, &c

Potatoes, plant the principal crop.

Radishes, sow the fourth crop, & rampions —falsafy, scorzonera, skirrets and sorrel sow

Sow alifanders, angelica, asparagus, basil, beets, borage, boorcole, broccoli, burnet, cabbages, capsicums, carrots, cauliflowers, celery, celeriac, chardons, chervil, clary, corianders, cress, cucumbers, dill, fennel, hyfop, kidney-beans, leeks, lettuces, marjoram; marygolds, melons, mustard, nasturtiums, onions, parsley, parsneps, peas, purslane, radishes, rampions, falsafy, savory, scorzonera, skirrets, sea-kale, sorrel, spinach, tarragon, thyme, tomatoes, turneps, water-cresses.

Weeds should be destroyed when young.

## A P R I L

**A**Pril being the latest time for sowing the principal crop of the kitchen-garden, if any thing directed last month were omitted, perform it early in this

Aromatic herbs and shrubs sow and plant.

Asparagus should be finished early in the month, both sowing and planting, and the beds forking and raking: if it be very dry, water the bed in the morning.

Beans in flower must have their tops cut off, and draw the stalks of the first crop close to the wall by strings, and earth them up

Plant the first crop of windsors

Boorcole and broccoli prick out the first crop, and sow the second.

Cabbages, tie up the leaves of the early sort to forward their cabbaging—prick out the third crop of sugar-loaf, the second of red, and the first of favoys

Capficums must be pricked out from the seed-bed, before they are too crowded

Carrots, weed and thin the first crop, and sow the second to draw young

Cauliflowers must have the earth drawn up very high to raise the glasses, and at the end of the month take them away—break down the leaves when any begin to flower; earth the second crop, and prick out the third crop

Celery

Celery, prick out the second, sow the third—cress and mustard sow every week

Cucumber-beds must be lined with fresh dung, if wanted and give them plenty of air—make a gentle hotbed within the ground, for those that are to be under bellglasses, and plant them on it at the end of the month—sow more seed to have plenty of plants

Endive for seed should have the earth frequently stirred about it. Sow the first crop.

Finochio sow in drills a foot asunder, first crop

Hotbeds for sowing of melons for bellglasses must be prepared.

Kidney-beans sow the second crop, and the first crop of scarlet-flowered

Lettuces should be tied to assist their cabbaging; those in beds thinned to a foot distance, others planted out and the fourth crop very thin

Melon-beds must be kept up to a good heat and the second and third crop planted out

Mushroom-beds must be finished making

Onions sow to draw young

Parsley hoe and sow the large-rooted.

Peas must be frequently earthed, & stuck as soon as the tendrils appear

Sow the third crop of marrowfats.

Plant asparagus, beans, lettuces, mushrooms, pot-herbs, potatoes Plant

Plant on fresh hot-beds, cucumbers and melons

Potatoes must be finished planting

Pot and sweet herbs may still be sown and planted and weed and earth the beds

Frick out from the feed-beds boorcole, broccoli, cabbages, caplicums, cauliflowers and celery

Purflane sow on a warm border

Radishes sow in a cool place for the fifth crop

Rosemary, rue, sage, savory and thyme may be slipped and last year's planted out.

Snails and slugs should be searched for

Sow aromatic herbs and shrubs—Asparagus, boorcole, broccoli, carrots, celery, creffs endive, finochio, kidney-beans, lettuces, mustard, onions, peas, pot-herbs, purflane radishes, spinach, sweet-herbs and turneps.

Sow on a hot-bed cucumbers and melons

Spinach sow the third crop in a cool place

Turneps hoe the first crop and sow the second

Weed all beds of seedlings, while the weeds are small and any other crops also

## M A Y

**A**Romatic shrubs and herbs may still be sown and planted

Artichokes should have the young shoots pulled off, not to rob the principal one

Asparagus beds should be constantly weeded

Beans will frequently require earthing, and cut off the tops as they come in flower.

Boorcole, prick out the second crop.

Broccoli, prick out the second, sow the third crop.

Cabbages should be often hoed and earthed. Plant the second crop, and the first of red—sow the fourth crop, and the second of favoys.

Cabbage-turnep and turnep-rooted cabbage, American and white Scotch cabbage, and Anjou boorcole, must now be sown; and as they are chiefly intended for cattle, and are required to grow large, sow the seed very thin.

Caterpillars will now be found in the web.

Caplicums plant out where they are to flower, and tomatoes, in rich ground.

Carrots should be weeded before the weeds over-top them, and thined by hoeing

Cauliflowers, for the October crop, now sow, plant out the second crop.

Celery,

Celery, prick out the third crop, sow the fourth.

Coleworths, plant out the first crop.

Cress and mustard sow every week, and hoe that which is sown for seed.

Cucumbers of the fourth crop may be planted out, and let some be against walls, both for seed and their superior flavour.

Sow now in the open ground. If attacked by black flies fumigate them with tobacco-smoak.

Endive thin the first crop and sow the second.

Eschalots, garlic and rocambole, may have a few roots taken up for present use.

Finochio sow for the second crop.

Hoe the beds of beets, carrots, leeks, onions, parsley, parsneps, &c.

Kidney-beans, sow the third crop of dwarfs, and the second of runners.

Lettuces in beds thin, and sow the fifth crop.

Melons on the tan-bed must be thinned. — Sow seed for an autumn crop: prick out each into a small pot, when the rough leaf appears.

Melons attacked with spiders must be fumigated with tobacco-smoak.

Nasturiums thin to a foot asunder.

Onions will require weeding and hoeing.

Those

Those planted for seed will want support by stakes and strings. Sow seed to draw young.

Peas, sow the fourth marrowfats in a cool place. Plant cabbages, coleworts, cucumbers, capficums, cauliflowers, lettuces, radishes, sage.

Potatoes hoe, before the plants appear.

Pot-herbs and sweet-herbs in beds, must be frequently weeded, particularly seedlings.

Prick out from the seed-beds, boorcole, broccoli, cabbages, melons.

Radishes for seed must now be planted.—sow the sixth crop in a cool place.

Sow broccoli, cabbages, cab. turnep, cauliflowers, celery, cress, cucumbers, endive, finiochio, kidney beans, lettuces, melons, onions, peas, purslane, radishes, spinach, turneps.

Seed of all sorts, nearly ripe, will often require stacking and defending from birds.

Turneps, sow the third crop, and hoe the others.

Water often, in dry weather, beds of seedlings.

Weeds of no sort must be suffered to seed.

Weed, before the weeds are as high as the crops, the seed-beds and crops of carrots, endive, finochio, leeks, lettuces, onions, pot-herbs, spinach, turneps.

## J U N E

**A**Romatic herbs, for drying and distilling gather.

Beans want earthing and cutting off the tops. Beets should be thinned to a proper distance. Boorcole, plant the first crop, and sow the third. Broccoli, plant the first crop prick out the third, and sow the fourth.

Cabbages, plant the third crop, prick out the fourth, and sow the fifth. Plant the second crop of red cabbage, and sow the third. Savoys, plant the first crop, and prick out the second, and sow the third.

Cabbage-turneps, sow the second crop.

Carrots and pafsneps finish hoeing.

Cauliflowers, plant the third crop; prick out the fourth.

Celery, plant the first crop, prick out the fourth, and sow the fifth.

Coleseed and rape may now be sown.

Coleworts, sow the second crop.

Endive, plant out the first crop, thin the second, and sow the third, and third crop of finochio.

Hoe and thin all the crops of carrots, &c. properly, before the weeds are high.

kidney-beans, sow the fourth crop, and place sticks to the runners.

Lavender



Lavender, rosemary, rue, and sage cuttings, may now be planted in the shade.

Leeks should be hoed and thinned.

Lettuces, sow the sixth crop in a cool place. Melons in frames, cover with mats in the heat of the day, and lay tiles under the fruit—plant out those for the oiled papers.

Onions must be thinned, to five or six inches, and leave a few at three.

Parsley in beds for garnish, and the large-rooted, thin to six inches distance.

Peas, sow the last marrowfats in a cool place. Plant boorcole, broccoli, cabbages, cauliflower, celery, endive, lavender, lettuces, rosemary, rue, sage.

Prick out broccoli, cabbages, cauliflowers, celery.

Radishes, sow the seventh crop, and turnep-rooted and black Spanish in a cool place

Rape and cole-seed may now be sown.

Seeds, as they ripen, must be gathered.

Sow boorcole, cabbages, celery, coleseed, coleworts, endive, finocchio, kidney-beans, lettuces, peas, radishes, rape, spinach, turneps, turnep-radish.

Spinach, sow the fifth crop thin, in a cool place.

Turneps, sow the fourth crop, and hoe others.

Water all beds of seedlings frequently.

July

## J U L Y

**A**Romatic herbs for drying and distilling must be constantly gathered.

Asparagus, for a crop in autumn, must be cut down, the beds lightly forked and raked, and watered every night for a week after, if dry weather. Weed the seed-beds.

Beans, plant the fifth crop of mazagan, and the fourth of Windsors, for late crops.

Boorcole, plant the second crop, prick out the third, and the first of Anjou.

Broccoli, plant out the third crop, and prick out the fourth.

Cabbages, plant the fourth crop, and prick out the fifth. Red cabbage, prick out the third crop. Savoys, plant the second, and prick out the third crop.

Cabbage-turneps, prick out the first crop.

Carrots, to draw young, sow the third crop

Cauliflowers, plant out the fourth crop.

Celery, plant the second crop, and prick out the fifth.

Coleseed, rape and coleworts, finish sowing: prick out the second crop of coleworts

Cucumbers in open ground should be stuck with branches of sticks.

Eschalots and garlic may be taken up, if the stalks be quite withered.

Finochio, sow the fourth crop.

Kidney-

Kidney-beans, sow on a south border the fifth and last crop.

Lavender and rosemary cuttings still plant  
Leeks plant out in double rows.

Lettuces, sow the seventh crop in a cool place.

Onions when their leaves wither, pull out of the ground, and sow the first crop of Welsh, and last crop to draw young.

Peas sown last month will want sticking, and sow the fourth crop of hotspurs.

Plant beans, boorcole, cabbages, cauliflowers, celery, lavender, leeks, lettuces, red cabbage, rosemary, favoys.

Prick out boorcole, broccoli, cabbages, celery, coleworts.

Radishes, sow the eighth, also turnep-rooted and black Spanish, and hoe the first crop

Sow carrots, coleseed, coleworts, endive, finocchio, kidney-beans, lettuces, onions, parsley, peas, radishes, spinach, rape, turneps, turnep-radishes.

Spinach, sow the sixth crop, and the first of prickly thin, in a cool place.

Turneps, sow the fifth and principal crop for winter use, and hoe the other crops.

Water beds of seedlings, and all young crops.

August

## AUGUST.

**A** Lifanders, angelica, chervil, fennel, forrel, are now to be sown.

Beans sown last month, will want watering.

Boorcole, broccoli, cabbages, cauliflowers and coleworts, lately planted, will require hoeing around them, and earth drawn up to their stems.

Broccoli, plant out the third crop.

Cabbages, for the first crop at spring, must be sown about the tenth day of the month.

Cabbage-turneps prick out the second crop.

Cauliflowers for the first spring crop, sow about the twentieth, and shade them in the middle of the day by mats.

Celery, earth the first crop for blanching, and plant out the third.

Coleworts, plant out some of the second crop.

Cress and mustard seed must be gathered if ripe, and sow every week for fallads.

Cucumbers for pickling, should now be gathered, and they will be free from spots.

Endive, frequently tie up for blanching; plant out the third crop, and thin the fourth.

Eschalots, garlic and rocambole, may be taken up if the stalks be quite withered.

Leeks

Leeks finish planting out.

Lettuces, for standing through the winter and forcing, must now be sown very thin at three different times. Plant out the last sown on a south border.

Melons in rainy weather must be defended from wet, by putting hand-glasses over them; and place sticks for the pickling melons to run up.

Onions must be frequently turned, that they may be well dried.

Sow the second crop of Welsh.

Peas, sow some hotspurs on a south border for the fifth and last crop.

Plant celery, endive, leeks, lettuces.

Prick out Anjou boorcole, cabbage-turneps.

Radishes, sow the ninth and last crop.

Seeds nearly ripe must be guarded from birds.—Sow alifanders, angelica, cabbages, cauliflowers, chervil, cress, fennel, lettuces, mustard, onions, peas, radishes, sorrel, spinach, turneps

Spinach, sow the second crop of prickly, Turneps hoe, and sow the sixth crop.

Water seedling beds in a morning.

Weeds begin to grow very fast in moist weather, therefore must be hoed frequently.

September.

## S E P T E M B E R

**A**Romatic herbs and shrubs, cut down their decayed stalks to strengthen the roots and transplant them.

Beans planted in July must be earthed up, and the tops pinched when in flower.

Boorcole, plant out the third crop

Broccoli, plant out part of the fourth crop

Cabbages, plant out the fifth crop, and prick out the first crop on a south border, and earth out any which want—plant out third crop of favoys and red cabbages.

Cabbage-turneps, plant out the first crop

Carrots sown in July must be hoed.

Cauliflowers sown last month must be pricked out, watered and shaded till rooted—earth up the fourth crop, and break the leaves if they begin to flower.

Celery, plant out the fourth crop and earth up the first and second to blanch.

Chardons will require blanching

Coleworts, plant out more of the second crop, a few at a time, to thin the bed.

Cress and mustard sow every week.

Cucumbers for pickling should be finished gathering

Endive, plant out a little of the fourth crop to thin it, and give the rest more room—tye up some to blanch

Eschalots

Eschalots, garlic and rocambole, should have all the offsets or small roots planted.

Lettuces must be early thinned in the seed-bed, if sown thick, and pricked out on a south border, to about four or five inches.

Melons for pickling will be fit to gather.

Mushroom-beds must now be made.

Onions, finish sowing early in the month the Welsh onions, and weed those sown last month, before the weeds are high.

Plant boorcole, broccoli, cabbages, cole-worts, endive, eschalots, garlic, rocambole, tarragon.—Prick out cabbages, cauliflowers, lettuces.—Sow cress, spinach, mustard, turneps.

Spinach, finish sowing for spring use, and hoe that sown last month.

Tarragon-roots may now be planted.

Turneps, turnep-radishes, and black-Spanish, will all require hoeing.

Weeds must be particularly attended to among the onions and other crops.

## O C T O B E R

**A**S October is the only time to crop a garden before winter, omit not any thing till next month.

.. Aromatic herbs and shrubs in beds weed, and spread some earth over them.

.. Asparagus stalks cut down, hoe the weeds and spread earth from the earth on them-- hotbeds prepare for forcing, and plant three-year old plants for the first crop

.. Beans, the early mazagan must be planted on a south border

.. Boorcole plant out the second crop, and hoe the ground about the others

.. Broccoli, plant out the rest for the fourth crop

.. Cabbages, sown in August plant half out in a warm situation

.. Cabbage-turneps, plant early in the month and earth up the others

.. Carrots sown in July, finish hoeing.

.. Celery, plant out the fifth and last crop, and earth up the second to blanch

.. Coleworts, finish planting.

.. Cress and mustard sow on a hotbed

.. Endive, tie up to blanch, and plant more

.. Eschalots, garlic and rocambole plant.

.. Ground which is vacant, throw up in ridges.



Hoe boorcole, broccoli, cabbages, cabbage-turneps, and draw up the earth to their stems

Hoe carrots and spinach

Hotbeds prepare for forcing asparagus

Lettuces, plant out cabbage and brown Dutch on asparagus beds

Mint, plant in pots on a hotbed.

Mushroom-beds cover well with straw and mats, to defend them from rain.

Onions must be well weeded

Peas, the early hotspurs, sow on a south border, for a first crop.

Plant asparagus on a hotbed for the first crop, and beans, boorcole, broccoli, cabbages, cabbage-turneps, cauliflowers, celery, coleworts, endive, eschalots, garlic, lettuces, mint, rocambole.

Plant out to stand for seed, beets, parsley cabbages, parsneps, carrots, turneps.

Pot-herbs and sweet-herbs on beds, weed, stir up the earth, and spread some over them

Seeds of all sorts should be treshed out, dried and put into bags.

Sow cress and mustard on hotbeds.

Hoe spinach for the last time before winter, and sow peas on a south border.

## N O V E M B E R.

**A**NY thing omitted last month, perform early in this, before the rain prevents you.

Artichoke stalks cut down, and earth them up.—Asparagus on hotbeds must have air given it, and make and plant the second bed.

Beets, cabbages and carrots, plant for seed.

Cauliflowers under glasses and frames, give some air to in the middle of fine days.

Celery earth up when dry, to blanch.

Cress and mustard sow on hotbeds.

Endive not planted out, take up, and plant on the south side of a ridge.

Ground which is vacant, throw up into ridges.

Hotbeds prepare for forcing of asparagus.

Mushroom-beds guard from wet.

Peas and beans above ground, draw earth up to, and place traps to catch mice.

Radishes, early short-topped, sow about the tenth, and spread straw over the beds.

Roots of beets, parsley, farsafy, carrots, potatoes, scorzonera, parsneps, skirrets, turnep-radishes take up to preserve in sand.

Sow cress, mustard, radish and rape on hotbeds for small fallading.

Spinach hoe, if it be too thick.

Weed all the crops and rake off the weeds to prevent their rooting again.

December

## D E C E M B E R.

**A** SPARAGUS must be planted for the third crop, and give it both light and air to colour it.

Boorcole, broccoli and cabbages, must be well earthed up to keep them upright.

Cauliflower-plants must have air, when the weather is mild, & pick off dead leaves.

Celery, when dry, earth for blanching.

Cress, mustard, radish and rape, sow on hotbeds every week.

Dunghills, weed and turn in frosty weather.

Endive, tye up for blanching.

Hotbeds must be attended to, and plenty of hot dung and loam provided.

Lettuces under glasses must have air given them in the middle of mild days.

Mushroom-beds must have dry straw if wanted.

Peas and beans above ground, earth up.

Roots for preserving in sand should be fined, before the frost sets in.

Snails, search for in holes.

Sow cress, mustard, &c. every week.

Tools, repair, grind and put in order while you have leisure.

Traps must be set to catch mice.

## C H A P. LIX.

*Preface to the Appendix.*

**T**HE following observations by the author while on his travels, may seem superfluous and unnecessary to an American reader, being made in foreign countries; for say they, the land and climate of these countries are different from ours, therefore how can this information be proper for us to go by.

Those observations have been often made to the author by men in all countries; so confined are the ideas of human nature till enlarged by experience or philosophical researches into the works of nature.

It is a matter of wonder to me what some farmers think the earth of other countries or kingdoms is made up of, when they argue that the management of lands in the forementioned countries will not do for theirs; that they must certainly know best what suits their lands, who have lived there on all their life-time, &c.

I suppose such reasoners think that the earth in countries they have not seen, is  
made

made up of some very extraordinary materials; that if it produces such and such crops the soil cannot be like theirs.

But they may be assured that the whole world is made up of the same materials of sand, loam, clay, stone, gravel, &c. that clay will be clay, and sand, sand, in all countries; that the grain proper for each sort in one country, will also ensure success in another; and that if by industry, ingenuity or chance, a seed or any improvement be found out in one country, it may be transplanted or propagated in another with success.

And the untravelled farmer may be farther assured, that the interior parts of each country is thus variegated.

I have travelled over most parts of America, and must own I am amazed at the backwardness of their improvements, particularly when I consider the number of emigrants that have arrived from England and other countries, who should have introduced those practised in their countries.

Indian corn and tobacco are the chief productions of the American farms, and I believe the former to be the principal bar to a general improvement in other crops. It is true wheat, rye, barley and oats are raised in America; but the produce is so small that it scarcely pays the expence; indeed it would  
not

not pay half the expence and land rent, were it as high as in England. The grain is exceedingly small, which arises from bad management mostly in ploughing the ground too thin or shallow, and sowing their corn too thick, which produces small straw, small ears and small grain, which never will fill the bushel to satisfaction

I have said so much to shew the American farmer how necessary it is to be acquainted with other countries and their management, in order that he may improve in a short time upon experiment, that has cost many people much labour and expence.— For man is not like a brute to feed by instinct, he acquires his feeding and cloathing by knowledge and ingenuity to make his life comfortable and easy, and in order that my American readers may have an idea of what is passing in Europe I have given in the following pages a short sketch of my travels and observations through some parts thereof.

## C H A P. LX.

*Nature of the Soil, and Price of the Land, with many other interesting Subjects, necessary for a Farmer to know through Ireland.*

**I** Thought it might not be disagreeable to my reader to give him an idea of the different sorts of land, rent, manure, management, &c. in different parts of Ireland, which by comparing one part with another, may both be useful and amusing to him. I shall begin in Dublin, as my memorandum-book takes its rise from thence.

From Dublin to Drogheda, in Fingal, near the sea side, the land is a strong clay soil, consequently good wheat land, and in general as clear from smut as most countries which I impute to the farmers tilling better than in some other places, and also manuring with short rotten Dublin dung and lime; but notwithstanding, I have seen a very smutty piece of wheat within five miles of Dublin.

Land lets at about eighteen shillings an Irish acre, at seven yards to the perch.

The land in this country is very rich corn soil; and let in a general way for about twenty-one shillings an Irish acre.

From Trim to Longford and Mullingar, there is a great deal of smutty wheat; and that as well as other green corn is damaged by red worms. The land is good strong deep wheat soil, and lets for about twenty-three shillings an Irish acre.

From Mullingar to Ballymahan, and Laneborough, the land is not so good, and lets only for about fifteen shillings an Irish acre.

From Laneborough to Roscommon, Elphin, Boyle, Castlereagh, Ballinasloe, and Loughrea, the land is very good, lets in a general way, for about twenty-five shillings or twenty-six shillings an Irish acre. It is a deep loamy soil; at about three feet deep is a rich limestone gravel, which they raise, and lay on as manure.

They make little dung, as they seldom house their cattle. This country may be a circumference of hundred miles, and I believe, there is not a spot in our king's dominions, of the size, which is clearer from black or smutty wheat and red worms, than this; which may perhaps be owing to their making



making little use of dung, as it cannot be by good tillage, they being great slovens in husbandry, except a few gentlemen here and there; indeed their land is so good, that it makes them idle, for turn it up in any fashion, corn must grow.

In the Queen's county, about Portarlington, Tullamore, Muntrath, and Maryborough, the land is, a light corn soil, of an inferior value, lets for about twelve shillings an Irish acre.

In the county of Kildare, about Kildare, Naas, Newbridge, and Killculling, the land is light and sandy in a general way, and kept much in tillage, lets at about fourteen shillings an acre. In this country they till pretty well.

The county of Carlow, the land is something stronger than in the county of Kildare and it in a general way holds so all the way to Kilkenny.

It lets for about eighteen shillings an acre. They have plenty of lime hereabouts, and in spots limestone gravel.

In Kilkenny there are very considerable flour-mills, which grind a great deal of wheat, and send the flour to Dublin, though it is fifty Irish miles land carriage. Their miles as well as land are measured with seven yards to the perch.

What

What encourages farmers to carry their corn and flour so far by land to Dublin, is a bounty which they have paid them by the government, viz. a half-penny for every twenty stone of corn for every mile they carry it above ten from Dublin; but all within ten miles of Dublin are exempted from the bounty.

Every eight stone of flour receives a bounty of two-pence for every five mile, except the last ten miles next Dublin.

There is very little inland navigation in Ireland, which makes this encouragement of land carriage of great moment to that city, in keeping down the markets; and it also encourages farmers to sow more corn in the interior parts of the kingdom, which would otherwise be neglected; and certainly no country can be more proper for corn than every part of Ireland.

I know the kingdom well, and verily believe, there is not a space of ten miles together in the whole kingdom, where there is not plenty of good manure, to be raised out of the ground at a small expence.

The island in general abounds with limestone gravel, which is a sort of rich blue soapy marl, intermixed with small cobbles or stones, but of a very rich limestone nature, and when thrown on the ground  
with

with the marl, they act also as a manure, as the weather tempers them, and makes them throw off a coat or crust, every year. It is amazing what tufts of sweet grass are to be seen near these stones.

Where limestone gravel fails, there is generally a greety sand, which is a very rich manure; in other places white marl, which lies under bogs, and in most places of the kingdom, there is limestone and plenty of turf to burn it with; so that in fact, Ireland is a very rich country in this respect.

Though the county of Wicklow is a mountainous country; yet there is some very good spots of land in it; but in respect to good tillage, we can say very little for it.

They chiefly pay their rent by fat calves and lambs, for which they are famous, and bring them the distance of forty or fifty miles to Dublin, viz. from Wicklow, Gorey, and about Castlebridge.

This country is a compound of various sorts of land; in the hollows or valleys it is chiefly a good rich loamy corn soil, inclined to clay.

And on the hills it is sandy, mixed with small stones; and in some places you see white marble stones of a small size. A great extent of mountain covered with heath, or ling, is to be found here, and which is very improveable,

improveable, both as to the nature of the soil, and cheapness of manure, as limestone is to be found in great plenty, and lime is very proper for this sort of land. I have seen it work miracles on land of the like kind, of which I shall speak more fully in its proper place.

Land (for this heathy mountain in its present state, cannot be deemed as such) lets, from Dublin till you come near Wicklow, for about twenty shillings an acre; but as you go farther off, it lowers to about fifteen shillings an acre. I do not strictly mean all the way from the city of Dublin, because it is to be expected, that land near such a capital, so far as two or three miles, must be very dear, perhaps four or five pounds an acre.

The county of Wexford is a great corn country, and particularly in the barony of Fort and Bargy, they grow a great deal of barley. The land is of a sandy nature for about five inches deep, and under that a bed of clay; in other places, a red, hard, obdurate, rusty bad earth, by some called rammel. In short, a great part of the barony of Fort and Bargy, is much such land as they have in several parts of Cheshire.

At about five or six feet deep in many places, there is both marl and limestone-gravel

gravel to be found, but they are little sought after.

They make a great deal of use of lime and sea-weed, particularly near the sea-side.

In one particular spot in the barony of Bargy, they tell you, that every acre maintains a christian, a horse, a cow, a pig and dog. How true this may be I know not, but it is a common report in the adjoining neighbourhood; but be that as it will, the place is extremely populous and well stocked, and the land is rich as it is possible to be made, and with no other manure than sea-weed, which they make use of in great abundance, and which produces the greatest crops of corn I ever saw.

The middling price of land is about fifteen shillings an acre. The farms are not so large in this as in many other counties in Ireland.

The barony of Fort gentlemen are the most hospitable disinterested, facetious set of people I ever met with.

They are a good neighbourhood, and live in unanimity, and joyously with each other; they keep a good table which is always open to their friend or neighbour: one can scarce travel above a mile or two in this country, without falling in with a gentleman's house, the proprietor of which is worth

worth from five to two thousand pounds a year, and every gentleman is a farmer; what corn he does not use himself he sells, therefore they are neither too little or too great; they are nowise flashy, but live within their fortune, and yet quite generous.

The common people are all Romans, like the rest of the kingdom, but not so bigotted in their religion, and seem to be well attached to the present government. They talk English well, and also speak Irish one to another, but their Irish differs, something from the rest of the kingdom.

They call themselves Strongbowyons; that is, they came over from England in Strongbow's time, and settled in this barony where their offspring has remained ever since.

This is a very plentiful cheap place to live in, and particularly for wild fowl and fish. Their wild fowl chiefly consists of duck, teal, widgeon, barnacle, and winyard.

Widgeon and barnacle, though scarce eatable in any other part of the world, that I know of, are here the most delicious morsel I ever tasted, and remarkably fat. The winyard is a species of fowl peculiar to this place, I believe, for I never saw them elsewhere; they are not much unlike a widgeon  
widgeon

widgeon, though something smaller, but fatter, for if they be shot flying, they generally burst in the fall, by being so immoderately fat.

These three sorts of fowl are nearly of one taste, owing certainly to their feeding all upon one sort of food, which is a sort of seaweed peculiar to this coast, and which is thrown up, and left by the tide at high-water-mark, twice in twenty-four hours; so that they are regularly fed, which makes them resort here in such abundance.

They can only be killed at night; for all day, they either remain on the water, or on some small islands, that are six or seven miles within the sea.

At night the fowler is prepared with a long wide gun and a water-dog; he places himself so as to command the length-wise of their train of meat; this he can easily do, as he sees where the water has left it the tide before, which is in a long narrow strip for several miles together; as soon as it is duskish the fowls come up in a very great flocks to feed, so that they cover the ground as close as they can stand; a fowler does nothing but make ready; and needs only one shot to load his horse home. It is almost incredible what a great number they will kill at a shot.

They

They are generally sold for four-pence or six-pence a pair.

Kilkenny is about fifty-six miles from Dublin; the direct road to it is through a very fine country, viz. part of Kildare, Carlow, and part of Kilkenny; the towns you go through are Naas, Kilcullon, Timolin, Carlow and Leighlenbridge.

This is the finest ride in Ireland, for so far together, as it is all an inclosed country, without interception of commons, or any waste land; and fifty-six miles in Ireland is a long way, as they measure with seven yards to the perch.

But indeed there is not to be found so fine a ride for so far together in his Majesty's dominions, as in Ireland; for if you begin behind Kells, which is to the north of Dublin, and go to Kilkenny, which is to the South of Dublin, you ride for about a hundred Irish miles thro' five counties, namely, the county of Meath, Dublin, Kildare, Carlow and Kilkenny.

You have all the road, a good quickset hedge at each side of you, and all an inclosed country; you do not go over an acre of either bog, heath, mountain, common, or any sort of waste land; you are also accompanied part of the way with either gentlemen's seats, or towns, at the end of every two or three miles. The



The town of Kilkenny is famed for four rarities, air without fog, water without mud, coals without smoke, and the streets paved with marble.

How this old tradition arose into proverb, I know not, but they can in strictness only claim two of the four; which is the two last.

They have marble quarries near the town from which they both build their houses and pave their streets with; but neither the houses or streets cut any better figure, or scarce so good, as other good town in Ireland; for every one knows that marble is a very rough stone, without great labour of polishing.

The Kilkenny coals do not in the least smoke, for which reason they are made use of all over Ireland, to dry malt with, and in Kilkenny as common firing.

It is true, as they have no smoke, there is not so gross an air, or heavy clouds over the city, as is over other great cities or towns, where the coals have a smoke, which ascends to the clouds; but the air is not exempted from fog for all that, as there is no commanding the clouds, fogs or mists of other countries, but they will blow over it, just as the winds set

Through.

Through the city runs a fine river, over which there are two new bridges, built of marble, just finished; the old bridges were broken down with a great flood, about five years ago. The bottom of the river is gravel, therefore the water is for the most part exceeding clean and clear; but I have seen it muddy.

In the town of Kilkenny, and near the river side, stands on an eminence, a fine Gothic building, belonging to the Butler family, which was erected in the reign of Queen Anne, by the famous Duke of Ormond, whose conduct is well known in Ireland, for his government of that kingdom.

And about two or three miles farther up the river stands the ruins of another of his magnificent and delightfully situated buildings, which are furroundingly ornamented with an extending plantation of ash, and other lofty towering trees, that still remain healthfully extending without the aid of art.

The town of Kilkenny and environs is not very large, or by any means remarkably handsome or regularly built, as is sometimes reported by many who travel through, or others who have dwelt there; but it must,  
I think

I think, be acknowledged by all impartial and disinterested observers, that it is a rich, populous and an improvable town, and carries on a good trade in the manufactory of blankets, and many other woollen commodities.

Travelling for about fifteen or seventeen miles across the country towards Waterford the land appeared fully to me to be, in innumerable cases, exceedingly barren and bad, these qualities added to mountains covered with ling or heath, cannot be of much use to the landlord or tenant. This rents from about five to ten shillings, per acre; there is here some unexceptionably rich and fruitful valleys, that very well pay the husbandman for his toil and labourious perseverance, but must pay a higher price for these advantages.

Waterford lies about twenty-four miles from Kilkenny; it is a town of a pretty smart trade, and really now deserves to drop that odium that has formerly been cast upon it, of very busy, and nothing to do, like Waterford merchants: as they have now something to do, both in the Newfoundland fishery, and exportation of beef, butter and

pork

pork, in great abundance, they also manufacture a great deal of frize.

Waterford is not large, but a populous rich town, and improving every day.

The land in this country is not good; in general about two thirds is a mountainous, thin, weak land; and any good veins there are, are kept under dairies, so that agriculture is neglected, and the poor also in a starving condition.

A great many men ship themselves off from Waterford, to serve the season in the Newfoundland fishery, for which they will get perhaps fifteen or sixteen pounds wages for six or seven months.

Being great help to this neighbourhood, for they generally spend it in the winter half year.

Land lets here at about twenty shillings an arce, such as is fit for dairies, and lies in valleys, but a great deal of high land lets for about eight shillings an acre.

In about thirty or forty miles ride, viz. from Dorrow to Limerick, through most part of the country of Tipperary, the country is almost run wild, one would think, with sheep and bullocks; for it is hard to see a corn-stack, or a plough at work.

It was in this county the White Boys have been so troublesome. The land in most parts, particularly Cashel, Tipperary, Clonmel, and down from that to Limerick, is very fertile, would bring great crops of corn, but the great possessors of it are blind to every thing but bullocks and sheep, so that agriculture and every sort of trade is banished; which makes a fine country look very naked, and its poor inhabitants meagre and ragged.

There is some of the richest land that ever I saw in all my travels in this county, and the county of Limerick, called the golden vein; and yet it cuts the poorest aspect as to its poor inhabitants, owing to its being kept under stock.

The staple of the land consists of a deep loamy clay or corn soil, will bring either wheat or any other sort of grain, without fallow, dung, or any other manure; in short, it is rich beyond expression.

Land lets here for thirty and thirty-five shillings an acre, great farms together.

As they seldom make use of dung, except for setting potatoes, they are little troubled with smutty wheat; but they are visited with red worms sometimes when they turn up fresh ground.

The graziers are gentlemen who eat and wear well, and drink plenty of punch and claret, an easy sufficiency seems to dance among them; but the poor are miserably so and they are mostly Roman Catholics, for there is scarce any poor in Ireland of any other religion; numbers of them I heard say they were content with their restricted situation, and seemed averse to the interference of any laws that seemed to offer for their relief. Others who felt naturally a glow of freedom, exclaimed against the illiberality of those that make laws and govern, saying, at the same time, how can those people expect we can be good subjects while their conduct in not sharing equally with us, the benefits of the country which is held out to our protestant neighbour.

In short they are a very numerous and oppressed body of people, that have to encounter and wade through a sea of impolitic laws and troubles. I think, if I had it in my power to enact two or three laws, I could make Ireland one of the strongest and richest islands his Majesty has, as its situation is good for trade both by sea and land; the surface of the earth by nature, is in general very rich, but where it is not it is easily made so; for all over Ireland the interior parts of the earth abound with rich manures of all sorts.

The kingdom is also variegated with variety of loughs, rivulets, and bogs; so that there is no want of fire or water.

Likewise the kingdom is very populous, therefore must, with the above advantages, add both strength and riches, were they made useful members of society, and all to stand by the Protestant cause.

The gavel-act indeed, has done wonders in bringing over the rich; but nothing has yet transpired to change the poor Catholics; they are a set of poor deluded creatures, and it is a pity but an act would pass (which might be easily pointed out) to relieve them.

Mostly all over Ireland the fairs for cattle are very large; but particularly in Connaught: the fair of Ballinasloe is incredibly so for wool, horned cattle, sheep and horses. I am credibly informed, that the customs amount to seven hundred pounds sterling a year; which shews its immense value, as the toll for a score of sheep, perhaps worth thirty pounds, is only three-pence, and three-pence each for a cow, or any other cattle.

The poor generally sow a little flax seed, which they buy from a sort of petty merchant, at an extravagant price, perhaps for five or six shillings a Winchester peck, for which they get a years credit, till they

spin it into thread, in consideration of which they pay about two hundred per cent.

If they run in debt for half a peck or a peck of flax-feed, they give a note payable before the summer-assizes in the ensuing year; if they miss payment they are sure to be processed at the assizes.

And here the merchant or creditor has another apothecary's profit, of about eleven-pence to the shilling; for he will buy a blank process for a penny, and fill it up himself; he charges for the process an English shilling, which is thirteen-pence Irish, and perhaps the original debt will not be above two or three shillings.

If the debtor do not pay it before the assizes, he is decreed, which is eight shillings and four-pence expence. An honest man would abhor the oppression.

It is generally Roman Catholics that are those Jewish like merchants, for there are few Protestants in that trade, and there are none in Ireland more oppressive to Romans, than Romans themselves.

The county of Cork is very large, so consequently consists of various sorts of soil, but the major part is mountainous, and lets perhaps at about eight shillings an acre; but in the valleys it is high priced, perhaps twenty shillings an acre.

The



The favourite manure of Ireland, viz. limestone gravel, is scarce to be found here; but they have plenty of limestone, which they burn with whins, and comes pretty cheap; it is common to see a lime-kiln that will contain four or five hundred bushels of lime.

Though we cannot say much for the neat husbandry of these farmers, yet I cannot pass by them without taking notice of a piece of invention, I think very praiseworthy, and interesting to every one situated as they are.

I observed above, that they have plenty of limestone, which they make into lime by burning it with whins, other firing being scarce; and as they make use of a great deal of lime, they consume great quantities of this sort of fuel, therefore it requires contrivance to keep up a proper fund for that purpose.

This is done by raising large ditches for fence; and as their land lies high, and the country scarce of shelter, being thin of woods or hedges, they sow each side of the bank, which they raise by making the ditch, with whin-feed; and when the whins are ready to cut for fuel at three years old, they cut only one side of the ditch, and leave the other for shelter and fence till the cut side grows to fulfil that office, then they cut the  
oldest

oldest side for fuel; so they go on alternately, cutting the oldest side from generation to generation. This is a piece of management that I would highly recommend to my American readers in their cleared land, as whins are not only a fence, shelter, and firing; but also good food for cattle all winter; they being an evergreen and full of sap, the sheep, horses, and horned cattle delight in them while young. Several farmers in Wales have large fields which they cut successively, from a year to two, or three old, and have mills turned by a horse to grind them for their horses, which serves instead of corn; and others who have not mills, beat them in a mortar, with a wooden mull, filled in the head with horse nails: when the whins are thrown in the manger they will swim with liquor, of which the horses are fond.

And thus they are supplied with fuel, fence, and shelter, from the same ditch, which perhaps takes up not more ground than two yards, though by measuring round the top of the bank, we shall find a surface for the whins to grow on of near four yards.

How many places are there in America, England, Scotland, and Wales, that are scarce both of fire, fence, and shelter, that would be glad of whins to burn instead of straw and cow-dung, which are used in many

ny parts, particular in England. And how easy and cheap would it be for them to raise these three valuable articles of fire, fence, and shelter, by the above method?

But though this simple method is very praise-worthy; yet it falls much short of the great œconomy they practise, by breaking limestone to powder, and applying it as manure for land instead of lime.

It answers the same end, comes much cheaper, and lasts longer than lime; it answers for any sort of land, but best for strong, as its angular points cuts through and opens it, and the weather softens the little stones, so that it keeps peeling and discharging a crust, which acts as a perpetual manure till the last bit be wasted.

I happened in company with a gentleman farmer who first tried it, and he assured me that it answered full as well as lime, and that it did not cost half so much breaking.

I viewed a piece of grass ground covered with this bruised limestone, which astonished me with surprize, at seeing such a fine verdure in the middle of a very barren field, mostly grown over with heath; but as far as the limestone had been laid on, it had quite changed the nature of the soil, killed the heath, and substituted honey-suckles and wild clover in its place.

Several

Several more gentlemen about Mallow were following this practice, and doubt not but it will in time be universally used there, instead of burning lime, particularly where firing comes high.

I am satisfied that limestone bruised to powder and laid on grass ground, is better than lime or even any other manure, particularly if the ground be strong, coarse, and sour, or inclined to heath or ling; and it is far the best manure I know of for suppressing moss.

A man may break a chaldron or four quarters in three days, or in less, if the stone be of a soft nature.

The smaller it is broke, the sooner it will take effect; none ought to be left larger than a hazel nut.

A great improvement might be made by a horse-mill, to grind limestone in, in the nature of a bark-mill or an oil-mill.

The city of Cork is a very rich flourishing place, and drives on a considerable trade in the exportation of beef, pork, and butter.

It is also improving very much in its buildings; it is a ready market for a farmer to vend the product of his land in. It is well situated for trade; and should there ever be a union between England and Ireland, it would soon be a far richer city than Dublin. The

The upper part of the county of Sligo, Mayo, and Galway, leading to the western sea, the land is only good in spots; in all these counties there is a great deal of gravelly, rocky, heathy, shallow land, intermixed with bogs; however in the worst of it there is every necessary material for improvement.

In these counties land varies much in price, according to its value, but, upon a medium, it may be rated at about twelve shillings an acre.

There is no part in Ireland where land varies so much as in the county of Leitrim. In order to give my reader an idea of it, I shall just mention, that in the year 1759, I let about five hundred acres of land, in four different farms, all lying within one ring fence, one for six shillings, another for twelve shillings, another for eighteen shillings, and another for a guinea, being one pound two shillings and nine-pence Irish currency, per acre.

And indeed the land varies accordingly through the county, in some places fine rich limestone soil, in others strong cold clay soil, all grown over with rushes, and in others thin gravel soil, grown over with heath.

But this county, like most others in Ireland, abounds with all sorts of manure for  
improve-

improvement, such as limestone gravel, white rich marl, a fine rich sand mixed with shells, and limestone in abundance, together with turf in plenty to burn it with.

I have had extreme good wheat and corn of all sorts here. I seldom see them troubled with smutty wheat, or red worms, which is perhaps owing to their sweet method of manuring.

Their method of farming is very bad, and their way of yoking horses as barbarous; they draw their plows and harrows with their horses tied by their tails. I have very often seen a mare and her offspring, viz. a three years old, two years old, and one year old colts, plowing all a-breast, two going upon the plowed land and two upon the unplowed land with neither hemp or iron about them; their whole gearing consisted of a whity, or twisted stick, tied to the hair of each horse's tail, and so through a hole made in a long pole or stick, which reached the breadth of the four horses, and served by the way of a swingle-tree, which pole is fastened in the middle by another withy to a hole bored in the end of the plow-beam.

The man that drives, or more properly speaking, leads the horses, has a long stick to which each horse's head is tied with a withy halter; the man by holding the stick  
has

has all the horses at his command; he walks backwards before the horses heads all the day; when he wants them to follow him, he pricks them with a long stick he has in the other hand, in the end of which a sharp nail is fixed. Thus we see them equipt in the plow way.

They harrow in the same wooden manner, having a withy fastened to the hair of each horse's tail, and to a harrow which each horse drags; the harrow teeth are made of whin stalks instead of iron, so that in fact there is neither hemp, leather, or iron, except the coulter and sock, about their teams; and yet I have seen as good corn grow there as I ever saw in England, which is all owing to the natural goodness of their land, and maiden manure they raise out of the interior parts of the earth.

Was no better plowing or management used in England, we should grow nothing but weeds instead of corn.

The greatest misfortune which generally attends their crops, is that of their being too rank, so that the corn is small and lean, as the richness of the soil, and the softness of the climate, together with the double portion of seed they throw into the ground, forces it too much into straw.

But as I have described their barbarous method of drawing their horses by their

tails, I must also do justice to the legislature, by telling my reader, that they have made a law to put a stop to this cruelty which has in a great measure contracted it to the most distant or remotest parts of the country at present, but formerly it was general all over the kingdom.

The counties of Monaghan, Tyrone, Londonderry, Fermanagh, Donegal, Down, Caven, Armagh, and Antrim, are in the north of Ireland.

Most of these counties flourish much in the manufacturing of linen cloth; particularly towards the sea-coast, opposite Scotland.

The most considerable manufacturies begin at Dundalk, and so on to Newry, Loughbrickland, Hillsborough, Lisburn, Belfast, Lurgan, and Armagh: through all these places the land is very good, except some mountains interspersed here and there.

The lands here are in general better inclosed, and divided into smaller farms, than in the rest of Ireland, which is a great blessing to the inhabitants, and adds much to the beauty and richness of the country; because when a man is not over-burdened with land, he can, as it were, make his farm into a garden, by attending to, and beautifying every part of it; and he certainly



tainly can make one acre, well cultivated, produce as much as five in its wild barren state.

What pity it is that the worthy gentlemen of Ireland will not open their eyes to such plain facts, and curtail these unmerciful farms, that ruin the best part of this fine, healthy, and easy to be made, a very rich kingdom.

The land within the ride of the last mentioned towns, lets at about eighteen shillings an acre. It is in general, strong wheat soil; but however their chief crops are oats, beans, and potatoes.

Here are many little bogs lying between the hills, under which is a good white marl; there is also plenty of limestone, and lime is often used as manure.

The right honourable lord chief baron Foster has an estate at Colon, in the county of Louth, amounting to about two thousand acres, that formerly let at half a crown an acre, which he has improved by lime to such an amazing degree, that it now lets from eighteen to twenty-three shillings an acre; an immense rise indeed: and what is more, the first crop generally paid the expence of liming, though he had the limestone to carry four miles, which is a distance that seldom happens in Ireland.

The

The coals that burn it he gets from England. He told me that he can lime well for four pounds an acre, at seven yards to the perch; and he lets the land the first year to break up to set potatoes in, at four pounds an acre, the next year he lets the same land where the potatoes grew, to sow oats in, at three pounds an acre, and the third year to sow again with oats, at fifty shillings an acre.

In all this, he is at no other expence, but just laying the lime on.

Sometimes instead of oats after potatoes, they sow flax-seed or bare; but they may sow what they will, as they are sure of good crops.

The lime generally lies on the sod about a year before it is broke up, and as it lies pretty thick, it presses down any grass, heath, or other rubbish that may be on the land, and turns it to dung, by which means it ferments and unites the lime to the sod and particles of earth, which otherwise would not incorporate and unite so kindly.

The original state of this land was a heathy wild mountain, without hedges, ditch, tree, or bush of any sort, and had as wild a look as the highlands of Scotland.

The staple of the ground is inclined to a clay gravel of a reddish cast, intermixed with thin flaty gritty stones.

The

The situation of the ground is not to be called very high, nor is it level, but in waving hills, and takes a good pull for a carriage to attain the top.

They generally plow in all this country with four horses, two before two, except in breaking up grass ground, then they generally use six.

They grow a great deal of oats and round eared barley, in the counties of Louth and Down, till you come to Donaghadee.

Farther north towards the county of Antrim, Donegal, and Londonderry, the land lowers in its value, having a great deal of strong, cold, spewy, rushy, and heathy land interspersed all over the country; and the country is also uneven, rising very much into hills, sometimes to a disagreeable height.

They grow little else here but potatoes, flax, and oats, the oats mostly of the black sort; not but the land will grow both wheat and beans, as I have seen good of both raised by gentlemen, but the farmers do not care to venture out of their old track of husbandry.

The land here varies much in rent; in good spots and near towns, it lets for about twenty shillings an acre; but in the high and more open country, it does not let

let perhaps for more than ten shillings an acre.

## C H A P. LXI.

*On trenching Land near Glasgow with Spades.*

**U**PON finishing my travels, and observations through Ireland, I took a tour through Scotland and England, to make further observations; but as I do not think it of moment enough to trouble my American readers with it, having sufficient matter of more consequence, I shall only mention one piece of management of trenching land with spades near Glasgow, to which I referred my reader, from page 44. vol. I.

When the farmers here have a piece of ground wore out by tillage, so that it will not bring any more crops without manure, is then trenched with a spade, sometimes two, and sometimes three spit deep; that is, they begin and dig three spade-grafts deep, and make a trench, into the bottom of which they throw the top sod, and over that the second sod or spade-graft, and also the third, so that the bottom spade-graft, taken up at three feet deep, becomes the upper stratum for corn to grow in.

If

If the farmer lets his land to be trenched by the acre, the price is set without varying, and is as follows.

For trenching two spit, or spade-graft deep, (without shovelling the loose mould out after the spit) forty shillings an acre; for digging two spit, and shovelling the loose, forty-five shillings an acre; for digging three spit, without shovelling, fifty-five shillings an acre; for digging three spit deep, and shovelling, three pounds an acre.

They find by experience that it is better for the land, and they are more sure of a crop of any sort after trenching, than if they lay on lime or any other manure to the amount of three pounds an acres; and what is more surprising, this is practised in a country where manure is plenty and easy to be got.

After such trenching, the land will bring five or six good crops before it need be trenched again, and it will grow corn even of one sort without changing from generation to generation, if it be again trenched to revive its exhausted spirits at proper periods.

I know some of my readers, who only cast a cursory view upon things, may think my account fabulous, but I assure them what I have said is absolutely fact; for I saw the whole work performed with my own eyes; I saw also the crops grow, and I never

ver saw better wheat, oats, and barley in my life; and I took particular notice of such trenched corn as it happened in town-fields, and found that ridges along side which were dunged and fallowed, were not so good by much, nor so clear of weeds; that both the ear, grain, and straw were smaller.

When we consider the thing attentively, it is easily accounted for, particularly if the land be of a proper sort, viz. If loomy clay or loomy sand, or sand itself; because if land be ever so poor, it is generally covered with a coat of some sort, either stubble, weeds, or grass, which being thrown into the bottom of a trench, and covered with earth two or three feet thick, it ferments, rots, and evaporates its volatile spirits, which penetrate through every particle of the body of earth over it.

In short the whole body thus mixed, must be in a state of ferment, besides the weeds and rubbish being buried too deep for vegetation, rots and becomes manure. Any reasonable man will allow that there must be a wide difference between the root of a weed growing and partaking of the strength of the ground, and the same root being rotted to feed the ground; but as I have handled this subject pretty fully in another part of this work, I shall drop it here.

## C H A P. LXII.

*The Price of Labour and Victuals in the several Counties of Ireland, in Order to give an Idea of the different State of the Two Kingdom in these Particulars.*

**D**UBLIN, beef by the quarter at two-pence half-penny a pound, from Michaelmas to Christmas, but is very dear in spring, which is chiefly owing to the scarceness of winter feeding, as the people of Ireland sow very little turnip-feed.

Good beef in April perhaps will give four-pence a pound by the quarter. Mutton keeps at a much more equal price; for as their land is good, and their winters moderate, fat sheep will keep their flesh through the winter, so that the markets seldom vary above a penny a pound; it sells at Michaelmas at two-pence half-penny a pound, and in spring at three-pence half-penny a pound. Pork and bacon bears an equal moderate price, which is owing to plenty of potatoes for feed, for they seldom feed swine with beans.

Pork at two-pence and two-pence half-penny a pound; bacon at three-pence half-penny a pound.

Veal in winter is five-pence and six-pence a pound, but in May and June at two-pence.

There is as good and as bad veal in Dublin as in any part of the world. Calves sell here from two shillings to four pounds a piece.

All the dairies near Dublin sell their calves as soon as they drop for two or three shillings a piece, which is a barbarous custom: but the county of Wicklow which chiefly supplies Dublin market, keep their calves three or four months old; nay, I am told, some will keep them five months old. In short, they make very good veal, and they are also famous for early lambs in this county, by which Dublin market is supplied.

In Dublin, a good goose for two shillings, a good fowl for eight-pence, rabbits, are dear, as there are few warrens in the kingdom, the land being too good for them, so that there are scarce any to be got, except tame rabbits bred in houses.

Fresh butter in Dublin is high in winter, eight-pence and ten-pence a pound, and in summer at five-pence and six-pence a pound.

Wheat this year from twenty to thirty-two shillings a barrel, or four bushels Winchester measure, in the same market the same day.



The quality of wheat varies much, according to its cleanness or dryness. They are very often obliged to dry it on malt-kilns.

English wheat generally bears a higher price than the best Irish by two shillings the barrel in the same market.

They import from England a great deal of malt, which is superior to the Irish made malt by three shillings a barrel. In short, the Irish maltster cannot be content with moderate profit, for if he cannot profit other ways, he will have it in weight or measure.

Formerly they used to sell by measure, then they grew it out so much, that it had no strength in it; and as they never sift it, but sell cums and all together, it was so long one might almost fill the bushel with a dung fork.

The legislator saw the cheat, so made an act to sell by weight, and now the extream is full as much the other way, for they do not above half grow it, so that the thick end of each grain does not turn to malt, but dries and becomes a hard flinty substance, which weighs heavy in the bushel, but yields no spirit to strengthen the ale. Thus the publick are imposed upon by the maltsters being too avaricious, and not doing the fair thing.

Malt sells at about sixteen shillings a barrel, or four bushels.

Oats being so general a crop in Ireland, one might expect them to be very cheap; but however, though a great many are grown, there is also a great consumption, as all the poor in general eat no sort of bread except that made of oats; and the time of the year when potatoes are out of season, their whole living is oat-bread and butter-milk; but so long as potatoes are good they supply the place of bread; therefore oats bear a better price than could be expected, being so general a crop.

Potatoes in the year 1759, was a failing crop, which made oats and oat-meal very dear.

Good oats sold this year in the interior parts of the kingdom at fourteen and fifteen shillings a barrel, which is at the rate of thirty shillings a quarter. The year after, being a good potatoe year, I bought good oats at five shillings a barrel. This shews the great dependence there is upon potatoes.

In the year 1769, good oats sold at twelve shillings a barrel in Dublin, grey pease at eighteen shillings a barrel, and a large field bean at twenty shillings a barrel.

The round black magazine field bean scarce any to be got, being little sowed in Ireland. White boiling pease at thirty shillings

lings a barrel. Very little rye is made use of.

All sorts of artificial grass seeds are imported hither from England.

Bricklayers, masons, and house carpenters or joiners, are two shillings a day. Labourers in Dublin a shilling a day; but farmers labourers in the country round Dublin, is eight-pence in winter without meat, and a shilling in summer.

In the counties of Wexford, Kildare, Carlow, Westmeath, and Queen's County labourers are six-pence a day in winter, and eight-pence in summer, without meat. Beef and mutton two-pence and two-pence half-penny per pound in the cheapest season of the year.

Most country gentlemen kill their own meat, and the country labourers and farmers seldom eat any; so that the chief consumption is by the tradesmen and shopkeepers in market towns.

Eggs and fowls are cheap. Good chickens at three half-pence and two-pence a piece. Lean geese at eight-pence a piece, lean turkeys at ten-pence a piece, and a roasting pig for a shilling or fifteen-pence, eggs at seven or eight a penny.

In the counties of Kilkenny, Cork, Kerry, Tipperary, Limerick, Waterford, Galway, Leitrim, Mayo, Roscommon, Sligo, Clare,

Clare, Londonderry, Tyrone, and Fermanagh, being distant from Dublin, and partly destitute of trade, but subsisting chiefly by grazing, the living and labour is cheap, and partly bears an equal rate in all these counties.

Beef and mutton at the cheapest season from three half-pence to two-pence a pound, lean geese at four-pence a piece, lean turkeys at six-pence a piece, chickens at a penny a piece, eggs at ten a penny, roasting pigs at six-pence a piece, butter at three-pence a pound. Day labourers at four-pence a day in winter, and six-pence in summer, no meat, plough-wrights a shilling a day and meat, house-carpenters or joiners two shillings a day, no meat, masons two shillings a day, no meat.

The reader is to take notice, that in speaking of labourers, I speak in general terms, such as are employed by gentlemen and farmers all the year round; but in market and great towns, at times, particularly in March and April, when the shop-keepers and tradesmen are setting their potatoes, labourers are perhaps six-pence or eight-pence a day and meat. However this is a matter of little consequence in the farming way, but I thought proper to take notice of it, lest some unthinking readers, not making proper allowances for these

these things, might think my account erroneous.

Corn is at a more equal price, since a bounty was given by the government for land carriage, so that there is not above four or five per cent. difference between the country and Dublin prices; and when a misyear in the potatoe crop happens, Dublin is the lowest market, they being obliged to send corn and meal into the country to supply the deficiency of potatoes.

The counties of Down, Louth, Donegal, and Armagh, being manufacturing countries, labour and victuals bear a higher price than in the grazing countries. Beef and mutton at two-pence half-penny and three-pence a pound, geese at eight-pence a piece lean, turkeys at ten-pence or a shilling a piece, chickens at two-pence or three-pence a piece, pork two-pence a pound, a roasting pig a shilling, oat-meal at sixteen pence a peck, best wheat at twenty-eight shillings a barrel, malt fourteen shillings a barrel.

Labourers at six-pence a day in winter, without meat, and eight-pence in summer, without meat; house-carpenters two shillings a day, and masons two shillings a day.

A farmer's man servant six pounds a year, a strong boy three pounds a year, a woman

woman fervant three pounds a year, a luffy girl thirty fhillings a year.

There is little difference in the wages of yearly fervants in any part of the kingdom.

The gentlemen of Ireland give good encouragement to English fervants and stewards, with good characters.

Ireland is two hundred and feventy-five miles long, one hundred and fifty nine miles wide, and fourteen hundred miles in circumference.

Their land and mile meafure is by feven yards to the perch.

Their weight and meafure are all Winchester.

## C H A P. LXIII.

*Some approved Receipts in Physic, and Surgery, by the most able Men of the Faculty in England.*

**A**S I have faid every thing that is neceffary in Husbandry; and as this work may fall into many hands who live in the country, at a diftance from help in time of ficknefs, &c. I thought, it might  
not

not be amiss to give a few chosen receipts, for the cure of disorders most common to the human body.

It is common in books of Physic to add several receipts, for the cure of one disorder; but as I do not place this book among that denomination, I shall in general, put one receipt for one disorder, and such as has been tried, given, or approved on, by the most able men of the faculty in England.

*To stay Looseness,*

**T**AKE a very good nutmeg, prick it full of holes, toast and grate it, then boil it well in milk, and eat it in a morning; or the nutmeg toasted and grated in a glass of red port, will do full as well and seldom misses of a cure.

*To take out the Fire, of a Burn or Scald.*

Scrape a raw potatoe and apply it to a burn or scald, as a poultice, when it is dry apply another till the smarting has done; there is nothing so quick and sure as this. The sore may be healed with yellow basilicon, or by nothing but dry lint laid on the place covered with a linen rag burned brown and laid over it, if very bad it may be washed with allum whey; but the operation of the potatoe poultice is so effectual that it seldom breaks the skin.

*To Cure a Cough inclining to a Consumption.*

Take balsam of sulphur one ounce, and oil of aniseeds one ounce, mix them together and take a tea spoonful every morning, and evening the first and last thing, this has recovered those when in a consumption.

*For the Gripes.*

Take a glass of sack warm'd, and dissolve in it as much *Venice-Treacle*, or *Diascordium*, as a hazelnut; drink it off going to bed; cover warm.

*For the Stranguary.*

Take half a pint of plantane-water, one ounce of white sugar-candy finely powder'd, two spoonfuls of fallad-oil, and the juice of a lemon; beat all these together very well, and drink it off.

*For a Draught in a Fever.*

Take of sal-prunella one ounce, and dissolve it in spring-water, and put as much sugar to it as will sweeten it; simmer it over the fire till 'tis a fyrup; and put some into posset-drink, and take it two or three times a day, or when very thirsty.

*A Plaster for an Ague.*

Take right *Venice-turpentine*, and mix with it the powder of white hellebore-roots,  
till



till 'tis stiff enough to spread on leather. It must be laid all over the wrist, and over the ball of the thumb, six hours before the fit comes.

*For a Chin-Cough.*

Take a spoonful of wood-lice, and bruise 'em, and mix them with breast-milk, and take them three or four mornings, according as you find benefit. It will cure; but some must take it longer than others.

*To take off Blackness by a Fall.*

Rub it well with a cold tallow candle, as soon as 'tis bruised; and this will take off the blackness.

*To break a Boil.*

Take the yolk of a new-laid egg, some honey and wheat flower; and mix it well together, and spread it on a rag, and lay it on cold.

*A Poultice for a hard Swelling.*

Boil the finest wheat-flour in cream till 'tis pretty thick; then take it off, and put in mallows chopt; stir it, and apply it as hot as can be endured; dress it twice a day, and make fresh every time.

*To stay Vomiting.*

Take ash-leaves, and boil them in vinegar and water, and apply them hot to the stomach; do this often, and put the hands in cold water:

*A Poultrice for a sore Breast, Leg, or Arm.*

Boil wheat-flour in strong-ale very well, and pretty thick; then take it off, and scrape in some boars-grease; let it not boil after the grease is in; stir it well, and apply it hot:

*For Spitting Blood.*

Take of cinnabar of antimony one ounce, and mix it with two ounces of conserve of red roses; and take as much as a nutmeg at night and morning.

*To cure the Tooth-ach.*

Let the party that is troubled with the tooth-ach lie on the contrary side, and drop three drops of the juice of rue into the ear on that side the tooth acheth, and let it remain an hour or two, and it will remove the pain; if a needle is run through a wood-louse, and immediately touch the aching tooth with that needle, it will cease to ach: sometimes tooth-ach proceeds from a cold; so that the air gets between the gums and  
the

the teeth, and raises them out of the socket, which causes a very great pain tho' the teeth be all sound, the cure in this case is to press a cork very hard between the teeth a considerable time to press them down even, and rub the gums with gun-powder till they bleed.

*An excellent Medicine for Shortness of Breath.*

Take half an ounce of flour of brimstone, a quarter of an ounce of beaten ginger, and three quarters of an ounce of beaten sena, and mix all together in four ounces of honey; take the bigness of a nutmeg night and morning for five days together; then once a week for some time; then once a fortnight.

*To cure a pimpled Face, and sweeten the Blood.*

Take sena one ounce, put it in a small stone pot, and pour a quart or more of boiling water on it; then put as many prunes as you can get in; cover with paper, and set in the oven with household-bread; and take of this every day, one, two, three, or more of the prunes and liquor, according as it operates; continue this always, or at least half a year.

*To cure the Dropsy, Rheumatism, Scurvy, and Cough of the Lungs.*

Take *English* orris-roots, squills, and elecampane-roots, each one ounce, hyssop and hore-hound-leaves, each one handful, the inner rind of green elder and dwarf-elder, of each one handful, fena one ounce and half, agarick two drams, ginger one dram; cut the roots thin, and bruise the leaves, and put them into two quarts of the best *Lisbon* wine; let these boil an hour and half on a gentle fire in an earthen mug, very close stopt with a cork, and ty'd down with a bladder, that no air come to it, and so set it in a large pot of boiling water; set it so that no water get into the mug, which must hold three quarts, that all the ingredients may have room to go in; when it is almost cold, strain it out very hard; you must scrape the elder downwards; take this for a week together if you can, and then miss a day; and if that does not do, go on with your other bottle of the same; take it in a morning fasting, ten spoonfuls at a time, without any posset-drink; it will both vomit and purge you; it is an unpleasant taste, therefore take a lump of sugar after it; when it is quite cold, after it is strain'd off, let it stand in a flagon to settle a night and a day, then bottle it up clear and fine for use: it is an admirable medicine.

*To cure a Cancer.*

Take a dram of the powder of crabs-claws finely searced, and made into paste with damask-rose-water, and dry'd in pellets of lozenges; powder the lozenges as you use them, and drink the powder in whey every morning fasting: if there be a fore, and it is raw, anoint it with a salve made of dock-roots and fresh butter; make a seaton or issue in the neck, keep a low diet; keep from any thing that is salt, sour, or strong.

*To cure the Joint-Evil.*

Take good store of elder-leaves, and distil them in a cold still; let the person drink every morning and evening half a pint of this water, and wash the sores with it morning and evening, first warming it a little, and lay fresh elder-leaves on the sores, and in a little time you will find they will dry up, but be sure to follow it exactly; it has cured when all other remedies have failed.

*For the Green-Sickness.*

Take centaury the less, and wormwood and rosemary-flowers, of each a handful, gentian-root a dram, coriander-seeds two drams; boil these in a quart of water, sweeten it with syrup of steel, and take four or five spoonfuls in the morning, and as much in the afternoon.

*To take off Freckles,*

Take bean-flower-water, or elder-flower-water, or *May* dew gather'd from corn, of either the quantity of four spoonfuls, and add to it one spoonful of oil of tartar very new drawn; mix it well together, and often wash the face with it; let it dry on.

*A Salve for a Sprain.*

Take a quarter of a pound of virgin-wax, a quarter of a pound of frankincense, half a pound of burgamy-pitch; melt them well together, stirring them all the while till they are melted; then give them a good boil, and strain them into water; work it well into rolls, and keep it for use; the more it is work'd, the better it is; spread it on leather.

*To take out Spots of the Small-Pox.*

Take half an ounce of oil of tartar, and as much oil of bitter almonds; mix it together, and with a fine rag daub it often on the face and hands, before the air has penetrated into the skin or flesh.

*A Receipt that cur'd a Gentleman who had a long time spit Blood in a great Quantity, and was wasted with a Consumption.*

Take of hyssop-water, and of the purest honey, of each a pint; of agrimony and colts-

coltsfoot, of each a handful; a sprig of rue, brown sugarcandy, liquorice slic'd, shavings of harts-horn, of each two ounces; aniseeds bruised one ounce, of figs sliced, and raisins of the sun stoned, of each four ounces: put them all into a pipkin with a gallon of water, and boil it gently over a moderate fire till half is consumed; then strain it, and when it is cold, put it into bottles, being close stopt: take four or five spoonfuls every morning, at four in the afternoon, and at night, the last thing: if you add fresh water to the ingredients, after the first liquor is strain'd off, you will have a pleasant drink, to be used at any time when you are dry.

*An infallible Cure for the galloping Consumption.*

Take half a pound of raisins of the sun stoned, a quarter of a pound of figs, a quarter of a pound of honey, half an ounce of Lucatellu's balsam, half an ounce of powder of steel, half an ounce of flour of elecampane, a grated nutmeg, one pound of double refin'd sugar pounded; shred, and pound all these in a mortar; pour into it a pint of fallet-oil by degrees; eat a bit of it four times a day the bigness of a nutmeg; every morning drink a glass of old Malaga sack, with the yolk of a new-laid egg, and as much flour of brimstone as will lie upon

a fix-pence; the next morning as much flour of elecampane, alternately; and if this will not cure you, the Lord have mercy upon you.

*For the Scurvy.*

Take a pound of guaiacum-bark, and half a pound of saffras, and a quarter of a pound of liquorice; boil all these in three quarts of water, till it comes to three pints; and when it is cold, put it in a vessel with two gallons of ale: in three or four days it is fit to drink, and drink no other drink for six or twelve months, according to the violence of the distemper; it will certainly cure.

*For Corns on the Feet.*

Take the yeast of beer, (not of ale) and spread it on a linen rag, and apply it to the part affected; renew it once a day for three or four weeks; it will cure.

*For Chilblanes, when broke.*

Roast a turnip soft, beat it to mash, and apply it as hot as can be endur'd to the part affected; let it lie on two or three days, and repeat it two or three times.



*For a Cough settled on the Stomach.*

Take half a pound of figs sliced, raisins of the sun stoned as many, and a stick of liquorice scraped and sliced, a few aniseeds, and some hyssop wash'd clean; put all these in a quart of spring-water; boil it till it comes to a pint; then strain it, and sweeten it with white sugar-candy: take two or three spoonfuls morning and night, and when the cough troubles you.

*To give Ease in a violent Fit of the Stone.*

Take a quart of milk, and two handfals of dry'd sage, a pennyworth of hempseed, one ounce of white sugar-candy, and one ounce burdock seeds: Boil all these together a quarter of an hour, and then put in half a pint of rhenish-wine. When the curd is taken off, with the ingredient, put it in a bag, and apply it to the grieved part; and of the liquor drink a good glass-full. Let both be as hot as can be endured. If there is not ease the first time, warm it again, and use it. It seldom fails.

*For the Strangury.*

Take three spoonfuls of the juice of chamomile in a small glass of white-wine, thrice a day, for three days together.

*To procure easy Labour.*

Take half a pound of figs, half a pound of raisins of the sun ston'd, four ounces of liquorice scrap'd and slic'd; one spoonful of aniseeds bruised; boil all these in two quarts of spring-water, till one pint is wasted; then strain it out, and drink a quarter of a pint of it morning and evening six weeks before the time.

*To procure speedy Delivery when the Throws are gone.*

Take half a dram of borax powder'd, and mix'd with a glass of white-wine, some sugar, and a little cinnamon-water: if it does no good the first time, try it again two hours after, so likewise the third time,

*To bring the After-Birth.*

Give 30 or 35 drops of oil of juniper in a good glass of sack.

*To prevent After-Pains.*

Take half an ounce of large nutmegs, and toast them before the fire, and one ounce of the best cinnamon, and beat them together; then mix it with the whites of two eggs, beating it together in a porringer; and take every morning in bed as much as will

will lie on the point of a knife, and foat night; and drink after it the following caudle:

Take a quarter of a pint of *Alicant* wine or tent, a quarter of a pint of red rose-water, and a quarter of a pint of plantain-water; mingle all three together, and beat three new-laid eggs, yolks and whites, and make a caudle of them; put into it two ounces of double-refin'd fugar, a quarter of an ounce of cinnamon; you must boil the cinnamon in the wine and water before the eggs are in; and after all is mixed, put to it half a dram of the powder of knot-grafs; take of this fix spoonfuls morning and evening after the electuary.

*To stop Floodings.*

Take the white of an egg, and beat it well with four or five spoonfuls of red rose-water, and drink it off morning and night nine mornings together; it has cured when all other things have failed.

Let the party often take ifing-glass boiled or dissolved in warm new milk, a pint at a time.

*A Plaster for a Weakness in the Back.*

Take plantain, comfry, knot-grafs, shepherd's-purse, of each one handful; stamp them

them small, and boil them in a pound of oil of roses, and a little vinegar; when 'tis well boiled, strain it, and set it on the fire again, and put to it four ounces of wax, one ounce of chalk, bole-armoniac one ounce, and terra-figillata one ounce; boil all well, keeping it still stirring; then cool it, and make it into rolls, and keep it for use; spread it on leather when you lay it to the back.

*A Drink for the same.*

Take four roots of comfry, and of knot-grass and clary one handful, a sprig of rosemary, a little galengal, a good quantity of cinnamon and nutmeg sliced, the pith of the chine of an ox. Stamp and boil all these in a quart of muscadine, then strain it, and put in six yolks of eggs; sweeten the caudle to your taste with double refin'd sugar, and drink a good draught morning and evening. Take of crocus martis, and conserve of red roses mixed together, three or four times a day.

*For the Dysentery or Bloody-Flux.*

Take an iron ladle; anoint it with fine wax; put into it glass of antimony, what you please; set it on a slow fire, without flame, half an hour, still stirring it with a spatula; then pour it out on a clean linen cloth,

cloth, and rub off all the wax. Grind it to powder.

This is the receipt as I got it; but I kept it three quarters of an hour on the fire, and could not rub off any wax. The dose for a boy of 7 or 8 years, 3 grains; for a weak adult, 5 grains; for a strong woman, 12 or 14 grains; for a very strong man, 18 or 20 grains.

*N. B.* I never gave above 14 grains, and in the making of it put about a dram of wax to an ounce of the glass. It sometimes vomits, always purges, and seldom fails of success. I always intermit one day at least betwixt every dose.

#### *A good Purge.*

Infuse an ounce of senna in a pint of water, till half be consumed; when 'tis cold, add to it one ounce of syrup of roses, and one ounce of syrup of buckthorn; mix them well together. This quantity makes two strong purges for either man or woman, and four for a child.

#### *For the Green-sickness.*

Take an ounce of the filings of steel, or rusty iron beaten to powder, and mix it with two ounces of the flour of brimstone; then mix it up into an electuary with treacle;  
the

the party must take the quantity of a nutmeg in the morning fasting, and at four in the afternoon, and continue it till cured.

*For Costiveness.*

Take virgin-honey a quarter of a pound, and mix it with as much cream of tartar as will bring it to a pretty thick electuary, of which take the bigness of a walnut when you please; and for your breakfast, eat water-gruel with common mallows boil'd in it, and a good piece of butter; the mallows must be chopt small, and eaten with the gruel.

*For the Hiccup.*

Take three or four preserv'd damfins in your mouth at a time, and swallow them by degrees.

*For the Cramp.*

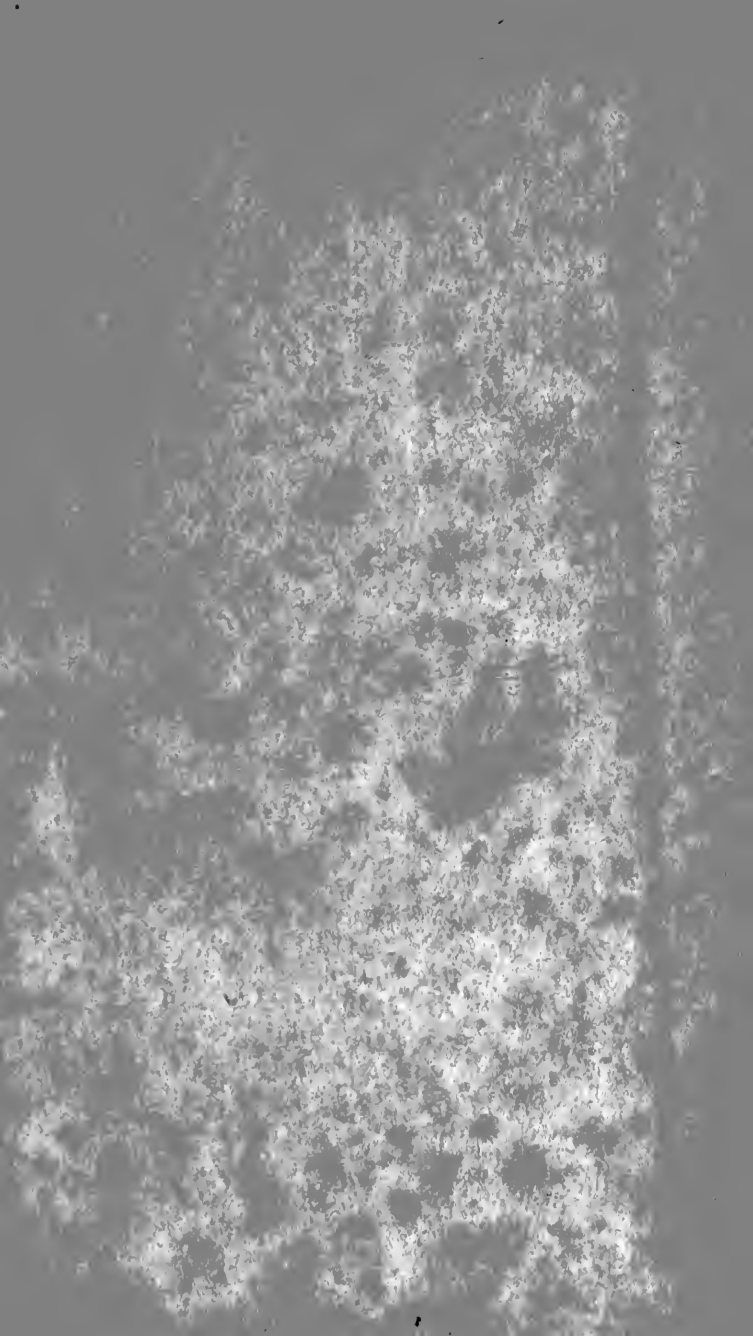
Take of rosemary-leaves, and chop them very small, and sew them in fine linen, and make them into garters, tie the garters tight below the knee, and wear them night and day; lay a down pillow on your legs in the night.

F I N I S.











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