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AT A  
**COMMITTEE MEETING**

HELD

*On the 22nd day of October, 1838.*

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IT WAS RESOLVED,

That the following Rules and Resolutions, for the management of the Library, be adopted, and printed.

I.

The Library and reading room, be open every evening, (Sundays excepted;) from six to ten o'Clock.

II.

No Member shall have in his possession more than one Volume at a time, except the 2nd Volume contains plates or references to the first.

III.

No Member shall lend a book belonging to the Library to a Non-Subscriber, under a penalty of five shillings.

IV.

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V.

If a Book be damaged or lost, the Committee shall determine the amount of such Damage or Loss, which shall be made good by the Member in whose hands the book was at the time: and until this be done, the Member shall not be again admitted to the Lectures or Library.

VI.

Such Books as the Committee may consider too valuable to be sent out, may be perused in the Library; these will be marked in the Catalogue with an Asterisk.

## VII.

There shall be a printed Catalogue of the Books, with a Number affixed to each Volume, so that when a Member wants a book, he must mention a number. The Books to be delivered in order of application: a written Catalogue of such Books as are added to the Library between the printing of one Catalogue and another, to be hung up in the room.

## VIII.

A Book to be provided in the Reading Room in which a Member may put down, for the consideration of the Committee, any Book he wishes to be added to the Library with the particulars, price, and his own signature.

## IX.

In order that the Committee may be enabled to report the state of the Library, at the General annual Meeting in March, all the Books must be in the Library on the second Monday in February, under a Penalty of sixpence a Volume, for every day they are detained beyond that period—the Library shall at this time be closed for a week.

## X.

Books shall be taken in and given out on Fridays, between the hours of 12 and 2 o'Clock.

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## RESOLUTIONS TO THE ABOVE RULES.

## I.

That Books on Politics and controversial Theology be excluded the Library, as inconsistent with the object of the Institution.

## II.

That to guard against the possible introduction of immoral works, all Books presented to the Institution be subject to the approval of the Committee before they are placed in the Library.

## III.

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- 298 ———Midland Counties 2 Vol.
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- 355 \* Transactions of the Geological Society of London Vol. 5, part the first.
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- 377 Elements of Botany 1 Vol.  
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RURAL ECONOMY  
OF THE  
MIDLAND COUNTIES;  
INCLUDING  
THE MANAGEMENT OF  
*L I V E S T O C K*,  
IN  
LEICESTERSHIRE AND ITS ENVIRONS:

TOGETHER WITH  
*M I N U T E S*  
ON  
AGRICULTURE AND PLANTING  
IN THE DISTRICT OF THE  
M I D L A N D S T A T I O N.

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By Mr. MARSHALL.

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THE SECOND EDITION.

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V O L . II.

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L O N D O N :

Printed for G. NICOL, Bookseller to His Majesty, Pall Mall;  
G. G. and J. ROBINSON, Paternoster Row;  
and J. DEBRETT, Piccadilly.

1796.



# ANALYTIC TABLE

O F

## CONTENTS

O F T H E

### SECOND VOLUME.

---

#### ADVERTISEMENT.

#### DIVISION THE FIRST.

#### MINUTES ON AGRICULTURE, &c.

- MIN. 1. On the Fair of Belton, 1.  
The Show of Cattle, there.  
A REMARK on Grazing, 2.
2. On the Lime Works of Breedon, 2.  
The Nature of Breedon Lime.  
The Quarries, Kilns, and Burning, 3.  
The Price, and Cost, an Acre, 4.
3. Incident of Practice, in Watering Lime, 5.
4. On the Use of Rubbing Posts, in Sties, 6.
5. On Sowing Oats, over a thin Crop of Wheat, 7.
6. On the Hoing of Turneps, 8.  
The Norfolk and Midland Practices compared.  
The Midland Hoe, Three-sided, 9.  
Not ill suited to a Stoney, Stubborn Soil, 10.
7. An Experiment, with the Berbery, on Wheat, 11.
8. On the Smut of Wheat.  
An Evidence of its being caused by the Seed, 12.
- a 3
9. An

- MAN. 9. An Instance of Barley succeeding, on Clover Ley, 13.  
 10. On the Harvesting of Wheat.  
 REMARKS ON COVERING THE SHUCKS, 14.  
 ON THE ASPECT OF ARABLE RIDGES, 17.  
 An Instance of Wheat ripening unevenly.  
 11. On the "Statute" of Polesworth.  
 One of the largest in the Kingdom.  
 REMARKS ON PUBLIC HIRINGS, N. 18.  
 A Hint respecting BALLADSINGERS, 19.  
 12. On Spreading Manure out of Carriages, 20.  
 13. On the Fair of Fazeley, 21.  
 The Economy of the Fair Stead excellent.  
 14. On Laying a Barn Floor with Bricks, 23.  
 15. On the Fair of Tamworth, 24.  
 ON THE INFLUENCE OF SMITHFIELD, ON COUNTRY MARKETS, 25.  
 A striking Instance of the Value of *Breed*, in Sheep.  
 16. Handweeding Turneps, an eligible and cheap Operation, 26.  
 17. Instance of Horses thriving on Clover in Head, 27.  
 18. Instance of Practice in Fallowing, 28.  
 The Midland Practice described.  
 Remarks on Harrowing, in the early Stages of a Fallow.  
 The Norfolk Practice noticed, 30.  
 A practical Inference drawn.  
 A Detail of this Instance of Practice, 31.  
 Its Effects most favorable, 32.  
 Remarks on the Roller and Harrows united, in working a Fallow, 33.  
 An Experiment, with Dung, on Fallow.  
 The Result of this Experiment, N. 34.  
 REMARKS ON SPREADING DUNG, 34.  
 A General Remark on Varieties of Practice, 35.  
 19. On Market Conversation, 36.  
 On the Proportion of Land set out for Tithe, on the Inclosing of Common Fields, 37.  
 On the Advantages, &c. of inclosing open Fields. Esteemed disadvantageous in the Outset, and why.  
 "Turf" the main Dependence of the Midland Farmer, 38.  
 Arable Fields are long in acquiring it.  
 How diffuse and difficult is the Rural Science, 39.  
 The Midland Course of Practice is friendly to Natural Herbage: Fallows and Fallow Crops destructive to it.  
 An Improvement of that Practice proposed, 41.



- MIN. 21. The Mystery of high Ridges cleared up, 42.  
 22. On the shameful Waste of Malt Liquor, 44.  
     Laborers muddled with Small Beer, 45.  
     Probable Cause of this bad Practice.
23. On the different Means of obtaining Rural Knowledge, 46.  
     A Calendar, or Chronological Register adopted.
24. An Evidence of the Confidence that still subsists between Landlords and their Tenants, in this District, 47.
25. An Instance of Practice, in improving a bad Farm-yard, 49.  
     The Uses of a Dung Pit noticed, 51.
26. On the Mischievousness of Mice, 52.
27. On the obsolete Practice of Watering Grass Lands, by "floating upwards," 53.  
     Abundant Evidence of the Practice adduced, 54.  
     One Instance of floating downward noticed, 56.
28. On the Situation, and Guard, of Cattle Sheds, 58.  
     Are best placed in a separate Yard, 59.
29. Instance of Practice, in charring Posts, 60.
31. On carrying out Corn, 61.  
     An Error in the Midland Practice noticed.  
     This Error accounted for, 62.  
     A REMARK on correcting Errors, by adapting present Practices to present Circumstances, N. 63.
32. Instance of Practice, in Surface Draining, 63.  
     The proper Time and Season, for prosecuting this Improvement. 64.  
     The Treatment of Hedges, under this Operation, 65.  
     Set the Mold in Ridgets, by the Sides of the Drains.  
     Motives for this Practice, 66.  
     The Rate of Workmanship, and total Cost, 67.  
     Much Plain Husbandry may be done for a small Sum, 68.  
     A Hint to young Farmers, N. 68.
33. A Caution to the Owners and Occupiers of extra-parochial Farms, 68.
34. Instance of putrified Turneps proving a lasting Manure, 69.  
     Practical Remarks on this Incident, 70.
36. On the Theory and Practice of Hanging Gates, 71.
37. On the Stallion Show of Athby, 75.
38. On

- MIN. 38. On Burning Dead Grass, in the Spring. 77.  
Accidents arising from it.
39. Observations on the calcareous Waters of Austrey, 78.  
The Scum, left on the Grass, wholly calcareous, N. 79.
40. On Sowing Clover Ley, in Frosty Weather, 80.  
Should be sown the Day it is plowed.
41. An Incident on Plowing-in Seed Barley, 81.  
An Improvement pointed out, by this Incident.
42. On the Qualities of Waters, for Irrigation, 82.  
Those of the Dove and the Wye instanced.
43. On Sowing Turneps, on a dusky Surface, 83.  
General Ideas are dangerous in Husbandry.
44. On Farm Laborers planting Potatoes, in waste Corners of Fields, 84.
45. Instance of Yard Dung being injured, through a Want of Moisture, 85.
46. Instance of Watering Meadow Land, at a small Cost, and with great Profit, 86.
47. An Experiment in Watering Dung, 87.
48. The Uses of a Smith's Shop, on a Farm, 88.  
A Wheelwright Shop suggested.
49. On forming Earth Banks, with Drain Turves, 89.  
On effecting two Purposes, at one Operation.
50. On digesting Manure, 90.  
A Rule observable in turning Manure.  
Measure the new-formed Pile.
51. The Prices for skimming Pasture Grounds, 91.
52. A Hint for propagating Aquatic Manure.
53. Instance of a losing Year, in Grazing, 92.  
On the Quality of Herbage, in different Seasons, 94.
54. Farther on Hanging Gates.  
A Degree of Perfection reached, 95.  
How dark and difficult is the Path of Invention, 97.
55. On Agricultural Botany, 97.  
A summary Way of ascertaining the Herbage of a Grass Ground, 98.  
Catalogue of Meadow Plants, 99.  
Catalogue of Upper Ground Plants, 102.  
Extraordinary Ideas, respecting the Dock, N. 103.  
Catalogue of rich Grazing Ground Plants, 104.  
Remarks on the Lotus, as a culturable Plant, N. 105.  
Catalogue of rough Ground Plants, 106.

- An Evidence that few Weeds are pernicious to Cattle, 107.
- On the proper Season for Agricultural Botany, 108.
- The Soil and Herbage of the Dairy Grounds, of this District, ascertained, 109.
- MIN. 56. Practical Remarks on making Hay, in a dry Season, 110.
- Instance of a very deficient Crop of Hay, 112.
57. Another Instance of Watering Dung, 113.
58. Horses require Water, in a very dry Season, 113.
59. Remarks on the Couchy Fescue, as a Weed, and as a Species of Herbage, 114.
60. A striking accidental Variety of Sheep, 116.
61. On Turnep Insects.
- The Fly or Beetle described, 117.
- The Aphis discovered, and described, 118.
- Remarks on its Natural History, 120.
- The Tenthredo observed on grown Turneps, 122.
- A farther Remark, on the Beetle.
62. On the Stubble of new mown Grass.
- Its Qualities, as a Food of Cattle, 124.
63. Instance of a Farmer and his Laborers cultivating Potatoes in Partnership, 126.
64. On Spreading the digested mold of Drains, 126.
65. Remarks on the Blight of Wheat, 127.
66. Practice in clearing and new-forming old Drinking Pools, 128.
- The Method described, 129.
67. On the Precariousness of the Rural Profession, 131.
- Facts are the only Foundation, on which it can be securely raised, N. 134.
68. On Watering Ridges, on Slopes, 135.
- A practical Method struck out.
69. Further on Spreading Drain Mold, 137.
70. Instance of great Loits, by the Staggers, in Horses, 138.
- How ineligible as Beasts of Draft.
71. Method of Repairing a Sand Road, at a small Cost; 139.
72. On Geese as Clarifiers of Drinking Pools, 140.
73. On the *Holcus mollis*, as a Weed, and the *Holcus lanatus*, as a Species of Herbage, 140.
74. Farther Remarks on the Blight of Wheat, 141.
75. On the Conveniency of Reaping by the Threave, 143.
76. On the Hurtfulness of the Spear Thistle, 144.
- Instance

- Instance of a Farm shamefully overrun with Weeds.  
 PENALTIES ON SLOVENLINESS recommended, 146.
- MIN. 77. Instance of Weeding Stubbles, 146.
78. On making the most of a broken Day, 147.
79. On Thinning Clusters of Turneps, in moist Weather, 148.
80. General Remarks on GLEANING, 148.  
 The right Line of Conduct attempted to be drawn, 150.  
 On the Propriety of employing FEMALE REAPERS, 151.
82. On the Time of Sowing Oats, 152.  
 The Effects of Sowing by the *Season*, and by the *Sun*, observed, 153.  
 A practical Inference drawn, 154.  
 The Time of Ripening corresponded with the Time of Sowing, 155.  
 On Harvesting Oats in Sheaf.  
 Should be harvested in the *Shade*, 157.  
 Wheat, on the contrary, should be exposed to the Atmosphere.
83. Instances of Barley being harvested, in a most unhusbandlike Manner, 158.  
 A Hint to the Harvesters of Barley, which ripens in two or more Crops, 160.
84. Experiments and Observations on the three Turnep Insects, 160.  
 Beetles fed several Weeks, with Turnep Leaves.  
 Reflections on the small Quantity of the Food they consume, 162.  
 A Practical Inference drawn, 163.  
 Increase the Quantity of Seed.  
 Farther Reflections on this Subject, 164.  
 The "Fly" not guilty of all the Mischief laid to its Charge.  
 The Season a probable Cause, 164.  
 Facts adduced.  
 Note on the Slug and Night-Rolling, N. 166.  
 Tenthredoes fed with Sugar, 167.  
 A probable Mean of preventing their Mischief, 168.  
 Aphides are viviparous in the Middle of August.  
 A new Enemy of the Turnep, 169.  
 Perhaps crush them with a muffled Roller.

- MIN. 85. An Evidence of the Palatableness of the Creeping  
Crowfoot, to Cows, 170.
86. On collecting Manure, 171.
87. On the Culture of Turneps, 172.  
Evidence of an Openness of Soil being agreeable  
to them, 173.  
On cultivating the Interfurrows of wide high  
Ridges.  
An Experiment, on the Quantity of Seed, 175.  
Incident on the good Effects of Hoing.  
Practical Directions on Hoing, 177.  
Practical Directions, for cultivating the Turnep  
Crop, on *rich retentive soil*, 179.
88. Additional Evidence of the Year Eighty-Five  
being singularly unfavourable to the Farmer,  
185.
89. On the grey Marl of Warwickshire, 186.  
An Evidence of the Utility of EXPERIMENTING.  
Instance of an obsolete Practice revived, 187.
90. On the Vegetation of Barley, in 1785, 188.  
Further Remarks on Sowing, by the *Season*, 190.  
The Success depends on the *Time of Vegetating*,  
not on that of *Sowing*.  
The Effects of early and late Sowing.  
The *Hawthorn* a better Guide than the *Oak*,  
192.  
The *Time of Ripening* corresponds with the *Time*  
of *Vegetating*, 193.
91. Opinions on the Changing of Seed Corn, 193.  
A Mystery, which requires a PUBLIC ESTA-  
BLISHMENT, to clear it up, N. 194.
92. Instances of Turneps being unfriendly to Barley,  
on rich tenacious Soils, 195.
93. Remarks on the Effects of Frost, in ripening Grain,  
&c. 196.
94. An Evidence of the hard Fare of Farm Laborers,  
197.  
An Instance of Industry and Frugality, 197.
95. On Turneps, as a Crop, on Compost, 198.
97. A CALENDAR, or Chronological Register, of the  
current Business of Farmers, in the Midland Dis-  
trict, 199.
98. A Sketch of the COMMON FIELD HUSBANDRY of  
this District, 204.  
An unprofitable System, under present Circum-  
stances, 208.  
On the Fair of Fazeley.  
A bad Year for the Grazier.

- MIN.** 106. The Result of the Experiment with Breedon Lime, 209.
101. On the Inconveniencies of Laborers residing at a Distance, 210.
102. General Observations, on the Harvesting of Barley, 211.  
 Harvesting is the most serious Operation in Husbandry, and why.  
 Practical Directions on the Harvesting of Barley, 212.
103. Further Remarks on Breedon Lime, 215.
104. Further on the Staggers in Horses, 217.
105. On the Profitableness of fattening young Sheep.
106. Practice in Underdraining, 219.  
 Criteria of defective Subsoils.  
 Descent, Length, Dimensions, Filling in, and Cost of Trenches, 220.  
 On the Distance between Trenches; 222.  
 On the previous Cautions requisite, in marking the Parts affected, 223.  
 On other Precautions observable, 224.  
 On Lancing boggy Tumors, 225.  
 Note on Mr. Elkington's Practice, 226.  
 Cases in Underdraining related.  
 Remarks on the Operation of Drains; 228.  
**GENERAL REMARKS ON UNDERDRAINING.**  
 The Expence moderate, when properly conducted.  
 A Line of Conduct pointed out, 229.
107. On the Fair of Sutton, 230.  
 On the Spirit of **JOBBERING**, prevalent in the Midland Counties, 231.  
 General Remarks on Dealers in Farm Stock:  
 Mere Jobbers are Vermin, which prey on the Profits of the Grazier, or on the Income of the Consumer, 233.
108. Instances of liming whole furrows, as a Top Dressing, for Wheat, 234.
110. On the Scarcity of Livestock, 235.  
 Some Causes assigned.
111. A successful Experiment with **AQUATIC MANURE**, 236.
112. On the Use of Lobbies to Farmyards, 237.
113. Opinions on Checking, &c. rank Wheat.
114. An Instance of the Uncertainty of the Price of Farm Produce, 239.
115. Instance

- MIN. 115. Instance of Turneps being injured, by Frost.  
 The Operation of the Injury, 240.  
 The Method taken to prevent its Effects.  
 On Collecting Turneps, in Frost, with Hooks, and Prongs.
116. Further Observation on the Staggers, 241.  
 A Remedy, and a Preventive, suggested, 242.
117. Another Proof of the Uncertainty of the Price of Farm Produce, 242.  
 Very little maltable Barley produced, in this District, in 1785.  
 Barley is a difficult Crop to cultivate, with Certainty, 243.
118. Evidences of the Use of Shelter to fating Cattle, in severe Weather, 243.
119. On the fat Cow of Croxall, 244.
120. On the Death and good Qualities of GEORGE BARWELL, 247.
121. On Scotch Bullocks, as a Species of grazing Stock, in this Country, 248.
122. On a Circuit taken, in the Midland District, 249.  
 Further on the Scarcity of Cattle, 250.  
 On the Fair of Market Harborough.  
 On the present Supply of Irish Cattle.  
 A Disgrace to English Agriculture, 251.

## DIVISION THE SECOND.

## MINUTES ON PLANTING, &amp;c.

- MIN. 123. Practice in Hedge Planting, 252.
124. On the Cultivation of Woodlands, in Warwickshire, 255.  
 An Instance of Practice described.  
 The Acorns, in this Case, planted.  
 The Method of Training.  
 The Profits, in this Instance, 256.  
 A Remark on Thinning young Woods.  
 How eligible to plant poor clayey Soils, 257.  
 Other Instances of Practice.  
 The Acorns, in these Instances, sown.  
 Instance of Miscarriage, occasioned by Rabbits, 258.

126. Instance

- MIN. 126. Instance of Myriads of Chafers.  
 127. On the Manufacture of Charcoal, 259.  
 The Process detailed, 260.  
 128. On the Number of young Oak Plants, in the Grass  
 Grounds of this District, 264.  
 Conjectures on their Rise, 265.  
 Afford a Hint for the Culture of Woods, 266.  
 129. Further on the Chafer.  
 Are partial to Individual Trees, 267.  
 Are great Enemies of the Oak.  
 Hard Winters appear to be favorable to this  
 Insect.  
 Remarks on Linneus's Idea, respecting the Growth  
 of the Oak.  
 An extraordinary Flow of Sap succeeded a severe  
 Winter, 268.  
 130. On the remarkable Appearance of the Oak.  
 Further Remarks on its annual Increase, 269.  
 131. Practical Remarks on Training Hedges.  
 Calculations and Remarks on the Advantages of  
 pruning their Sides, 270.  
 132. On the Effects of stagnant and running Water, on  
 Hedges, 273.  
 On the Impropriety of setting the Hedge, on the  
 upper Side of the Ditch, 274.  
 133. On the Growth of the Ash.  
 Reflections on the Disparity of the annual  
 Growths, 275.  
 134. On the Growth of the Elm.  
 Instance of a rapid Growth.  
 Remarks on the proper Time of felling Standard  
 Trees, 276.  
 135. On the Growth of the Poplar, 277.  
 Overgrown, at fifty years old.  
 136. On the Sale of the Oak of Merevale, 278.  
 Conditions of Sale.  
 The Timber of extraordinary Length, 279.  
 137. On the Rise of the Sap of the Oak, 280.  
 Rises early in old Trees.  
 Conjectures on this Circumstance.  
 138. On the Sale of Weeford Park Timber, 281.  
 Conditions of Sale.  
 A Caution used by the Seller.  
 On the Proportion of Bark to Timber, 282.



- MIN. 139. On the Sale of the Oak of Statfold, 282.  
 On the deceitful Appearance of Woods, 283.  
 The Age of Statfold Wood.  
 The Conditions of Sale.  
 Precautions in Selling, 284.  
 The Proportion of Bark, 285.  
 On the different Qualities of Bark.  
 The Price of Bark depends much on the Carriage required, 286.
140. A further Proof of the early Rise of the Sap of Old Trees, 286.  
 Reflections on this Fact, 287.
141. On the Disease of "Lag," in Timber.
142. Further on the Rise of Sap, 288.  
 The Tops run freely, while the Stems are peeled with Difficulty.  
 A Theory respecting this Circumstance, 289.
143. On Taking down Timber.  
 The Method of "Stocking" described, 290.  
 Much Caution and Skill requisite, in this Operation.  
 Remarks on the Growth of the Oak, on a good Top Soil, and bad Substrata, 291.  
 A practical Inference drawn.  
 Remarks on the Training of Timber, 292.  
 How absurd to prohibit Pruning.
144. On the proper Age of felling the Oak.  
 Instance of Loss, by its standing too long.  
 Further on the extraordinary Length of the Merevale Timber, 293.  
 Age of that Timber.
146. Instance of Practice, in Planting, 294.  
 The Sledge a valuable Implement of the Planter.  
 Method of Planting, in a dry Spring.  
 A new Method of Preparing the Pits.  
 An improved Method of PLANTING, TIRE OVER TIRE, 297.  
 GENERAL REMARKS ON WATERING THE PITS, previously to planting.  
 GENERAL REMARKS ON PRUNING AFTER PLANTING, 300.  
 An Accuracy of Practice, in Pruning, at the Time of Removal, 301.  
 On Lightening the Boughs of the Pine Tribe, 303.  
 The favorable Effects of these Practices, in this Instance, 304.

- MIN. 143. Instances of Miscarriage, in Planting, in the Spring of 1786, 305.
149. On the Oak Timber of Needwood Forest, and Bagot Park, 305.  
Swilcar Oak described.  
Sir Walter's Walking Staff noticed, 306.  
On the Age of the Oak.  
Overgrown at 200 Years old.  
Calculations on the most profitable Age of Felling the Oak, for Timber, 307.
- GENERAL REMARKS on this Subject, 308.
- SHIP TIMBER should be under the Care of a PUBLIC BOARD, 309.
- GENERAL REMARKS ON Timber Trees, as private Property.  
The different Classes of Proprietors considered, and their Motives of Management examined, 310.  
The proper Ages of Felling, four principal Species of Timber, set down, 311.
150. Another Enemy of the Oak: a Semi-beetle, 312.
151. On the Fewness of the Real Wants of Mankind, 313.  
Further on the Charring of Wood, 314.  
On Charcoal Ashes, as a Manure, 315.
152. Instance of Practice in Weeding young sapling Hedges.  
The Cost nothing, compared with the Advantage.  
On lacerating the Banks of old Hedges, 317.  
The Intention and Effect.  
Instance of sowing Haws and Hollyberries, on the Faces of old Hedge Banks, N. 318.
153. On the Success of watering Pits, before, and pruning the Plants after, planting, 318.
154. On the Decrease of Timber, in this Country, 319.  
Instance of the Price of Oak being lowered, by an Importation of foreign Deal.  
Building Timber may be imported.  
But SHIP TIMBER cannot, with Safety; and is therefore an Object of PUBLIC ATTENTION, 320.
155. On Training Hedgerow Oaklings, 321.  
A ready and effectual Way practised.

- Mix.** 156. Further Observations on the Culture of Woodlands, Soils, eventually, find their proper Produce, 322.  
 Many of the present Woodlands of this Kingdom are probably the Produce of Cultivation, 323.  
 The Soil of Statfold Wood lies in high, wide, arable Ridges.
157. On the Effects of Raising Soil into high arable Ridges, 324.  
 The Quantity of cultivated Mold is increased.  
 The Ears of Corn have an Increase of Air, 325.  
 On Planting the Sides of Hills.  
 The Quantity of Soil and Canopy are equal, on Slopes, and on level Ground.  
 Hence the Propriety of planting unculturable Steeps, 327.
158. On Converting Timber.  
 Instance of a Maturity of Judgement being requisite.  
 The Advantage of planting Rocky Heights, instanced in the Woods of Merevale.
159. On the natural Growth of the Hawthorn, 328.  
 The Roots throw out Fibers, in the Soil, and Twigs, in the open Air.
160. On the Folly of high Hedges, between Arable Inclosures. 329.
161. On the general Management of Hedges, 330.  
 Instance of Mischief, for want of Cutting.  
 The Duration of Hedges depends on Treatment.
162. On the Origin of crooked Hedges, 332.  
 The Mystery unfolded, by a Rustic! 333.  
 Instance of the Use of provincial Registers, 334.
163. On the Value of Poplar, for Packing Cases.
164. On the Economy of Vegetables, with Respect to Moisture and Drought, 335.  
 Each Species has its natural Situation.
165. Observation on Practice, in converting Timber, 336.  
 The different Wares enumerated.  
 Description of a two-handed Saw, N. 338.
166. Observations, further, on the Age of the Elm, 339.  
 Observations, further, on the Age of the Ash, 340.  
 Incident in the Culture of Woodlands, 341.  
 Ashes planted in the Vacancies of young Oaks.  
 Further on Caution in felling Timber, 342.  
 An Evidence of the Use of pruning young Timber Trees close to the Stems.

- MIN. 167. The Middleton Oak described, 343.
168. Further Incidents, in my own Practice, in Planting, 344.
- Instance of extreme Scarcity of Acorns, 345.
- Appear to be liable to Blight.
- The Voracity of Rooks, for this Fruit.
- On the Expence and Utility of Double Digging, 346.
- On Staking tall Plants, 347.
- On the proper Depth of Planting, 348.
- On Planting in Frost.
- Further on the Sledge, in carrying Plants, 349.
- On Forming Plantation Paths.
- Planting Acorns, in the Interspaces of Ornamental Plants, 350.
- Planting Acorns after Potatoes.
- The Number and Quantity of Acorns; and the Expence, an Acre, 351.
- Method of planting fourfeet Plants, in this Instance of AUTUMNAL PLANTING.
- Midland Method of preparing Posts and Rails, 352.
- The Result of pruning the Pinus Tribe, 353.
- On early SPRING PLANTING, 354.
- February too early to expose a large Number of Plants, to a Journey.
- REMARKS on the Season and Circumstances of Removal.
- On the natural Habits of Plants, 356.
- Exemplified by Firs and Pines, in Snow.
- Vegetables, as Animals, appear to have a Power of resisting their natural Enemies, or counteracting their Effects, 358.
- On the Caution requisite, in taking up Plants.
- A shameful Instance noticed.
- Mere Nurserymen cannot be depended upon; they have an Interest in injuring them, 359.
- On the proper Distances between Plants.
- The Expence of Planting depends, chiefly, on the Number of Plants.
- Young Plants require Warmth, 360.
- Perhaps, fill up Interspaces, with *dead Plants*.
- The Saving, by this Method, calculated.
- The Method of Planting, in this Instance, 362.
- The Arrangement of Workmen, 363.
- The Expence of Planting noted.
- Deliberation requisite to successful planting.

# ADVERTISEMENT

TO THE

## SECOND VOLUME.

**W**HILE I was resident in GLOUCESTERSHIRE, in 1782\*, I received a flattering letter, from the MIDLAND DISTRICT; the writer of it intimating, that he had lately come into the possession of a considerable landed estate, that he had read the MINUTES OF AGRICULTURE, and that he was desirous of becoming my companion in literature and my pupil in agriculture; proposing to me a *partnership* in farming.

At first sight, this appeared to be a most providential incident; singularly favorable

b 2

to

\* See the Advertisement prefixed to the RURAL ECONOMY OF GLOUCESTERSHIRE.

to my general design: the four *quarters* of the kingdom I had seen; but to the *center* of it I was still a stranger: yet, without some knowledge of its practice, the plan, I had in view, would necessarily prove abortive: but, with such information, I should of course bring within my power a competent knowledge of the practice of the kingdom at large, to enable me to carry my ORIGINAL DESIGN into execution.

But a partnership, or any other permanent connexion, was altogether impracticable; as being incompatible with my plan. There was only one alternative; — either to decline the offer; or to accept it under the species of AGENCY, which derives a COMMISSION from the RECEIPT of the ESTATE, without being immediately dependant on the proprietor.

When I had fulfilled my intentions, in Gloucestershire, I returned to London, by way of the Midland Counties: and finding part of the estate on hand, and (through the misusage

misusage of a tenant) in the lowest stage of neglect; — seeing also other improvements wanting upon it, I agreed, on the terms above specified, to make STATFOLD my PRINCIPAL RESIDENCE, during TWO YEARS: holding myself, however, at full liberty to attend to any other concern, or avocation, which might occur.

But having committed myself, once more, to the field of practice, my time and my attention became imperceptibly absorbed in it: thus entering into the *minutiæ* of *agriculture*, with an ardor I never intended; and uniting, for the first time, the practice of RURAL ORNAMENT, with that of RURAL ECONOMY (of which, in reality, it forms a part): reserving, however, a sufficiency of leisure and application, to collect the PROVINCIAL PRACTICE of the DISTRICT of the STATION, as well as to obtain a GENERAL KNOWLEDGE of the RURAL ECONOMY of the MIDLAND COUNTIES\*.

THE

\* See the Advertisement to the First Volume.

THE MINUTES, of which this Volume consists, are selected from a series, that I continued to make, as circumstances occurred, during my residence in the District; whether they arose in my own practice, or in my observations on the nature and practice of the surrounding country.

Such as relate immediately to the established practice of the District, I have incorporated with the registered matter, in the First Volume; and such other, as are not singly intitled to public attention, are reserved for a future revival.

It may be proper to mention, that although these MINUTES were made with a distant view of publishing such as might, on due revival, appear fit for publication; yet they were purposely written, in the manner of *private memorandums* (and in reality for my own future government), that nothing but a plain extemporary recital of circumstances, and of reflections aptly arising out of them, might find admittance.



In selecting these MINUTES for publication, I have judged it proper to arrange them in two separate series, the one of AGRICULTURE, the other of PLANTING (including the management of WOODLAND and HEDGES), as well with a view to perspicuity, as for the greater conveniency of readers, who may be more particularly interested, in the one, or the other, of these two branches of RURAL ECONOMY.

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1796. IN REVISING the first impression of these MINUTES, I have made such alterations as six years additional attention to rural subjects have enabled me, I trust, to make with propriety. Some few have been cancelled, and others have been incorporated with preceding Minutes, on the same subjects. Many details have been abridged, or wholly omitted, as not being sufficiently interesting, to fill the places they severally occupied :

occupied: and, in one instance (that of setting up sheaves in the field) where the remarks were *general* and *detached*, they have been reserved; for the reasons which have been assigned, in the Advertisement to the First Volume.

MINUTES

# MINUTES

ON

## AGRICULTURE,

IN THE

### MIDLAND COUNTIES.

#### I.

1784.

**T**HIS morning, rode to  
JUNE 14th. the FAIR of BELTON,  
a village in Leicestershire: the last spring  
fair of note, in this country.

A great show of cattle: not less than a  
thousand head: principally yearling and  
twoyearold heifers: very small and very  
poor: all of the longhorned breed, and are  
many of them brought, from the extreme  
parts of Staffordshire and Derbyshire.

The prices of lean cattle were extremely  
high. Some stripling heifers, bought at se-  
ven pound ten shillings to eight guineas, a  
piece, cannot weigh more than forty stones,

VOL. II.

B

at

MARKETS.

CATTLE:

GRAZING.

I.  
GRAZING.

at Michaelmas; and it is a hazard whether they will, then, be worth the money now given for them.

It certainly would be more prudent, in individuals, to shut up their grounds, for hay, than to buy cattle, for which no adequate profit can, on a fair chance, be expected.

PERHAPS GENERALLY, now a greater proportion, when cattle are dear, graze more, when they are cheap. A stack of hay may be kept, till it be wanted, without expence; but a bullock must be sold, within a limited time, or loss may be added to loss.

2.

LIME.

JUNE 14. Came round by BREEDON  
"LIME WORKS."

Breedon Hill is a semiglobular eminence: formed of an irregular mass of limestone.

The lime produced from this rock is of a singular quality. Five or six quarters, an acre, are found to be a beneficial dressing, for the lands of *this* neighbourhood. But it is an opinion, universally admitted, that,

that, if much more than that quantity be laid on, it is "poison to the land;" it having been observed, that where, by accident, a greater quantity has been scattered, no *grass* will grow; and that, where load heaps have stood, no *corn* will thrive; but, instead of it, a bed of couch and thistles appear: a circumstance which has prejudiced many men against it; under an idea, that it *breeds* these two pests of cultivated land.

Some small proportion of this rock has every appearance of vitrification, except the color; which is that of rusty iron. See i. 150.

The quarries, that are now in use, are thirty or forty feet high; each a cliff of heterogeneous rock, with scarcely any covering.

Having no regular seams, the rock is obliged to be blasted; but the fragments fall easily under the hammer; breaking into irregular pieces, like glass.

There are six or seven kilns, at work: each built at the foot of its respective quarry; and against the base of the hill; with only one side open, to draw at; but with two, and some with three, eyes or drawing places; made wide and commodious; with an arch,

2. turned over each, to support the top of the  
LIME kiln; and, within this archway, above the  
eye, there are air holes, to feed the fire (a  
new idea); these air holes being six or  
eight in number; reaching half way up the  
kiln.

From the top of the archway, projects a  
penthouse, or roof, of faggots; forming a  
shed, under which a quantity of drawn lime  
may lie, out of the way of rain.

The burners make their layers unusually  
thick: the stone half a yard, and the coal  
five or six inches; coaling very highly (the  
pits not more than two or three miles from  
the kiln); throwing in coals as large as  
the head: their only idea seeming to be  
that of keeping up a strong fire, within  
the kiln.

They are all *drawing* kilns (see YORK-  
SHIRE); being never let out, during the  
burning season, unless to repair: drawing,  
*it is said*, four or five loads from each kiln,  
daily!

The *price* of this lime, at the kiln, is  
eighteen pence, a quarter; with a perquisite,  
to the burners, of meat and drink, or, in lieu  
of it, two shillings, a load; and with a bribe,  
the



3.

WATERING  
LIME.

piece, and by the side of water-pits, for the conveniency of watering.

The principal part was watered, as it was thrown out of the waggons. Three days ago, the heaps were turned over, and the unslaked parts rewatered.

The turning and watering cost fourpence, a load; the usual price: a mere trifle compared with the utility. See YORKSHIRE, Art. LIME.

4.

HOG-STIES

JULY 27. Every sty should have a rubbing post.

Having occasion to shift two hogs, out of a sty without one, into another with a post, put up to support the plate of the roof; I had a full opportunity of observing its use.

The animals, when they went in, were dirty; with broken coats, and heavy countenances. In a few days, they cleared away their old coats, cleaned their skins, and became sleekly haired: the *enjoyments of the post* were evident.

It is not probable, that any animal should thrive, while it is afflicted with pain, or uneasiness,

Graziers



Graziers suffer single trees to grow, or put up posts, in their *grounds*, for their CATTLE to rub themselves against; yet, it is probable, a rubbing post has never been placed, intentionally, in a *sty*: though, perhaps, rubbing is most requisite to SWINE.

4.  
HOG-STIES.  
TAMWORTH

## 5.

JULY 28. A THIN CROP OF WHEAT may be improved, by sowing oats over it, in the spring.

WHEAT.

Mr. WILLIAMS RICE of Tamworth had a piece of wheat, last year, which went off, in patches, in the spring; so as not to be worth standing, alone, as a crop. He therefore sowed, and harrowed in, OATS, in the vacant places. The consequence was a very full crop of *oats and wheat*; which were separated, principally, by the fan, in winnowing.

The head wheat was bought, freely, by the millers; who, in this country, where wheat is universally grown after oats, and of course is seldom or never free from them, are less scrupulous about a few oats being

5.  
WHEAT.

mixed among wheat, than they are in other districts.

This is a hint, by which much may be frequently profited. The advantage arising from the expedient consists, not more in the increase of crop, than in the diminution of weeds, which, in a thin or partial crop, seldom fail of being abundant. By a machine fan, properly regulated, oats may be separated from wheat, easily and effectually.

6.

HOING  
TURNEPS.

SEPTEMBER 15. This year, I have given eight shillings, an acre, with beer, for HOING TURNEPS; and, even at this price, it has been with difficulty I have got them properly done.

This price, compared with that of Norfolk, (see NORFOLK, Art. TURNEPS), is extravagantly high. But there are two reasons for this disparity.

In Norfolk, every plowman, and every harrowboy, is a turnep hoer: here, hoing is a mystery, practised only by a few, who have it in their power to make their own terms.

Beside,

Beside, in Norfolk, the soil is light, and free from stones: the hoe passes freely thro it, and the hoer, sweeping his tool round the plants, at pleasure, works, from hour to hour, without a check. But, here, the soil, in most places, abounds with pebbles, and, being of a more stubborn and cloddy nature than the sands of Norfolk, the hoer is frequently under the necessity of chopping, perhaps, three or four times, in the same space of surface, which a Norfolk hoer would clear, with one sweep of his hoe. Were he to attempt to *draw* his hoe, in the Norfolk manner (perhaps not the best); he would be liable (by reason of the obstructions turning aside his tool from the intended direction) to cut up the plants he meant to set out, and to smother those he had already singled. Beside, he cannot, here, use so wide a hoe, as is used in Norfolk.

The Midland hoers generally use THREE-CORNERED HOES; each side of the triangle being about seven inches. The reasons given for using these hoes, in preference to those of the usual one-edged form, are, that they require to be carried seldomer to the grinding stone, and that they are handier to single a  
plant

6.

HOING  
TURNEPS.

6.  
HOING  
TURNEPS.

plant with, than a one-edged hoe. It is allowed, however, that a threesided hoe requires more labor, than a single one; whose blade, forming a more acute angle with the handle, lies flatter, and passes more freely through the soil, than the triangular ones; which, standing nearly at right angle to the handle, are drawn *against* the soil, rather than *under* it; and, while that cuts the weeds, these have to pull them asunder: beside, where the soil is sufficiently loose, to admit the hoe to be drawn, they are mischievous, in burying the singled plants.

To obviate these evils, the handles are made short; about three feet long; the workmen stooping, proportionably, in using them. If they were more *dished* (they are a little), the mold would lodge in the hollow, and make them still less manageable.

Among stones and clods, the triangular hoe has its merit; acting the part of the West India hoe, or a mattock. But, where the surface is tolerably free and friable, the one-edged hoe, from seven to eight inches wide, and about two and a half inches deep, is a more eligible tool.

## 7.

SEPTEMBER 20. This spring, I planted a BERBERY BUSH, in the wheat of No. 18.

THE EFFECT  
OF BERBERY  
ON WHEAT.

It blowed the 1st of June, with the wind at northeast. The wheat blowed the first of July, with the wind at northwest, and the weather fine.

The effect, in this experiment, has not been so striking, as it was in that made in Norfolk. See NORFOLK, MIN. 13. & 133.

Nevertheless, although I have not, from this year's experience, been able to form any probable conjecture, as to the cause of the mischief, it serves to fix me still more firmly in my opinion, that the BERBERY is unfriendly to WHEAT.

## 8.

SEPTEMBER 20. An evidence that SMUT is caused by the *seed*, not by the *soil*, the *tillage*, the *manure*, or the *season*, occurs this year, in the wheat of No. 18.

SMUT.  
OF  
WHEAT.

Perceiving

8.  
SMUT  
OF  
WHEAT.

Perceiving a row of shucks to be very full of smut, while the rest of the piece was free from it; and, on closer examination, finding that the smutty ears were of white wheat, the close in general being of red, I was led to enquire into the cause of this circumstance; and was well informed, that the red wheat was *bought*, and was very free from smut; but that the quantity falling short, a bushel of white wheat was taken from the barn, to finish the piece: and, that this bushel was very foul and smutty.

As to the preparation, the red was "swum and limed:" the white sown dry and dusty, as it went out of the barn.

Therefore, whether the cause of smut originated in the *species* of wheat, in the circumstance of the seed being *smutty*, or in that of its *not* being *prepared*, is uncertain.

Nevertheless, it shows, evidently, that the evil, in this case, was caused by the *seed*; not by the *soil*, the *tillage*, the *manure*, nor the *season*; which were uniform, in this incident.

## 9.

SEPTEMBER 20. This spring, I sowed with barley, by way of experiment, about half an acre of oneyear's clover ley, on one plowing.

BARLEY ON  
CLOVER  
LEY.

It was sown the 27th April (the spring backward) : at the rate of two bushels, an acre. The soil is a good middle loam, which had been plowed, some days, and worked well.

The crop, where the soil lies perfectly dry, has proved very good : as much as four harvest loads, an acre : the straw remarkably strong and reedy.

*January 1785.* This patch, measuring ninety six rods, produced twenty three bushels of barley, from one bushel of seed. An evidence of the eligibility of clover ley, on a free soil, as a matrix for barley.

## 10.

SEPTEMBER 21. In this country, wheat is universally "hooded," is covered with two sheaves inverted,—at the time it is set up, in shucks.

HARVEST-  
ING  
WHEAT.

The

10.  
HARVEST-  
ING  
WHEAT.

The universality of this practice is of late date. But it being obvious to common observation, that, during a very wet harvest, the wheats, which were naked, fared much worse, than those which were covered, the alarm spread, and the practice of hooding has since become general.

It is observable, however, that the covering of sheaves, being a new practice, is ill performed. The caps are set too upright, and their straw, instead of being kept straight and smooth, as thatch, is broken, and a lodgement or lap is formed, as it were, to catch the rain water, as it falls, and to conduct it into the sheaves, rather than to shoot it off.

If wheat be ripe, and the grain plump, hooding is an eligible practice; but, when it is cut, before the sap be well out of it, or, if it has been injured by any disease, so that the grain is thin and shrivelled, and the chaf leathery and closely embracing the grain, as is generally the case of mildewed or blighted wheat, the practice of covering the sheaves, immediately after the wheat is cut, is, in my opinion, very improper management.

The



10.

HARVEST-  
ING  
WHEAT.

The Surrey and Kentish farmers, among whom the practice of hooding may be said to be unknown, are well aware of the benefit arising from wheat being well "weathered," in the field: if it be blighted, they even wish for a shower upon their uncovered shucks; finding that the corn, in this case, not only thrashes better, but yields better, after having been thus exposed to the atmosphere.

With respect to thrashing, and of course with regard to yield, so far as clean thrashing encreases it, there can be little doubt, but that an alternacy of wet and dry will promote it. Expose a leaf, or a flower, to the atmosphere, and, after a few days, alternately wet and dry, it may be readily rubbed to powder. But, if the same leaf or flower be placed, in a book, or under a botanical press, it will acquire a tough leatherlike texture. Covering up the ears of corn, before the chaf has acquired a sufficient degree of brittleness, is productive of the same, or a similar effect.

At present, I am clearly of opinion, that all wheats ought to be more or less exposed to the atmosphere, in proportion to the states  
in

10.  
HARVEST-  
ING  
WHEAT.

in which they have been cut, between the cutting and the carrying.

If, at the time of cutting, the weather be unfettled, and much inclined to wet, cover immediately, and, afterward, when the weather becomes sufficiently fettled, and safe enough for the purpose, uncover; keeping the ears exposed to the sun, wind, dews, and moderate showers, until they be sufficiently weathered; and, then, if circumstances require it, re-cover.

But, if the weather be tolerably good, at the time of cutting, set the sheaves up naked, and, in that state, let them remain, until the ears be opened, the chaf loosened, and the grain mellowed; and, then, if the weather be hazardous, cover them, until the butts be thoroughly cured.

These rules have been my guide, this harvest. The wheat being considerably mildewed, I let it stand, in naked shucks, until it had had a shower, and, then, as soon as the ears were thoroughly dry, covered it securely.

It is observable, that shucks should be set up, northandsouth, not eastandwest; for, in this case, the sheaves, on the north side, are

are several days later, in respect to fitness of carrying, than those on the south side.

10.

I write from the experience of this year : when I have also had an opportunity of observing a striking instance of the bad effect of RIDGES, lying east and west. The corn on the south sides of the ridges of No. 18 (not high ones) shot into ear, changed, and ripened, a week at least, earlier, than that of the north sides. At the time of reaping, the wheat, on the south sides, was, in some patches, too ripe, while that, on the north sides, was, in many places, literally green.

SOIL  
PROCESS.

Similar effects took place, on the north and the south sides of hedges.

Every year, no doubt, produces effects, in some degree similar ; but I never remember them so striking, as they have been, this year : when there has been a general complaint that wheat ripened unevenly.

## II.

SEPTEMBER 27. This morning, rode to "POLESWORTH STATUTE : " a hiring place for farm servants ; — the only one, of any

SERVANTS.

II.

SERVANTS.

note, in *this* part of the country; and, probably, the largest meeting of the kind, in England. Servants come (particularly out of Leicestershire) five and twenty or thirty miles to it, on foot! The number of servants collected together, in the "statute yard," has been estimated at two to three thousand. A number, however, which is the less extraordinary, as Polesworth being the only place, in this district, and this the only day,—farm servants, for several miles round, consider themselves as liberated from servitude, on this day\*.

Formerly,

GEN. OBS.  
<sup>on</sup>  
 PUBLIC  
 HIRINGS.

\* There are men in this country, and those possessing the most comprehensive knowledge of rural concerns, who condemn, in the strongest terms, all PUBLIC HIRINGS of farm servants. Not on account of the waste time they occasion (which, however, in Leicestershire, where most towns and many villages have their statutes, is not inconsiderable) but as tending to vitiate the minds of servants, to render them fickle and unsettled in their places, and to make the good ones liable to be drawn away with the bad: condemning, not only public places, but FIXED TIMES of hiring; as tending to create, what in reality takes place every year in every district, a cessation of country business, during some days, and an awkwardness for some considerable time afterward; and this, in most districts, at a busy season.

MICHAELMAS

II.

SERVANTS.

Formerly, much rioting and disturbance took place, at this meeting; arising, principally, from gaming tables, which were then allowed, and for want of civil officers, to keep the peace. But, by the spirited exertions of the present high constable, Mr. LAKING, these riots have been suppressed, and prevented.

The principal nuisance, at present, arises from groups of BALLADSINGERS, disseminating sentiments of dissipation; on minds which ought to be trained to industry and frugality: A ballad goes a great way towards forming the morals of rustics; and if, instead of the trash which is everywhere, at present, dealt out; at all their meetings; songs in praise of conjugal happiness, and a country life, were substituted, fortunate might be the effects.

If a Lord Chamberlain have a power of control, in the theatres, where the audience might, *now*, be presumed to be *themselves*

C 2

sufficient

MICHAELMAS is certainly an improper time. (See MIN. of AGR. and YORK. ECON.) and whether MARTINMAS or any other FIXED TIME be right, I will not pretend to say. The idea is *new* to me; and the subject of some importance. See WEST OF ENGLAND, Art.

SERVANTS:

II.  
SERVANTS.

sufficient judges, how much more requisite it appears, that a high constable, or a higher officer, should exercise a similar authority, over the productions to be delivered at a fair or a statute.

12.

SPREADING  
MANURE.

OCTOBER 2. Observed an instance of spreading dung out of carts. See Vol. i. 148.

Seven men and a boy, with four carts, were arranged thus: three men filling (the heap in the piece), four spreading out of two carts, and the boy driving the loads.

Two spreaders stood *upon* each cart; shaking about the manure (pretty ripe) with forks. Two horses in each cart. When the men had finished their respective sides, the horses were spoken to, and, having moved a few paces, were stopt again, before they had proceeded too far, for the men to be able to join their work.

From this specimen, however, I have not formed any very favorable idea of the operation. The situation of the men is awkward. Should they drop a forkfull, by accident, or

not scatter a lump in the manner intended, they cannot step to it, and give it a blow with their fork, or a kick with their toe; but where it falls, there it must lie: besides, driving on and stopping the horses, take up no small share of their time.

Nevertheless, I find the practice is used by some considerable farmers, and consequently merits farther attention.

I 2.  
SPREADING  
MANURE.

### I 3.

OCTOBER 11. Attended FAZELEY FAIR, which is held the first Monday after old Michaelmas. It is the largest fair in this country, for *fat* cows, and, lately, for sheep.

MARKETS.

It is kept in two, or occasionally in three, grass inclosures. The sheep pens were pitched against three sides of a small paddock, (about three acres) with a few pens in the middle. The cattle were headed against the fence of a larger inclosure, of eight or ten acres; reaching entirely round it; forming a rich border; with a group of sheep pens, in the center: a fine sight! the

13.  
MARKETS.

ground green, firm, and dry, and the morning fine: altogether the best arranged, and the most commodious fair, I have seen. See GLOCESTERSHIRE, vol. i. sect. MARKETS; also vol. ii. CATTLE of HEREFORDSHIRE.

This fair begins with the day: being full fair, between seven and eight o'clock. To-day, above five hundred head of cattle, and about three thousand sheep.

## CATTLE.

The cattle were chiefly fat or forward cows: some few cows and calves; with an unusual collection of bulls; chiefly offcast or aged. The buyers were butchers, from Birmingham, Wolverhampton, and other manufacturing towns. The bulls were bought up chiefly for the collieries; going off in droves; many of them completely ugly.

## SHEEP.

The sheep, longwools of Leicestershire, and shortwooled mountaineers, from Shropshire, Staffordshire, and Derbyshire. Mostly ewes, to be put to the ram; with some forward widders, to be finished with turneps, on the light lands, west of the Tame.



## I 4.

OCTOBER 13. Finished laying a BARN FLOOR, with BRICKS, agreeably to the practice of this district\*.

FARM BUILDINGS.

Levelled the floor: set the bricks edgeway, upon mortar; but without any *between* brick and brick; placing them as close as their uneven surfaces would permit †.

The entire floor being paved, in this manner, poured "grout," made of lime and water, of the consistency of thick gruel, by a pailful at once, upon the floor; working it into the joints with a broom.

Having remained two or three days, to dry, (the weather in this instance happened to be very dry) gave it another dressing; working it well into the joints, as before: and, having remained two or three days longer, to stiffen, the grout which lay on the surface (between wet and dry) was cleared off, with a spade, a trowel, and a broom;

C 4

and

\* To be covered, hereafter, with plank. See vol. i. p. 29.

† Bricks are sometimes "dressed" between wet and dry (as tiles are) for this purpose.

14.  
FARM  
BUILDINGS.

and the joints pointed; by drawing the point of the trowel hard along them.

A floor, eighteen feet by fifteen, took seventeen hundred and fifty bricks, and about four bushels of lime\*.

1750 bricks at 16s. with the carriage of them	13s.	-	-	2	1	0
Four bushels of lime	-	-	-	0	3	0
Bricklayer and laborer	four					
days	-	-	-	0	11	4
				<hr/>		
				£.	2	15 4

about 22d. a square yard, or 2½d. a square foot.

15.

MARKETS.

OCTOBER 25. TAMWORTH FAIR: held the 24th October, principally for sheep, with some fat cows, and lean stock.

SHEEP.

About five thousand sheep; with about a hundred head of cattle.

The SHEEP were fat and forward wedders, and fat and store ewes, of the long-wooled kind, with some shortwooled ewes, wedders, and lambs. In

\* The grout is generally made of mortar, namely, a mixture of lime and sand; but, in this case, some stale lime was used.

In the morning, the sheep "hung:" owing to a rumour of a great "drop" in the London markets: a circumstance which shows how much, and how far, the markets of the kingdom are influenced, by the metropolis.

15.  
SHEEP.

Notwithstanding, however, this unfavorable circumstance, and notwithstanding the fullness of the fair, the demand was such that *every sheep!* (generally speaking) was sold by one o'clock: and at high prices: a proof, that, at the distance of a hundred miles, the influence of Smithfield is weak, compared with that of the markets of the neighbourhood; especially, perhaps, in the neighbourhood of manufactories.

Mr. ——— sold fifty "sharhogs," of the new Leicestershire breed, for thirtytwo shillings, a head: a great price for yearling sheep: yet, notwithstanding their age, they were the fattest sheep in the show: a circumstance attributed, by the advocates of the breed, entirely to *blood*. And an evidence strongly corroborant of this idea was, the circumstance of Mr. ———, a very considerable grazier, on the Melton side of Leicestershire, selling six score twoyearold widders,

15.  
SHEEP.

ders, for less price: namely, about 30s. a head, one with another.

What a difference in profit, to the graziers, upon these two parcels of sheep! The last year's keep of the latter was worth as much, nearly, as the entire cost of the former. Yet these were "fast," and fit for the butcher; those forward, but still "loose," and only fit to be put to turneps: and the fact was, the sharhogs were sold to a butcher; the twoshears, to the Hints and other turnep farmers; and this, notwithstanding the latter came off the best land.

How superiorly delicate is the business of grazing! How much depends upon breed! Mr. —, whose breed is, in this neighbourhood, esteemed superior, sold his sharhogs for 27s. a piece: Mr. —, still superior in breed, sold his for near thirty shillings\*.

16.

TURNEPS.

OCTOBER 29. HANDWEEDING TURNEPS is a good practice; and not expensive.

Upwards.

\* In these instances, something *might* be due to KEEP; but the great difference in produce was, beyond dispute, occasioned by BREED.

Upwards of twelve acres, partially yellow with charlock, which had escaped the hoers, and some of the seeds of which were fully formed, took a man and a boy two pieces of days. The cost about twopence, an acre.

If the last hoing take place, early enough for the seeds of weeds to come to perfection, a handweeding is indispensably necessary to good management; though rarely given.

## 17.

OCTOBER 30. Horses affect clover. A second crop of this herbage, which had stood until it had got into full head, by reason of part of the piece being in corn, had a striking effect upon yearling colts, which had throve very indifferently upon turf; but which, after they had been a few weeks on this clover, grew fat and sleek. Even when it was eaten down to the stubbs, they hung after it, in preference to well grassed turf: so that, notwithstanding its shrublike state, when they were turned upon it, no waste was made; every stalk was eaten up.

Perhaps,

16.

TURNEPS.

HORSES  
on  
CLOVER.

17.  
HORSES  
ON  
CLOVER.

Perhaps, from an incident like this, the singular practice of this country, with respect to the clover crop, was struck out. See i. 216.

18.

SUMMER  
FALLOWING

NOVEMBER 3. Finished landing up the SUMMERFALLOW of No. 9. to lie over the winter, for barley and grass seeds, in the spring.

SUMMERFALLOWING, except in the common fields, is not a practice of this country. The "*pinfallow*" is the forte of the Midland farmer. He breaks up his wheat stubble, in autumn or winter, and, having crossed it, in the spring, immediately sets about harrowing it; in order "to get the twitch to the top;" which done, he gathers it up into lands, sows his barley, reharrows, and having got some more twitch to the surface, the fallow is completed. In this way, nine tenths of the inclosed lands of the district have been, and still continue to be, laid down to grass.

To a *winter-fallow*, this is all that can be done: the sooner it is harrowed, after the cross plowing, the longer the twitch has to lie

lie on the surface to wither, and the more time the seed weeds will have to vegetate, before the seed plowing: but, at best, it can only be said to be an ingenious method of planting twitch: for although some of the creeping bentgrasses, and a smaller proportion of the couchgrass (indiscriminately, here, called "twitch") are, by this means, brought to the top; yet a principal part of the latter, the chief enemy, is not only buried in the soil but is broken into *sets*, by the tines of the harrows, and *planted* among the pulverized mold, with every advantage that art can give it. Nevertheless, the practice of harrowing, immediately after cross plowing, is extended, not to the turnep fallow only, but, when it is made, to the summer fallow, also: the Midland farmers appearing to be unacquainted with the advantage which a fallow receives, by lying in a state of roughness, so as to have a large surface exposed to the influence of the atmosphere.

In Surrey, Kent, and other fallowing countries, it is well understood, that, without this roughness of surface, no radical cure can be effected.

18.

SUMMER  
FALLOWING

In

18.

SUMMER  
FALLOWING

In Norfolk, this idea is carried; perhaps; too far. A Norfolk farmer never begins to harrow, until he is ready to follow the harrows, almost immediately, with the plow; without; perhaps, allowing sufficient time; between the two operations; for the seeds of weeds to vegetate.

This, in the early stages of a fallow; when the roots; and not the seeds, of weeds ought to be the main object of attention, is a venial crime; but to continue this practice, throughout the fallow; is almost as great an impropriety, as to level the surface, immediately after the second plowing.

Out of these two improper methods of treating fallows, a third and improved method naturally arises; namely, that of pursuing, in the early stages, the Norfolk, in the latter, the Midland management. Or, in other words, of first, destroying the ROOT WEEDS, with the PLOW, and afterwards unlocking the SEEDS, with the HARROW and the ROLLER; the last an implement which, in every country I have yet examined, is too sparingly used; in the last stages of a fallow.

The foundation of this theory is shown; in the fallow of No. 9, which, with four plowings



plowings only, received a radical cure; notwithstanding its original foulness, and the unfavorableness of the following season.

18.

SUMMER  
FALLOWING

The first crossing (the second plowing) the soil drove before the plow; a perfect mat of twitch.

The season continuing wet, I let it lie, in the rough state, received by this cross plowing, until its surface was as green as a piece of lattermath. Some docks and thistles having escaped being turned under, I had it handweeded, to prevent their seeding.

The first favorable weather, I persuaded an old plowman, with some difficulty, to recross it (turning the warps back again), *without harrowing*.

Having lain, a few weeks, in rough plit, a fair opportunity was embraced of pulling it to pieces, with a pair of large harrows. And, presently after this slight harrowing, I gave it a fourth plowing, lengthway; the weather then scorching hot: nevertheless, I forbore to harrow it, until it had been thoroughly parched.

The furrows were then broken, by one full tine of a pair of rough harrows, and, having lain a few days, till the fresh surface was perfectly

15.  
SUMMER  
FALLOWING

perfectly dry, the harrows were hung, with traces, behind a light roller; and with these it was rolled and harrowed; day after day; first with rough and afterward with finer harrows; until the surface was as fine as a garden bed.

Immediately after this operation, three or four days rain succeeded, and some of the couch, not yet thoroughly cured, began to shoot on the surface; but the drought returning, it died away, and a flush of seedling weeds succeeded. These weeds are now plowed under, and a fresh surface exposed, for another crop.

Thus, with four plowings, and the usual number of harrowings, properly timed, without any picking, carrying off, burning, or any hand or other team labor whatever, one of the foulest fallows, that ever was broken up, was brought into a state of cleanness and tilth (as appears evidently by the present plowing); and this, too, in a summer unfavorable to fallows.

In this method of fallowing, the imperceptible wasting of the couch is remarkable. Notwithstanding the original foulness of this field, there did not remain, after the fourth plowing,

plowing, a string of couch long enough to hang upon the tine of the harrow. Had even the surface been handpicked, there would scarcely have been a load of couch alive or dead, upon eighteen acres!

18.

SUMMER  
FALLOWING

This is another strong argument, in favor of destroying couch with the plow. If it be harrowed to the surface, in its succulent, rosy, tough, bulky state, it must either be carried off or burnt, at some considerable expence, or lie a nuisance on the surface; an obstruction to the plow and harrow.

Too much cannot be said in praise of the roller and harrow united, in working a fallow. By hanging the one to the other, drivers at least are saved: and the roots, necessarily pressed into the soil by the roller, are, by this method, most immediately released by the harrows.

By way of experiment, MANURED two lands of this fallow, at the rate of about twelve loads of strawyard dung, an acre. The whole to be sown in the spring, with barley and grass seeds, which are intended to be manured the succeeding autumn.

MANURE.

Will the manure, now plowed in, be beneficial, or detrimental, to the barley crop?

18.  
MANURE.

Will the manure plowed in, this autumn, with the present and fifth plowing (the soil to receive one more plowing in the spring), or that to be spread upon the surface, next autumn, be of more service to the young grasses\*?

SPREADING  
MANURE.

This manure was SPREAD OUT OF CARTS, agreeably to the practice of this district (see MIN. 12.), but with what appears to me an improvement.

The waggoner scattered it from the cart, in the usual way, and his boy broke the lumps, and evened it, after him.

This double operation makes good work. But, query, is not the extra time, thus taken up, of a man a boy and a team, of more value than a penny, a load,—the highest price for spreading?

Three horses a man and boy are, in this country, rated at seven shillings and sixpence, a day,

FALLOWING

\* 1785 *September*. The barley received no obvious benefit from this manure; nor do the young grasses yet declare its use! But the FALLOW has given such a flow of vegetation, the uses of the MANURE, if any have yet accrued, are the less discernible. Land which is naturally rich, and has lain long in a state of FOULNESS, wants nothing but a SUMMER FALLOW to render it highly productive.

a day, of eight hours: half an hour of which is taken up in baiting; bringing the cost to a shilling an hour, or a penny, each five minutes.

The difference between setting on a load of manure in hillocks, and spreading a load out of a cart, is not, I apprehend, less than ten minutes: so that a penny, a load, appears to be lost, and the boy's time thrown away.

An advantage, however, of spreading manure out of a carriage, is the prevention of hillsteads, and of the evil consequences arising from them, where the manure is not presently and carefully spread; the bottoms of the hillocks getting more than their share of the dressing.

Hence, ON THE WHOLE, perhaps, there is little or no difference between the two practices. There are three roads between London and Tamworth; yet, though *widely* different, neither of them, it is said, is even one mile nearer than another: nevertheless, many a *doughty argument* has doubtless been held, about which is on the whole the best.

And thus it will *sometimes* happen, in rural affairs. But, *more generally*, there is one

18.

SPREADING  
MANURE.GENERAL  
MANAGE-  
MENT.

PREFERABLE PRACTICE; which, if men would seek it industriously, and *dispassionately*, they would seldom fail of finding out.

## 19.

MARKETS.

NOVEMBER 8. By way of making myself familiar with the BUSINESS OF MARKETS, and of forwarding my general design, by an INTERCOURSE with PROFESSIONAL MEN, I have, since my arrival in this district, attended, for the first time, a weekly market; and dined, regularly, at a market ordinary\*.

It is somewhat extraordinary, however, that I should have done this, almost unremittingly, for the last six or eight months, without having, until today, picked up one idea, worth bringing home.

It is true, I have not *fished* for ideas. Yet it is very remarkable that, in sitting in a company of professional men of the higher class, three or four hours, week after week, some valuable ones should not have risen, spontaneously.

Today,

\* At the CASTLE at TAMWORTH.

Today, two or three were started; which may be worth preserving.

The inclosure of Newton fields became the topic. Mr. — said the incumbent wanted “a sixth and a half” for the tithes. Mr. — (the venerable vicar of Tamworth, hale and handsome, at eighty!) said he had taken a “seventh,” in a similar case, and he thought it a fair proportion\*.

This led to the advantages and disadvantages of inclosing common fields.

The prevailing idea was, that it is disadvantageous to the tenant, during the first six or seven years after inclosing; by reason, he cannot, in less than that time, bring his land to a good “turf”—a full sward.

Appleby field was mentioned, as a case in point; for, although it is now ten or twelve years since it was inclosed, the lands have not yet reached their most profitable state.

Newton fields, however, being of a more loamy, less clayey nature, it was admitted, that they would come some years sooner to “turf”, and consequently to profit: it being

D 3                      a rooted

\* In this case, the lands to be inclosed were, chiefly, or wholly, *arable* fields: the meadows and common pastures having been formerly inclosed.

19.  
INCLOSING  
OPEN  
FIELDS.

19.

INCLOSING  
OPEN  
FIELDS.

a rooted idea, here, that nothing can be done without "turf," or natural grasses.

Mr. — observed that their old inclosures, at Newton, bear heavier wheat, than their common fields. These, he says, give a more beautiful sample, and, he does not deny, a thinner skin; but the kernel from the other, he says, is more "steely;" and it was the general opinion, that "land which has got some turf in it," grows the heaviest wheat.

COURSE  
of  
PRACTICE.

Thus, mighty turf being the Midlander's anchor, no wonder he is so tenacious of it, as to preserve it, with reverential care, by pinfalling; lest, by a turnep or a summer fallow, he should destroy his turf, and therein destroy his hope.

From what I can understand, however, by the expression of "land having turf in it" is not meant, literally, at least not altogether, the unbroken sod or roots of grass, which remain undissolved in the soil; but is, more or less, a figurative expression, meaning, that land which has lain some time in grass, will bear better or heavier corn, than that which has been under the plow, time immemorial; an idea perfectly well understood, throughout the kingdom: and, it is an opinion as uni-  
versally



versally received, that land which has been long under the plow, more particularly commonfield land, is prone to grafs \*. And I never had, before today, any idea that commonfield lands were longer in acquiring a turf, than other lands, which had been under the plow. Because, I had never, till lately, known grafs land broken up, and laid down again to grafs, without having, during the time it was in tillage, received a turnep or a summer fallow.

What an endless labyrinth is husbandry ! I have, till now, considered it, as an unerring rule, to cleanse land, thoroughly, from every thing vegetable, before it be laid down to grafs. But, I confess, I now begin to be of opinion, that there may be cases, in which, even this rule may be erroneous ; and the practice of this district, founded on long experience, strengthens my opinion.

I have frequently been struck, with the rapidity, with which the lands of this district acquire a *natural* sward : three or four years after they have been laid down, they begin to wear the face of old grafs lands : yet it

D 4

never

19.  
COURSE  
of  
PRACTICE.

\* See YORKSHIRE, Sect. CULT. HERBAGE.

19.  
COURSE  
of  
PRACTICE.

never struck me, till now, that this new turf is raised out of the *ruins* of the old. For although a Midland farmer turns over his old turf, and takes a crop of oats; re-turns it, and crops it with wheat; and, this being harvested, repeats the operation of turning over the old turf, twice, or perhaps thrice; pulling it about with the harrows, and disengaging it from some of its foulness;—yet it is still the old turf in ruins. The roots and seeds of the grasses, which formed it, are still there: for although the farmer has had two crops of corn, he has, at the same time, had two crops of grass; the roots of which a winter fallow, of two or three plowings, is wholly inadequate to *destroy*; though it may give them a considerable *check*: and this accounts for the received opinion, here, that the “second year’s seeds” are the worst grass: because, the clover is then gone off, and the natural grasses, having been checked by the pinfallow, and kept under by the barley and the clover, have not yet recovered themselves: but, the third year, having nothing to struggle with, they *rise again*; resuming the appearance, and, in a considerable degree, the profitableness of old grass lands!

What

What a new system of husbandry is this ! at first sight, slovenly in the extreme ; yet, it is *possible*, that before I have been twelve months longer in this district, I may conceive it to be, for lands which are equally productive of grass and corn, an eligible system of management.

A turnep or a summer fallow delays the laying down to grass, a year extra, and the hoe or the plowing, and the exposure through the summer, do more toward the extirpation of the turf, than all the five plowings of the pinfallow system.

Extirpating the roots of twitch and other root weeds, without destroying those of the better grasses, is the leading principle of this plan of management : and if, by a winter fallow, judiciously conducted, the former can be kept so much under, as not to prevent a profitable turf from forming, the practice is at least plausible.

The labor and expence attending this plan of management is small. Five plowings in ten years, and a crop every year \*.

An evident IMPROVEMENT of this system of management presents itself. If the PIN-

FALLOW

\* But see Vol. i. page 145.

19.  
COURSE  
of  
PRACTICE.

FALLOW cannot be got clean enough, for BARLEY, continue to fallow, until the soil be sufficiently cleansed, and then sow the grass seeds, WITHOUT A CORN CROP.

The herbage, *even the first year*, becomes, under this management (I write from sufficient experience), of considerable value (proportioned, of course, to the time of sowing and other circumstances), and, by having an opportunity of sowing seeds, repeatedly, through the summer, wherever the first sowing may miss, a clean full crop, *the ensuing years*, may be had with a degree of CERTAINTY: advantages, these, which would probably be, in the end, much greater, than a crop of corn, in the first instance, succeeded by a series of deficient crops of herbage\*.

21.

HIGH  
RIDGES.

NOVEMBER 20. In passing through Shuttington field, I entered into conversation with some plowmen, who were plowing in wheat, upon the subject of HIGH RIDGES. An old man, who was sowing, drew up and joined

\* See, however, as above.

joined the conversation. "Yea, Sur, we mun lie 'em up, a-thiffen, or we canno get onny wheat. An us lie 'em flat o'th' top, th' first pash of rain runs 'em into lakes, and sets th' crop. It hen been tried a many time; but it wunno do."

"Well, but how is it, friend, that, when you inclose common fields, you bring down the lands?"

"Yea, yea, Sur, when they ha' gotten some turf in 'em, they wunno run, athaten: but here we fallow, fallow, fallow, every three year, every three year, till they runnen like lime welly: and if they dunno lien up sharp, we canno get onny wheat, skant."

Thus, in a few words, did OLD GEORGE BARWELL explain that, which has puzzled the learned, from the beginning of time, until now.

The barley lands, I see, are likewise gathered up, sharp, to lie over winter, and to be slit down and regathered with the seed plowing, in the spring: yet, even in this rooflike state, I find, all the farmer dreads is a "pash of rain!"

The same kind of experience, no doubt, raised the still more mountainous ridges of  
the

21.

HIGH  
RIDGES.

21.  
HIGH  
RIDGES.

the vales of Gloucester and Evesham\* : yet, is it not astonishing, that the real motive for the practice should not be more generally understood ?

22.

WORKMEN'S  
BEER.

NOVEMBER 20. In this country, the waste of malt is beyond measure. Beer and ale are not only brewed unreasonably strong ; but the quantity allowed to workmen is unnecessarily great. That which is termed "beer" or "small beer" is nearly equal, in strength, to the harvest *mild ale* of many counties.

In hay and corn harvest, the customary allowance is a gallon of beer, a man, (in hot weather they drink more), and, beside this, mowers expect two quarts of ale, and never have less than one.

Reapers have no regular allowance of ale ; but, nevertheless, expect a little "drink."

With some difficulty, I got turnep hoers to accept of two quarts of beer, and one of ale : they demanded two of beer and two of ale !

\* See GLOUCESTERSHIRE, ART. LAYING UP RIDGES.

ale! enough to stupify any man, and to make a *sober* man drunk, from morning to night.

22,

WORKMEN'S  
BEER.

During the winter months, the quantity of small beer drank is not much less, than in harvest. Mr. William Moor of Thorp, a leading man in this neighbourhood, allows his laborers a gallon, a day, the year round! Each man has his gallon bottle filled, in the morning, and what he does not drink, he takes home to his family. His motive for establishing this custom, I understand, was that of his men, when they had the beer cask to go to, or had it given them, whenever they asked for it, by careless wasteful servants, getting drunk, or becoming so muddled and stupid, as to be unfit for their work: and, upon other farms, this it seems is no uncommon case. Hence, it is wise to allowance them; for, under this regulation, they drink no more, probably, than is serviceable to them; carrying home, to their wives and children, that which, if drank, would probably have done them harm.

So great a tyrant, however, as custom is said to be, I am of opinion, that, if the farmers of this country were to pay money, out of their pockets, for the malt, this shameful waste

22.

WORKMEN'S  
BEER.

waste of it would be put a stop to. And I am persuaded, that nothing but the practice of malting their own barley, at PUBLIC MALT HOUSES (the prevailing practice of this district) could prolong so extravagant a custom.

23.

RURAL  
KNOW.  
LEDGE.

NOVEMBER 21. The idea of keeping a CALENDAR, of the practice of a district under survey, never struck me, until now.

MINUTING is one method of catching, or rather retaining, ideas: an ANALYTIC REGISTER commands a general view, and discovers a variety of useful objects, which mere minuting might overlook: and a CHRONOLOGICAL REGISTER, by viewing the wheel of agriculture, as it turns round with the seasons, and catching the several processes and operations, as they pass under the eye, becomes a third species of idea trap; not less requisite than the other two.

Is it not extraordinary, that a mean so obviously eligible, now that it is known, should not have occurred before! If it were put in practice, at the end of every month,

only,



only, the advantages must be considerable. For, in an undertaking so arduous, as is that of collecting the rural practices of a district, too many receptacles of information cannot be opened.

The farmer's year begins at Michaelmas. His last year's crops are then harvested, and he is then beginning to sow and prepare, for those of the succeeding year: I will, therefore, open my calendar with the month of OCTOBER\*.

23.

RURAL  
KNOW-  
LEDGE.

## 24.

DECEMBER 4. The letting of a large farm never fails to become, in the neighbourhood in which it is situated, a popular topic of conversation.

A farm, of three or four hundred acres, has lately been let, in this neighbourhood, to a man about thirty years of age.

MANAGE-  
MENT  
of  
ESTATES.

The

\* In pursuance of this idea, I afterward kept a journal of occurrences, the contents of which have assisted me, very much, in correcting the foregoing register of the practice of the district: and an abridgement of it will appear in these Minutes, at the close of the year.

24.  
MANAGEMENT  
of  
ESTATES.

The general idea, respecting this transaction, is, that it was imprudent in a man, *at that time of life*, to engage in a farm of such magnitude.

In Norfolk, a man will take a *lease*, at fifty or sixty: here, it is thought that a *tenant at will* should enter, at eighteen or twenty, and hand down the possession to his posterity.

What a striking instance, this, of the *confidence* which still remains, with the tenantry of this district. And it may be a moot point, whether under such confidence, well placed, as it still remains to be in this district, leases, or no leases, are, in a general point of view, including landlord, tenants, and the community, most eligible.

*December 1789.* Unfortunately, however, for the tenant, in this instance, his farm (part of a considerable off estate of a nobleman) is now on sale, or sold, and the very expensive improvements, which he has been making, are, probably, in a great measure sunk.

## 25.

1785. JANUARY 20. It is difficult to conceive a worse farm yard, than this was, nine months ago: It naturally inclines steeply toward the north, with a barn and hovels to the west, and with the house and stables to the east; but without any shelter, on the north; except a hovel and a short range of sheds, which stood on the lower side of it. But between the yard and the sheds was a pit, four or five feet deep in mud and water, which prevented the yard stock from getting near it, for shelter. They might as well have been exposed on the top of Bardon Hill, as in this yard.

FARMERY.

The area of the yard—the foddering place—lying with a great descent, the best of the dung was washed away, by heavy rains; and, when the pit was full, ran down a shore, entirely waste: though lands, below, lie particularly convenient, for watering\*.

\* These circumstances, nor those which follow, are not mentioned to set off this petty improvement; but as cautions and hints to those, who have the laying out, and improvement, of farm yards: a subject which has, heretofore, been very much neglected; but which, of late years, has been more attended to; and which still remains an object well deserving attention.

25.  
FARMERY.

The evident principle of improvement was that of building a range of shedding (an open shed in the center, with a fodder house at each end, much wanted on the farm) across the lower side of the yard, to defend it against the north winds. But the exact situation of this building was difficult to determine.

A degree of elevation was necessary, to give the required shelter; but, to place it above the pit, would have contracted the area of the yard, too much. It was, therefore, run across the hollow; raising up the floor, in the middle, level with the yard, at the ends; leaving a deep pit behind, for the drainage, and a shallow one in front for the dung, and to receive the fulliage of the several buildings.

The utility of this dung pit, made wider and more commodious by the general dishing of the yard, is evident. Had the rain water run through the yard, into the pit below, without a check, much of the dung would have been carried away with it: but, by raising the mouth of the drain, or channel of communication between the two pits, some height above the bottom of the dung pit,  
by

by means of a grate and a covered drain running immediately beneath the floor of the shed; little more than the tinctured water passes away; leaving behind it, a first deposit, in the dung pit: and, having arrived in the lower reservoir, it makes a second deposit: by which the water is, in a great measure, disburdened of its riches. And, finally, when the lower reservoir becomes surcharged, with this clarified tincture, it is thrown over the land which lies below; so that, generally speaking, not a particle of manure is lost.

25.

FARMERY.

The uses of a DUNG PIT scarcely need to be enumerated\*. In winter, when the reservoir is filled with dung, the quantity of water is inconsiderable; merely sufficient to moisten the bottom of the mold on which the dung lies; in spring, when the dung is turned up, a little water may be made essentially serviceable, in moistening the heaps, and thereby promoting their digestion †; and, in summer, after the dung is carried out, a pit becomes the most eligible recep-

\* See MINUTES OF AGRICULTURE, in SURREY.

† See the following MINUTES 45, 47, and 57.

25. FARMERY. tacle, not for stable dung only, but for offal of every kind: for, by being sometimes moist and sometimes dry, the compost ripens much faster, than it would in a constantly parched situation.

Upon the whole, from what I have yet experienced of it, the PLAN (executed in this instance on a small scale) appears to be on just principles: though, I confess, I cannot take to myself much credit; it having grown out of circumstances, and a kind of necessity, which could not, easily, have been overlooked or avoided.

## 26.

VERMIN. JANUARY 24. A striking instance of the industry and mischievousness of MICE occurs, in the intended plantation, in the corner of No. 3.

This field was, in autumn, sown with *wheat*: the intended site of the plantation being an *oat* stubble, and has not borne wheat, for many years: yet, on digging it, a large hoard of wheat was found, some four or five yards, from the fence of the wheat field;

field ; between which and the site of planting is a very high bank, with a deep ditch, (see MIN. 123.) across which every grain must have been carried, and, perhaps, one at a journey !

The workman thinks the hoard consisted of near half a gallon of wheat : if of one quart, it corroborates, strongly, the idea of mice being more mischievous than moles, to the farmer. See YORKSHIRE, Sect. VERMIN.

26.  
VERMIN.

## 27.

JANUARY 25. In opening the shore of the meadow, No. 6. the workmen found a large stone, with a groove along its middle, and with a hole through it, at one end.

One of the laborers, an intelligent man, says it has been the soal of a floodgate, for FLOATING THE MEADOW UPWARD : namely, penning up the water, in times of floods, by means of a dam and floodgate, across the bottom of the meadow, or flat, to be watered.

This he says was, formerly, the method of floating meadows ; and, in corroboration of

WATERING  
GRASSLAND,

27.  
WATERING  
GRASSLAND.

his assertion, farther says, that, about twenty years ago, he being servant to Mr. — of —, his master fetched a load of stones, for the purpose of repairing a dam and flood-gate of this nature : but, *having travelled*, he told his master, the dam and floodgate ought to be set across the *top*, not across the *bottom* of the meadow ; and, soon after, it was watered, agreeably to the modern method.

Across another suite of meadows, there are not less than four or five of these dams : not particularly against the hedges (as in the above instance), except one at the bottom ; but across the areas of the meadows ; wherever the valley, or dip, happens to be contracted, by rising ground on either or both sides.

These banks have frequently struck me. At first sight, they appeared to be old roads across the meadows ; but, on examination, I found they are formed of mold, not of hard materials. I afterward imagined that some whimsical or extravagant occupier had chosen to have a chain of waters, from the top to the bottom of this valleylike dip ; either for the purpose of ornament, or of  
fish.



fish. But the above intelligence explains the matter fully\*.

27.

WATERING  
GRASSLAND.

In looking, today, for something similar to these dams, in meadow No. 6, I perceived that the hedge bank, in the foot of which the stone, with some brickwork, was found, is evidently a dam, adapted to this purpose: for, notwithstanding this meadow, like the others, lies dishing in the middle, the hedge (which I will warrant two hundred years old) stands upon a bank, as level from one side of the meadow to the other, as the head of a modern-made piece of water.

In order to satisfy myself, most fully, respecting so interesting a fact, I enquired of Old Barwell (who lived upon the estate when a lad, and who, having since worked several years upon it, knows more of the farm, probably, than any other person) in general terms, for what use he supposed these banks to have been raised? He answered, without hesitation, "for flooding the meadows." I asked him if he could re-

\* Several stones, similar to that above mentioned, which lie scattered about the yards, are farther evidences of the fact.

27.  
WATERING  
GRASSLAND.

collect their being in use? He said, "No, they have never been in use in my time" (seventy years). But he speaks familiarly of the practice: says, the waters were not suffered to stand long upon the land: but so soon as it was judged that they had dropt all their sediment, they were let off: and he speaks of the benefit arising from this method of using flood waters, as having been considerable: but thinks that the method of floating meadows, by means of "floating trenches," coming into practice, and being found more advantageous, than the old method, this became old fashioned, and grew out of use\*.

These questions led to another interesting particular. He says, that in the parish of Austrey, where he was born, it has been the custom, ever since he can remember (sixty years), to throw the rich waters, which are collected, in rainy seasons, from the common fields, lying on the side of the hills above the village, over the meadows, which are

\* I publish this minute, to prolong the remembrance of an operation in husbandry, which, to tradition, may be in a few years lost, and which, perhaps, is no where on record.

situated below it — by means of floodgates and FLOATING TRENCHES, somewhat agreeably to the modern practice.

27.

WATERING  
GRASSLAND.

But, what is still more interesting, he further adds, that the farmers did not only make use of the waters from the fields and the wash of the town, whenever floods happened, during winter ; but, in the month of March, were ready to quarrel about who should have the “ marly hard spring water,” which rises, in considerable quantity, out of the side of the hill ; and which, though as clear as rock water, they found of essential, and most immediate, service to their meadows ; giving an almost instant greenness and flush of fine sweet grass ; it being observable, however, that if they remained too long upon them, at once, a scum was liable to rise, to the injury of the herbage.

The idea respecting these waters, which are still I understand in use, is, that they contain a “ warmth” at that season of the year, which causes their good effect.

But query, is it not rather some calcareous quality, imbibed by the water from the marl, which causes the beneficial effect ?

See MIN. 39. in which this idea is confirmed.

## 28.

## FARMERY.

JANUARY 29. A FENCE is an encumbrance to a CATTLE SHED ; and yet a shed, which fronts into a principal yard, is inconvenient without one ; rendering the yard in a manner uselefs, for loose cattle, as well as for swine ; which cannot be kept, with any degree of propriety, in a yard with open cattle sheds.

In this point of view, a small quadrangle, apart from the main yard, with a dung place in the middle, as Mr. ——'s of ——, is a more eligible fituation for sheds, than an open farm yard : for, in that case, no fencing is required.

Mr. —— of —— has a range of cow sheds, in a separate yard ; but it forms one long unbroken range ; the three other sides lying open, without a building, or a tree, to break the wind : the consequence is, a hair cloth is obliged to be hung up behind the cows, in severe weather.

Mr. ——'s of —— front into the general yard ; and have, therefore, *fences* to them ; composed entirely of *gates*.

But

But this, I think, is ill judged: gates are expensive, and are liable to be out of repair: yet when the shed is narrow, a number of gates are necessary. I have therefore determined on half gates, and half paling, resembling the gates, placed in alternacy; and the plan, thus far, appears to be as commodious, as that of a fenced shed can be.

But, I am clearly of opinion, that, when sheds are not wanted, as a shelter to the main yard, they ought to be placed in a separate yard: not, however, in one long range; but in such a manner as to form three sides of a quadrangle, or square, open to the south; with two fodder houses, in the northeast and northwest angles, or corners; the north side forming a leanto, or being otherwise conveniently situated, to the barns: with a hay rick yard, on one side; and the dung yard, in the center: admitting the yard pigs, while the cattle are let loose to water, or to stretch their legs, and clean their coats.

1796. For an improvement of this plan, see WEST OF ENGLAND, MIN. 29.

28.

FARMERY.

## 29.

CHARRING  
POSTS.

JANUARY 30. The partition posts of this shed standing continually dry, I put down, unburnt; but those of the fence, which stand in a peculiarly awkward situation, between wet and dry, I CHARRED, agreeably to the Norfolk practice; and in the following manner.

Dug a trench, eighteen inches wide, eighteen inches deep, and six feet long. Aired it, by burning some straw, and a faggot or two, in it, previously to laying down the posts.

This done, laid three posts across the trench; placing the part to be burnt, namely, the part purposed to stand between air and moisture, immediately over the fire; thrusting the fuel (dry small oven faggots) in at the windward end of the trench.

As one side became charred, another was turned downward; and, to prevent the fire from spreading too wide (reaching too high up the post) wetted the part, not intended to be burnt, by means of a wet straw band, tied round the post, in the part where the fire ought

ought to be checked ; pouring water, from time to time, upon the twisted straw.

29.

CHARRING  
POSTS.

The posts having been repeatedly turned, on all sides, until white ashes began to form, on the surface of a black coat of coal, about one tenth of an inch thick, they were removed, and their place supplied with others.

Chips are preferable to faggots, as fuel in this operation ; as they can be dropt in between the posts, wherever an increase of fire is wanted.

## 31.

FEBRUARY 5. The ideas of the farmers of this neighbourhood, in regard to carrying out corn, or other marketable produce, appear to be erroneous.

MARKETS.

In selling some oats, to a corn buyer, he made 18*d.* or 2*s.*, a quarter, difference, in price, between delivering them at Tamworth, three miles from this place, or at ———, eleven miles !

Five horses take fifteen quarters, with ease. If a man a boy and five horses had taken them the shorter journey, it would have broken into their dayswork, and have nearly

31.  
MARKETS.

nearly expended one of the short days of this season; and going the longer was but a moderate dayswork. Yet for this piece of a day, not worth five shillings (with the extra turnpikes 18*d.* or 2*s.* more), there was, by taking them the longer journey, an earning of twenty to thirty shillings.

Nevertheless it is difficult, I understand, to persuade the farmers, on this side of Tamworth, to carry their produce to the other side of it, for almost any advance of price.

PROGRESS  
of  
AGRICULTURE.

But this, perhaps, may be accounted for. Effects sometimes continue, after their causes cease. Formerly, the roads, in the neighbourhood of Tamworth, were bad beyond a parallel. That between Statfold and Tamworth was proverbial: and immediately on the other side of it, the passage was equally intolerable, and more dangerous; the road passing, for a considerable way, through waters; which, in times of floods, were impassable. No wonder, therefore, that, *in those days* (not more than fifteen or twenty years ago), the farmers should be afraid of venturing their teams far from home; or that they should make 18*d.* or 2*s.* a quarter difference,



difference, between a short and a long delivery: This difference, and these ideas, having been deeply emprinted, by the practice of ages, still remain, in a great measure, unobliterated; notwithstanding the roads are, *now*, considerably improved, and the worst of them made travelable turnpike\*.

31.  
PROGRESS  
of  
AGRICULTURE.

## 32.

FEBRUARY 11. This farm, a few months ago, might be said to be without either shore, ditch or surface drain. The waters of rain flowed out of the bottoms of the hedges, over the adjacent lands, on which it stood, for want of proper drains, to convey it off; and for want of common shores to receive it.

SURFACE  
DRAINING.

Last spring, I had neither leisure nor opportunity to remove the evil; the frosts continuing

\* This minute is published, to show the prevalence of custom; and as a striking evidence, that many of the present errors of practice, throughout the kingdom, may have originated in right management; and are now become erroneous, merely through an alteration of circumstances: and a principal work of IMPROVEMENT, in every district, is to correct these errors, by adapting the PRESENT PRACTICE TO PRESENT CIRCUMSTANCES.

IMPROV.  
in  
AGRICULT.

32.  
SURFACE  
DRAINING.

tinuing late: nor, indeed, is SPRING a proper season for draining land; which, at that time, is full of water, as a wet sponge: AUTUMN, when the soil and its substrata are firm and free from water, is the proper time: See NORFOLK, MIN: 51.

In October, I began to open the main common shore of the farm; with the several cross and lateral ditches, which lead to it. Having relieved one side of the estate, I proceeded to the other; opening, or rather cutting, a less considerable shore; pursuing its natural branches, and their terminating ditches to wherever the water hung.

Having thus prevented the uplands, from overflowing those which lie below them, I opened such outlets and fresh drains, in the lower grounds, as will, in future, draw off the water which has, heretofore, lodged on their surfaces, to the great injury of the herbage.

I am of opinion, that the last year's crop was several tons deficient, through the effects of stagnant water. At a distance, or on a cursory view, the herbage looked full; but, when it was mown, the swaths fell into a small compass; consisting chiefly of seed stalks, without bottom grasses.

Where

Where the ditch, serving as a common shore, required to be much enlarged, or the hedge, through age or ill treatment, required to be renewed, the latter was cut to the stub; the roots earthed up, and the bank levelled, with the vegetable mold from the ditch; and a banklet formed, on the opposite brink, with the worst of the bottom mold.

But, where the hedge was young in growth and full at the bottom, and the ditch wanted merely to be scoured out, to prevent its overflowing, only the face of the hedge was pruned: not close to the stem; but merely to strike off so much of the spray, as prevented the workmen from scouring the ditch: afterwards levelling the face, so that the bottom shoots should not be over-hung, by the upper spray; the point of every twig having, under this treatment, air and headroom.

With the mold of these ditches, too, I formed sharp banklets, on the brinks; in part to defend the young shoots, and to help the fence, and, at the same time, to place the mold in such a state, as would least incommode the grass; and would be most exposed to the influence of the atmosphere; in order that it may become mellow enough, to be

VOL. II. F spread

32.

CUTTING  
HEDGES.SURFACE  
DRAINING.

32.

SURFACE  
DRAINING.

spread over the adjoining ground, without incurring the expence of team labor.

The mold raised out of the common shores, I placed in a similar way, in sharp ridges, near the brinks; and for a similar purpose; beside that of preventing stock from running across the new made trenches, and treading in their sides, before they become firm, and be bound by the roots of the herbage.

MANURE.

These several banks and ridges of mold lie in the best state, possible, for melioration; the grassy turves are buried, under the crude substrata; which have already received a severe winter's frost, and which will, in the common course of seasons, be parched through, by the drought of the coming summer: while the sods, with their rough tussocks, will die, ferment, and not only be digested, themselves, but assist in the melioration of the crust or covering, which promotes their dissolution.

Next autumn, or winter, the whole will be turned over, and mixt together; and, having received the frost of next winter, and the drought of the ensuing summer, the mold will, of course, be ripe enough to spread, by hand,

over



32. SURFACE  
DRAINING.

raised will, with a little additional labor, be worth half, if not more than the whole, of the expence.

How much *plain husbandry* may be done for a small sum: and how soon a large one may be dissipated, on *ill judged projects*, and *visionary schemes* \*.

### 33.

MANAGEM.  
of  
ESTATES.

FEBRUARY 22. A caution to the occupiers of extraparochial farms; and the owners of extraparochial estates.

SIERSCOT, though within the bounds of the parish of TAMWORTH (very extensive), had, as to poor's rates, been extraparochial; having always maintained its own poor.

A few years ago, a pauper was brought, under an order of removal, from some other parish to Sierscot. The occupier refused to receive the pauper, who was, in consequence, taken to the proper officers of Tamworth; who, after representing, in a very liberal way, to

\* I wish to impress the idea, which is here brought forward, on the minds of NOVITIATES, who are too liable to be led into FUTILE PROJECTS, while they are neglecting PLAIN SUBSTANTIAL IMPROVEMENTS.

to his tenant and his landlord, the consequence which must attend their refusal, received the pauper.

This the corporation of Tamworth considered, of course, as a fortunate circumstance, and lost no time in assessing Sierfcot to the poor's rate of their parish; and, on being refused payment, took the first opportunity of levying. This brought on an expensive law suit; backed both by landlord and tenant: who were cast.

The consequence is, that Sierfcot, which theretofore had not, perhaps, paid, on a par of years, ninety pence, to its own paupers, now pays the enormous sum (for one farm to pay) of ninety pounds a year, one year with another, to the poor of Tamworth!

## 34.

MARCH 13. Some years ago, when turneps in general suffered, more or less, by the frost, Mr. James Spooner, of the Hill, sold a piece of very good ones, at a high price.

The purchasers, however, did not receive any benefit, from the major part of them;

34.  
TURNEP  
MANURE.

which rotted on the ground, and were plowed under, for barley and clover.

The consequence has been, not only the barley, the clover, and the succeeding turf, but the oats, last year, showed, to a furrow, how far the turneps were eaten off, and where they were plowed under.

This is an interesting incident (the truth of which I have no reason to doubt); recommending turneps, very strongly, as a manure.

I have just sold twelve acres and a half, for twentyfour pounds, to be eaten on the farm (a good crop, and a fair price, at present, in this country). What dressing, equally meliorating to that abovementioned, could be purchased for forty shillings, an acre?

But, I should imagine, many graziers would have given 25s. or 30s. an acre, to have let their fat sheep go over them to take off the prime part of the seedage: and, I have my doubts whether this would not have been better, than poaching the soil with followers; or cutting it up, by carting the turneps off the ground, to grass inclosures.

An upland dry soil may be better for being trampled; but such a soil as prevails here,  
receives,



receives, probably, considerable injury, by being poached with followers; and the followers, themselves, can receive little benefit: unless, perhaps, in the spring, when the ground begins to get firm; and then, no doubt, it is better to eat the turneps, clean, than to leave the bottoms in the ground: as instead of rotting and becoming an immediate manure, they, in that case, lie in the way of the plow and harrow.

*Perhaps, generally, on a strong retentive soil, sow turneps early; run sheep over them, as early as the season and conveniency will admit; and let the refuse rot on the land, as a manure.*

34.  
TURNEP  
MANURE.

### 36.

MARCH 27. In Yorkshire, I paid considerable attention to the HANGING of GATES; not with *pivots* only\*, but with *binges*; and gained an adequate idea of the leading principle; which, however, I did not commit to writing.

Here, I have had occasion to apply the principle to practice. But the true principle

F 4 .

had

\* See YORKSHIRE, Sect. FENCES. 1. p. 191.

HANGING  
GATES.

36.  
HANGING  
GATES.

had escaped my memory; a false one having supplied its place: namely, that the only thing needful was to throw the gate out of its upright, so as to lean toward the post; no matter whether this inclination of the gate were obtained, by the hooks, or the thimbles.

Led by this false idea, I had conceived that the simplest, and of course the best, way to hang a gate, would be to put the hooks in, exactly perpendicularly to each other, and to give the fall by the thimbles alone.

In consequence, I prepared a bottom thimble, with a clasp to take the hartree, and with an eye at each corner; in order that the gate might be occasionally hung, on one or the other side of the fence, as the occupation of the inclosure might require, and with this thimble hung a gate.

The centers of the pins of the hooks being placed exactly perpendicularly to each other, by a plumb line, the gate was hung on. But instead of falling, this way or that, it stood stationarily, wherever it was set!

It therefore became expedient, to reconsider the subject, and to revert to principles. And, on due investigation, it appears, demonstrably, that THE FALL DEPENDS EN-

TIRELY

TIRELY UPON THE HOOKS: the AXIS OF MOTION is given, by the situation of the HOOKS, with respect to each other; and, whichever way the AXIS OF MOTION inclines, that way the gate will fall \*.

A gate should have what is called two falls: one at the post, to make it catch; and another at rightangle to the gateway, to prevent its standing open.

The QUANTITY OF FALL varies with the situation, and with the use, and the length of the gate. If a gate has too much fall, at the post, it is liable to beat itself to pieces; if too little, it does not catch, with sufficient certainty, and is liable to be blown open by the wind, and thus to become a deception, rather than a safeguard.

On sufficient trial, I have found, that, for ordinary field gates, one inch and a half at the post, and an inch at rightangle, give a fully sufficient fall †.

With

\* The THEORY of this principle is easily demonstrable; but as it requires diagrams to explain it, and is merely *elementary*, it may appear with greater propriety, in another place:—I therefore give, in this, the PRACTICAL part of the Minute, only.

† The way to ascertain the true position of the hooks is that of taking a plumbing line (or any string with a stone

36.

HANGING  
GATES.

36.  
HANGING  
GATES.

With respect to THIMBLES, the only use of their being made, in this or that form, is, to counteract the obliquity or crosswinding of the hooks ; so that the gate, when shut, shall hang plumb and level ; or every way in a perfectly upright position \*.

The top thimble being usually put into the middle of the hartree, with the eye as near to it as the shoulder of the hook will admit, the counteraction, of course, depends on the bottom thimble.

If the bottom thimble be made with two strong straps, to clasp the lower part of the hartree (as it always ought), with an eye on one side, or with two eyes, one on each side, and their centers three inches apart, and with necks

stone hung to it), and, looking along the line of the fence or gateway, drive the hooks, or move the post, until the center of the pin of the upper hook appears, by the line hanging perpendicularly before the eye, an inch and a half nearer the middle of the fence, than that of the under one : and then looking along the line of the road (or perpendicularly to the gateway) see that the center of the pin of the upper hook stands one inch nearer the middle of the road, than that of the under hook ; observing, likewise, that the pins of the hooks stand, not exactly upright, but in a line with each other,—forming one direct AXIS OF MOTION.

\* Gates being liable to sag, or droop, by hanging, they should be hung rather above than below the level.

necks projecting, when fixed, one inch farther from the hartree, than that of the upper thimble (or, more accurately speaking, with the center of the eye or eyes of the lower thimble standing an inch farther behind the hartree than the center of the eye of the upper one), the gate acquires, ON A CERTAINTY, the required fall, yet hangs level and upright when shut. But see MIN. 54.

36.

HANGING  
GATES.

37.

MARCH 29. Attended ASHBY STALLION SHOW, held for the sale and letting of stallions ; the only fair of the kind, I believe, in the kingdom. Some years ago, there were a few shown, at Nottingham ; but none, I understand, of late years.

STALLION  
SHOW.

The horses, which are brought to this show, are all of the black carthorse breed (I saw but one colored horse) : chiefly young horses—as “colts” (rising two years old)—threeyearolds,—and fouryearolds : some to be sold, others to be let for the coming season.

This

37.

STALLION  
SHOW.

This show begins on Easter eve, continues on Easter Monday, and is succeeded, on Tuesday, by a fair for cattle and sheep.

The stallions come in, on Thursday and Friday; stand in close stalls, at the inns; and are led out, occasionally, into a back street, to be shown, to those who desire to see them out.

This year, there were about thirty on show; esteemed, from what I can learn, a middling show: but so flat a market has seldom been known. There were only two sold (and none let) the two first days: one of them (the best in the show) for a hundred guineas.

The flatness of this fair, at a time when young horses are dear beyond a parallel, and difficult to be picked up at any price, is a paradox; and includes a mystery, which nobody seems able to explain. Great prices, it is true, were asked: nothing, that was worth purchasing, could be had under fifty or sixty guineas: but, had the prices been lower, there were no buyers: a circumstance which, perhaps, can be accounted for no way better, than in the decline of the Leicestershire breed; or the improvement of the

the breeds of the districts, to which the Leicestershire horses were formerly taken; as Warwickshire, Shropshire, Worcestershire, &c.

Some of the tyoyearolds were of extraordinary size, for their age. Mr. ——— had one not less than fifteen hands and a half or sixteen hands high, and as well furnished as most aged horses!

Shortbacked, squaremade, fullcarcassed horses, with four or five inches of fat on the ribs, were the favorites. A good deal of bone is still liked, and their manner of going much attended to: not so much as to activity, as to their trotting true!

## 38.

APRIL 19. It is a practice, in this country, to set fire to rough dead grass, at this time of the year; in order to clear the surface, for the young spring shoots.

Mr. ———, of this neighbourhood, a few days ago, in "burning his feg," set fire to a dead hedge, at the back of a young quick, and burnt it down, some considerable way;

37.  
STALLION  
SHOW.

BURNING  
DEAD  
GRASS.

the

38.

BURNING  
DEAD  
GRASS.

the fire scorching the live hedge in its progress. And a much more fatal accident happened, about a week ago, in Leicestershire, by the same means.

In the former case, the fire was stopped, by making a gap in the hedge; but, in the latter, the hedge conducted the fire to a hovel, and the hovel communicated it to an adjoining village, in which seventeen houses, with barns, rickyards, &c. are said to be consumed!

But though these circumstances ought to serve as a caution, to those who pursue this practice (which, by the way, can seldom be pursued with propriety), similar effects can seldom take place: the ground and every thing standing upon it are seldom so dry, at this season of the year, as they are at present.

39.

WATERING  
GRASSLAND.

APRIL 24. In my ride this morning, I looked into the meadows below AUSTREY, which have, time out of mind, been watered in the spring of the year, by a rill which rises out of the hill above the village. See MINUTE 27.      This



This year, I take for granted, the quantity of water has been small. By the sides of the floats, but there only, the grass is as green as a bed of leeks, and shoetop deep. At present, the water is so low, it is barely able to overflow the trenches.

39.

WATERING  
GRASSLAND.

In a hollow, by the side of one of the floats, in which the water has stood, a white scum is left.

CALCAREOUS  
WATER.

Seeing its appearance, and perceiving its taste, to resemble that of marl, I collected some of it, and find it to be most strongly calcareous \*!

This appears to me a most interesting fact; as tending to show, that calcareous matter is not only suspendible in water, but that, in this state, it is highly beneficial to vegetation.

In situations, where waters of this quality cannot be rendered useful, in watering grasslands, might they not be collected, and be thereby

\* By analysis, ten grains of this scum yield eight grains of calcareous matter; leaving two grains of residuum; chiefly the broken blades of grass to which it adhered; but, in part, of a tough, indissoluble substance, whose properties I have not, yet, had an opportunity of investigating.

39.  
CALCAREOUS  
WATER.

thereby induced to deposit their calcareous particles, in reservoirs, for the use of arable lands \*?

40.

SOWING  
WHEAT  
on  
CLOVER  
LEY.

MAY 7. An evidence that a CLOVER LEY (or any whole ground) sown late in AUTUMN, and in FROSTY WEATHER, should be SOWN on the FRESH FURROW, occurs in No. 3. The soil a good middle loam.

Three lands were caught in the frost, and lay some days, before they could be harrowed. An adjoining land, plowed the next day, and sown immediately, is, to present appearance, twice the crop. The plants of the former are straggling, even to bareness; while the latter is a beautifully well stocked ridge of wheat: it has, I should suppose, near twice the number of plants upon it: though the quantities of seed were exactly the same.

October 9. At harvest, this land was much the best crop.

MAY

\* I afterward (in the wane of June) examined one of the sources of this rill. The channel, toward the mouth, was filled with the most luxuriant FLOTE FESCUE: the blades two or three feet high! and might have been collected, in quantity, as foiling. By widening the rill, and spreading the waters, a spring of this quality might be turned to considerable advantage, as a manure of this nutritious grass.

## 41.

MAY 11. A land of the fallow of No. 9. having been badly plowed (with a sharp ridge in the middle and a hollow on either side of it) and sown with barley, in my absence, I set out in the hollow, on each side of the ridge, and gave the outsides of the land an additional plowing: thereby laying it with a gentle even roundness, and burying the barley, of course, under a principal part of the soil.

SOWING  
BARLEY.

The consequence is, this dry season, the part, thus replowed, is fully and regularly stocked, with fine healthy plants; while the remainder of the piece, only harrowed in, has not half its seed come up; the rest lying in the ground, as dry as when sown. This comes up in seams and clusters: — That, beautifully regular.

This incident shews that, in DRY WEATHER, BARLEY, if the land be in order, should be PLOWED UNDER: and, at the same time, leads to an IMPROVEMENT in the method of SOWING BARLEY UNDER FURROW: namely, that of sowing, previously to

41.  
SOWING  
BARLEY.

the last harrowing; or, in other words, of harrowing after the seed is sown: for, by this means, the seed, instead of running down into drills, at the bottoms of the furrows, is distributed regularly, near the middle of the soil.

42.

QUALITIES  
of  
WATERS.

JUNE 5. The waters of the DOVE (of Derbyshire) are esteemed rich in a singular degree\*.

This circumstance, rising as the Dove does among bleak barren hills, and without passing through a rich arable country, is interesting. Those of the AVON (of Worcestershire) are esteemed of a fertilizing quality; but this seems to be accounted for, in their being collected from the rich and highly cultivated lands of the Vale of Evesham. Those of the WYE (dividing Gloucestershire and Monmouthshire) are esteemed pernicious to the meadows on its banks; because (as is believed)

\* This Minute, with 148 and 149 on PLANTING, are part of the produce of an excursion, across NEEDWOOD FOREST, to UTTOXETER, and thence to near ASHBOURN in DERBYSHIRE.

lieved) they are collected from the barren hills of Wales.

The meliorating effect of the Dove is thought, by some, to be owing to the washings of the sheepwalks of the Peak Hills. But has not the Wye the same advantage? I rather suspect that its fertilizing powers arise, from some inherent quality of the water itself: probably acquired, from an intimate communication with CALCAREOUS or other FERTILIZING EARTHS. The scum of the Austrey water is a sufficient ground, for this hypothesis: and there are men who speak of the limestone of the Peak.

It is a fact, well ascertained, that the hills of the Peak abound with calcareous, those of Wales, with astringent matter: circumstances which may well account for the respective qualities of their waters.

43.

JUNE 26. How dangerous to adopt general rules, and received maxims, in husbandry:

SOWING  
TURNEPS.

G 2

It

42.  
QUALITIES  
of  
WATERS.

43.

SOWING  
TURNEPS.

It is generally esteemed to be folly, to sow turneps among dust; they being, in this case, deemed liable to be cut off with the fly: yet both Mr. ——— and Mr. ——— have turneps now up; and say, they never knew them to do better, than they do this unusually dry season!

1796. If there be moisture *within* the soil, its immediate *surface* is the less to be regarded. See MIN. 84.

44.

POTATOES.

JUNE 26. I have observed, in my rides, frequent instances of the CORNERS OF ARABLE INCLOSURES (a part the plow cannot reach), and other vacant plots of ground, being planted with POTATOES, and hoed in a gardenly manner.

This is good husbandry: whether it be done for the farmer's own use, or whether he allow a laborer to plant the ground for his family.

The latter, I find, is more generally the case: it being common, in this district, for LABORERS to ask, and masters to grant, such

such indulgencies: a good custom. The laborers plant and clean them, in the mornings and evenings, at their own time; the produce must be of essential use to their families; and the loss to the farmer is little, if any thing. The balks and the headlands of this country will generally, when fresh, bring a tolerable crop of potatoes, without manure: and the land, after the potatoes are off, is ready for any other crop.

44.  
POTATOES.

### 45.

JUNE 30. The yard dung, for want of moisture, this spring, has not *ripened*. Instead of digesting, in the heap, in which it was piled, it has, in many parts, become mouldy, and is in a state which unfits it to be set on for turneps; the crop for which it is intended.

DIGESTING  
DUNG.

Had the piles been *watered*, as they were formed, the benefit, I am of opinion, would have been great.

## 46.

WATERING  
GRASSLAND.

JUNE 30. Some time ago, Mr. SHEASBY of Tamworth showed me a MEADOW, on the banks of the Tame, which he can WATER, at pleasure, by a small brook, or rivulet, which runs by the side of it.

One small floodgate turns the stream; and three or four sluices, or outlets from the brook, feed the floats, distributed over the face of the meadow. It has been done two or three years: the whole expence some forty or fifty shillings! The quantity of ground, five or six acres,

The result, this year, is striking; for, notwithstanding the uncommon dryness of the season, and the unusual lightness of the hay crop, in general, this meadow is full of grass.

What an advantage! and this for a mere *thought*. The whole of the original expence is comparatively nothing: yet, by means of it, he has subjected a brook to his will: which brook, for want of the thought, or the spirit to put it in practice, has run waste, by the side of these meadows, for ages past!

What



What a loss to the community! Yet how many such rivulets still run waste, for want of a similar expence; while sums of money are yearly laid out, in preparing grounds to receive *landfloods*, which, of course, never exist, but when the meadows are soaked with the rains that give birth to the overflowings.

Mr. S. for forty or fifty shillings, will this year get several tons of hay; Mr. —, for seventy pounds, not perhaps a single blade of grass.

46.

WATERING  
GRASSLAND.

## 47.

JULY 5. (See MIN. 45.) By way of experiment, threw a load (a wine pipe full) of water over those piles of dung, three or four days before carrying. The benefit, even in so short a time, is evident and great. It began to operate, the second or third day. The mouldiness has disappeared; it being now (comparatively, at least, with what it was) rich, black, rotten dung!

WATERING  
DUNG.

## 48.

SMITH'S  
SHOP.

JULY 7. It is not unusual, in this country, for the larger occupiers to have a BLACK SMITH'S SHOP, in their respective yards; a neighbouring blacksmith coming, once, twice, or thrice, a week, to do the work of the farm.

There is one, on this estate, which serves three or four farms. A man has full employment, two days each week.

IMPLE-  
MENTS.

This is much preferable to going a mile or two, with horses to be shod, and plow irons to be sharpened.

WHEEL-  
WRIGHT'S  
SHOP.

It is observable, however, that, in my several stations and excursions, I have not yet (to my recollection) seen a WHEEL-WRIGHT'S SHOP upon a farm: although, in my opinion, no considerable farm ought to be without one. Wheelwrights, everywhere, carry loads of tools about with them; yet frequently want, in a farm yard, many conveniencies, a shop would supply.

## 49.

JULY 7. This morning, made up a bank fence, on one side of a drinking pool, with fods taken from a surface drain, which was wanted to be made, in the adjoining grass inclosure; wheeling them, in barrows, to the side of the pool.

SOD FENCES  
and  
DRAINING.

Thus two purposes were effected, at one expence: and without leaving an eyesore. Whereas, had the fods been hacked out, anywhere, as is generally the case, an ugliness, and a loss of grass, would have been the consequence. Or, had the drain been made, without having a use for the fods, they must have lain an encumbrance, or have been carried off, as many loads were this spring, into heaps, to get them off the grass.

ELEMENTS  
of  
PRACTICE.

How often are fods wanted for setting the face of a ditch, &c. &c. and, certainly, it is always worth a thought, whether some surface drain, in a contiguous grassground, may not be at the same time wanted.

## 50.

DIGESTING  
MANURE

JULY 7. I have employed two or three men, during the last three weeks or a month, in turning up yard dung, mixing heaps of compost of various sorts, and clearing drinking pools—laid dry by this droughty season: all by the gross,

My general rule of calculation has been a penny, each cubical yard, for *turning over* and *mixing*. Where *wheeling* was wanted, the price varied, according to the distance to be wheeled. *See the LIST of RATES.*

It is observable, that, in turning up manure of every kind, the price should be so much each cubical yard; measuring the pile, *not before*, but *after*, it is turned: for the lighter it is laid up, the sooner it will digest, and the more it will measure: the interests of the employer and the laborer becoming, by this means, united.

## 51.

JUNE 10. From the experience of last year and this, I find, that from threepence to sixpence, an acre, may be said to include all the prices, by the acre, for mowing the scattered weeds of pasture grounds. They must be very numerous if sixpence is not enough, and it is not worth a man's while to walk over the ground, for less than threepence.

MOWING  
PASTURE  
GROUNDS.

Where there is much broken grass, or where the weeds are united in plots, higher prices are requisite\*.

## 52.

JULY 10. I am now emptying a small neglected drinking pool, which does not measure more than eighty square yards of surface; yet there will be fifty to sixty loads of

GROWING  
AQUATIC  
MANURE.

\* It is with some difficulty I prevail upon myself to publish these and other Minutes on MINUTIAL MATTERS. But in them the INEXPERIENCED are most liable to be defrauded. And for their governments, only, I publish them.

52.  
GROWING  
AQUATIC  
MANURE.

of manure, arising from it; principally the roots and decayed herbage of aquatic plants.

Query — might not many low swampy places, too difficult to be drained at a moderate expence, or too bad to bestow much money upon in draining, be planted, or sown, with some quickgrowing AQUATIC PLANT; and be overflowed, as a source of manure?

The first thing, to be ascertained, would be a proper plant for the purpose; one adapted to the given soil and situation; which would grow fast, and produce manure of the best quality. The next, what depth this particular plant (or plants) might require to be overflowed.

The thought, perhaps, is new; and may be worth pursuing\*.

### 53.

GRAZING  
CATTLE.

JULY 11. The price of cattle, at length, begins to fall (of lean cattle at least), and, as numbers must be killed, fat or underfat, the price, unless for prime meat, will of course drop. Fortunately

\* For the valuableness of AQUATIC MANURE, see MIN. III.

Fortunately for the graziers, stock was so scarce and dear, in the spring (see MIN. I.) that, in general, their grounds are understocked. Nevertheless, the drought has been so intense, and the grass, in consequence, so short, that, although they may look well, the general complaint is, they do not improve, as fatting stock.

Mr. ——— asserts that he has some cows, which go upon good land, that is not more than half stocked, yet they are now as lean, as when they came out of the straw yard. A grazier of Northamptonshire is said to have offered, to sale, a parcel of oxen, at two guineas, a head, *less* than they cost him, in the spring. He foddered them with hay, some time after he bought them; and has, of course, given them the summer's grass! and this is probably the case of numbers. Mr. ———'s cows would not sell for nearly so much, now, as he gave for them, in the spring.

Nevertheless, some Scotch bullocks, which were kept at straw, until late in the spring, are already tolerably good beef. Indeed, notwithstanding the circumstances above related, and the prevailing cry of the country, cattle  
in

53.

GRAZING  
CATTLE.NATURAL  
HERBAGE.

53.  
NATURAL  
HERBAGE.

in general, considering the state of their pastures, are in tolerable condition; for although their pastures are as brown as fallows, and as bare as commons, cattle look sleek and healthy; much better, it is allowed, than they did, some years ago, in a remarkably wet summer; when, though they rolled in grass, they were poor as carrion.

SEASONS.

In a wet season, grass is watery—weak; in a dry one, it is rich and substantial; a great deal of nutriment being compressed into a small compass; the superiority of quality making up for the smallness of quantity.

## 54.

HANGING  
GATES.

JULY 12. (See MIN. 36.) But an inconveniency arises from setting a gate upright; by means of the BOTTOM THIMBLE, SOLELY. The bottom hooks are obliged to stand too far out of the post; thereby rendering them; if not made unnecessarily stout, liable to be bent, or loosened, and the fall of the gate to be destroyed. Yet I have never met with an instance of this evil being remedied, by setting the gate upright, with the TOP and

BOTTOM



BOTTOM THIMBLES, JOINTLY : raising the head, by lengthening the neck of the lower thimble ; and preventing its leaning, by turning the eye of the upper thimble, *toward the post* ; instead of placing it, as is usual, in the middle of the hartree.

54.  
HANGING  
GATES.

Being desirous, however, to give the required stiffness to the hinges, and, at the same time, to contrive a set of thimbles which would suit either side of the fence, (for the purposes already mentioned) I gave the subject extraordinary attention, and at length reached, what appears to be a degree of perfection, in the art of hanging FARM GATES : namely, that of setting the CENTER of the EYE of the BOTTOM THIMBLE, *two inches* behind the *middle* of the hartree ; and, instead of making one eye in the end of the TOP THIMBLE, as is usually done, to slit the end of the rod or bar out of which it is made, and, with the two straps, to turn TWO EYES, one on either side, with their CENTERS *three inches* apart, and, when fixed, *one inch* behind the *corner* of the hartree.

This plan, however, did not strike me, until I had nearly hung the whole of the gates I had made ; one only remaining un-  
hung.

54.  
HANGING  
GATES.

hung. This, however, has given me a fair, and sufficient, opportunity of proving the practicability of the principle. The upper hook is driven almost close home to the post; the *center of the pin* being only *one inch* from it; and the *center of the pin* of the lower hook, only *two and a half inches* from the post; altogether the stiffest gate hinge I have seen.

On hanging this gate, an inconveniency arose, which I had not foreseen: it would not open sufficiently wide; being prevented, equally, by the extra eye of the upper thimble, and by the arrice of the hartree: but, by rounding off *this*, and letting *that* into a notch or recess in the post, it may be made to open to the required width, and to stand at the required point, without falling one way or the other!

And another advantage of a gate hung on this principle, it may (when hung at a distance from obstructions) be thrown wholly open, by placing the contrary eye on the upper hook; and, in this case, it cannot, through wantonness or mistake, be shut! an advantage which never struck me, until I had hung the gate under notice!

How

How dark and difficult is the path of invention! Nevertheless, by grovelling along it, with attention and perseverance, we sometimes stumble on that which we are seeking; but, more frequently, on things we never thought of!

54.

HANGING  
GATES.

## 55.

JULY 20. Although I have pursued the study of BOTANY with greater eagerness, on account of its being closely allied with AGRICULTURE, I never *applied* it, until this year.

BOTANY.

In NORFOLK, I minuted the corn weeds; in GLOUCESTERSHIRE, I attempted (in 1783) to make a list of grasses; and, last year, I CULTIVATED all the GRASSES and LEGUMES I could pick up; but I never, until within these few days, went into a meadow or pasture ground, and collected a SPECIMEN of every plant growing in it, with a view to ascertain, in a summary way, the NATURAL HERBAGE of such meadow or pasture ground; and, now, I was led to it, by an incident: so blind and dull we are at disco-

55.  
BOTANY.

vering new roads, which, when known, are obvious, easy and short!

Being informed that a certain piece of ground, in this neighbourhood, is esteemed the best piece in it, for the cheese dairy, I determined to examine the herbage. The idea, and the method of putting it in practice, striking me in the hay field, I immediately set about collecting the grasses, and weeds, of the unmown part of the meadow I was in; and, finding it at once easy and amusing, I extended my observations to other grounds.

At first, I gathered only *one* fruit stalk, or leaf, of each plant; but finding, when I came to list the collection, that I was sometimes unable to recollect the proportional quantity of each species, I afterwards endeavoured to proportion the number of specimens of each plant, to the proportion it bore to the other plants of the piece.

In sorting and listing the specimens, I first separated the HERBAGE, or useful plants, from the WEEDS, or noxious plants; in digesting each of these classes, I disposed those of which I found the greatest number of specimens, first, and the single specimens last:  
and,

and, in listing them, I placed them down on the paper, in the same order in which they lay upon the table: so that those which stand at the head of each list, are the most common grasses, or weeds, growing in the ground to which the lists respectively belong.

Half an hour spent in collecting, and half an hour more in digesting and listing the specimens, is time enough for ascertaining, sufficiently, for the AGRICULTOR'S use, the herbage of a piece of meadow, or pasture land, of twenty acres.

#### HERBAGE OF MEADOWS\*.

##### *Grasses and Legumes.*

*Holcus lanatus*—meadow softgrass.

*Festuca elatior*—tall fescue.

*Pbleum nodosum*—bulbous catstail.

*Lolium perenne*—raygrass.

*Antboxanthum odoratum*—vernal.

H 2

*Alopecurus*

\* "MEADOWS:" dips, or shallow vallies, which have never been plowed; lying between swells of *arable* lands. The soil, a blackish loam, lying on a retentive clayey subsoil. The season dry. The several meadows from which this consolidated list is made, have formerly been "floated upward." See MIN. 27. Good hay ground: affording, in a common year, about a ton and a half of hay, an acre.

55.  
BOTANY.

- Alopecurus pratensis*—meadow foxtail.  
*Trifolium pratense*—meadow trefoil.  
*Plantago lanceolatus*—narrow plantain.  
*Ranunculus repens*—creeping crowfoot.  
*Poa trivialis*—common poe.  
*Cynofurus cristatus*—common dogstail.  
*Trifolium repens*—creeping trefoil.  
*Agrostis alba*—creeping bentgrafs.  
*Festuca duriuscula*—hard fescue.  
*Sanguisorba officinalis*—meadow burnet.  
*Lathyrus pratensis*—meadow vetchling.  
*Vicia sativa*—meadow vetch.  
*Dactylis glomerata*—orchardgrafs, or foggrafs.  
*Briza media*—tremblinggrafs.  
*Avena flavescens*—yellow oatgrafs.  
*Hordeum murinum*—common barleygrafs.  
*Lotus corniculatus*—birdsfoot trefoil.  
*Trifolium procumbens*—procumbent trefoil.  
*Heracleum sphondylium*—cowparsnep.

*Doubtful.*

*Achillea millefolium*—common milfoil.

*Weeds.*

- Ranunculus acris*—provincially “crowflower.”  
*Centaurea nigra*—provincially “cockheads.”  
*Rhinanthus crista-galli*—prov. “pennyweed.”

*Leontodon*

- Leontodon taraxacum*—dandelion.  
*Carduus palustris*—marsh thistle.  
*Hypochaeris radicata*—longrooted hawkweed.  
*Carex birta*—provincially “sharegrafs.”  
*Ghrysanthemum leucanth.*—oxeye daisy.  
*Rumex acetosa*—provincially “green fauce.”  
*Pucedanum silaus*—meadow saffrafas.  
*Carduus lanceolatus*—provin. “boar thistle.”  
*Rumex crispus*—curled dock.  
*Prunella vulgaris*—selfheal.  
*Bellis perennis*—common daisy.  
*Primula veris*—cowslip.  
*Betonica officinalis*—betony.  
*Tragopogon pratense*—goatsbeard.  
*Aira cæspitosa*—tufflock airgrafs.  
*Carices* ——— fedges.  
*Cineraria palustris*—marsh fleabane.  
*Potentilla anserina*—provin. “goose tansey.”  
*Polygonum persicaria*—prov. “willow weed.”  
*Cardamine pratensis*—common ladyfmock.  
*Lychnis flos-cuculi*—meadow campion.  
*Valeriana dioica*—marsh valerian.  
*Achillea ptarmica*—goofetongue.  
*Juncus effusus*—common rush.  
 ——— *inflexus*—wire rush.  
*Spiræa ulmaria*—meadowsweet.  
*Equisetum palustre*—provin. “joint grafs.”

55.

BOTANY.

55.  
BOTANY.

*Angelica sylvestris*—wild angelica.

*Myosotis scorpioides*—scorpion moufear.

*Lysimachia nummularia* \*—moneywort.

HERBAGE OF COOL MIDDLELAND †,

*Grasses and Legumes.*

*Cynosurus cristatus*—common dogstail,

*Holcus lanatus*—meadow softgrafs.

*Anthoxanthum odoratum*—vernal.

*Plantago lanceolatus*—narrow plantain

*Lolium perenne*—raygrafs.

*Lotus corniculatus*—birdsfoot trefoil.

*Trifolium repens*—creeping trefoil.

*Trifolium pratense*—meadow trefoil.

*Agrostis alba*—creeping bentgrafs.

*Festuca duriuscula*—hard fescue.

*Poa trivialis*—common poe.

*Poa annua*—dwarf poe.

*Bromus mollis*—soft brome-grafs.

*Avena flavescens*—yellow oatgrafs,

*Holcus mollis*—couchy softgrafs.

*Ranunculus repens*—creeping crowfoot.

*Lathyrus*

\* The last fifteen grow on the cooler moister parts, only.

† The soil a middle loam, on a moist retentive subsoil. Grafs and corn alternately. The grafs esteemed favorable to cheefe.



*Lathyrus pratensis*—meadow vetchling.

*Vicia cracca*—bluetufted vetch.

55.  
BOTANY.

*Doubtful.*

*Achillea millefolium*—common milfoil.

*Weeds.*

*Carex hirta*—hairy sedge.

*Cineraria palustris*—marsh fleabane.

*Potentilla anserina*—silverweed.

*Prunella vulgaris*—selfheal.

*Potentilla reptans*—creeping cinquefoil.

*Ranunculus acris*—common crowfoot.

*Carduus palustris*—meadow thistle.

*Serratula arvensis*—common thistle.

*Aira cæspitosa*—tuffock airgrass.

*Centaurea nigra*—meadow knobweed.

*Carices* ——— sedges.

*Hypochæris radicata*—longrooted hawkweed.

*Carduus lanceolatus*—spear thistle.

*Juncus effusus*—common rush.

*Juncus inflexus*—wire' rush.

*Gentiana centaurium*—centaury gentian.

*Rumex crispus*—curled dock\*.

H 4

HERBAGE

\* Docks. In this list, the dock stands last; because the pieces examined had been previously gone over with the docking iron. But if much of the turf of the district were

WEEDS

55.  
BOTANY.

## HERBAGE OF RICH MIDDLEGROUNDS \*.

*Grasses and Legumes.**Cynosurus cristatus*—common dogstail.*Lolium perenne*—raygrass.*Holcus*

WEEDS.

were to be examined, in this way, the dock would be found at the head of the list. And no wonder, while an idea, disgraceful to the district, remains unexploded; and while there are men weak enough, or slovenly enough, to suffer it to influence their practice.

This ingenious idea, which I have actually heard defended (and have too frequently seen it introduced into practice), is, that the best way of getting rid of docks on grass land is “to let them spend themselves by feeding!” that is to say, to let them feed themselves to death!!!

The *argument* held out is, that there are no docks on “old turf”—old grass land. It is however admitted that, although the “birds of the air” fly away with the principal part of the seed, the part beaten down, and trodden into the soil by stock, will grow, when the land is plowed up.

How truly absurd, then, is such an idea, in this country, where land is laid down to grass, with no other view than that of plowing it up again, in a few years.

\* Rich, sound, dry land: “Ammington-hall park-pieces:” in good preservation: free from anthills and rubbish: esteemed the best grazing ground in this country. Being all in pasture, and eaten very bare, at the time the specimens were gathered (17th July), the list may not be accurate: it is, however, sufficiently so to give a general idea of the herbage.

*Holcus lanatus*—meadow softgrass.

*Poa trivialis*—common poe.

*Agrostis capillaris*—fine bentgrass.

*Festuca duriuscula*—hard fescue.

*Plantago lanceolatus*—narrow plantain.

*Trifolium repens*—creeping trefoil.

——— *pratense*—meadow trefoil.

*Lotus corniculatus* †—birdsfoot trefoil.

*Lathyrus pratensis*—meadow vetchling.

*Avena flavescens*—yellow oatgrass.

*Dactylis glomerata*—orchardgrass, or foggrass.

*Ranunculus repens*—creeping crowfoot.

### Doubtful.

*Achillea millefolium*—common milfoil.

### Weeds.

† **LOTUS CORNICULATUS.** This plant, notwithstanding the extreme dryness of this season, flourishes in a singular manner, in the most exposed situations. On bowling greens and mown lawns, it is almost the only *green* herbage left (the daisy excepted), variegating their stone-colored surfaces, in some instances, beautifully.

In meadows and pasturegrounds, it is, this year, particularly abundant, or perhaps more accurately speaking, particularly conspicuous.

A very strong deep tap root is evidently the cause of its thus resisting drought.

Might not a productive variety of this plant be cultivated with profit, in dry burning situations?

55.

BOTANY.

*Weeds.**Centaurea nigra*—meadow knobweed.*Ranunculus acris*—common crowfoot.*Carduus lanceolatus*—spear thistle.*Serratula arvensis*—common thistle.*Urtica dioica*—common nettle.HERBAGE OF NEGLECTED OLD GRASS-  
LAND \*.*Grasses, &c.*

Similar to those of the foregoing lists ; varying with the quality of the soil, and subsoil.

*Weeds.*

Beside those last enumerated, the following are found in too great abundance.

*Cratægus oxyacantha*—hawthorn.*Prunus spinosa*—sloethorn.*Rosa arvensis*—white rose.*Rubus fruticosus*—common bramble.*Ulex europæus*—" gorse."*Anonis arvensis*—" hen gorse," or " fin."*Genista tinctoria*—" yellows."*Festuca*

\* Provincially, " OLD TURF," of which there are several pieces, still left, in the district ; and some of them in such a rough neglected state, that half the surface lies in little better than a state of waste.

*Festuca sylvatica*—wood fescue, or anthill  
grafs.

55.

BOTANY.

*Galium verum*—" joint grafs."

*Senecio jacobæa*—common ragwort.

*Daucus carota*—wild carrot.

*Rumex crispus*—curled dock.

*Aira cæspitosa*—tuffock airgrafs.

*Plantago major*—broad plantain.

*Potentilla anserina*—silverweed.

*Potentilla reptans*—creeping cinquefoil.

*Polygonum aviculare*—hogweed.

The unusual dryness of this summer is much against ascertaining, with precision, the herbage of a district; especially in PASTURE-GROUNDS; which are, this year, eaten to the quick: even the plants whose seedstems are usually most conspicuous; as the *crow-foots*, *yarrow*, *knobweed*, &c. are discoverable, by their root leaves, only!

This, by the way, is a striking evidence, that those plants, though they may not be *palatable*, are not *pernicious* to cattle; which never looked more *healthy*, than they do this year; and the specific qualities of plants, of every kind, are, in their nature, this year of peculiar strength,

To

55.  
BOTANY.

To ascertain the herbage of grass lands, with accuracy, the same ground should be gone over, twice : once, in the beginning of June, and again, in the latter end of July, or the beginning of August : if, however, circumstances will admit of only one observation, the middle of July seems to be the properest time, for pasture grounds, and the beginning of hay time, let it happen when it may, for mowing grounds.

For, at these times, the early grasses, tho' they may have shed their seeds, the stems, with their husks or chaf, still remain : the *vernal* is, now, as conspicuous as it was, when in blow ; the *meadow foxtail* the same ; and tho the autumnal grasses may not be yet in blow, their seedstems with their panicles are protruded (some few, perhaps, as the *panic grasses*, &c. excepted) ; and the more hurtful *weeds* are, at those times, sufficiently evident.

From the middle of June, to the middle of July, the *corn weeds*, also, are sufficiently apparent ; so that, of all others, this seems to be the fittest season for BOTANICAL EXCURSIONS, by a farmer : for it is the *principal* grasses, and the *prevailing weeds*, he wants

to know ; not the *scarce plants*, which, seldom occurring in the same piece, require the eye of the *botanist* to descry them. These are not objects of AGRICULTURAL BOTANY.

---

55.  
BOTANY.

From the foregoing lists it appears, that CHEESE of the first quality is made from cold land, foul with the rankest weeds. Cheese made from the second list has been, at six months old, “ as red at the edge as a cherry.”

DAIRY  
SOIL,  
and  
HERBAGE.

The cold lands about Caldwell, Coton, &c. are likewise noted for cheese; and, indeed, the entire line of country from hence to Burton, mostly a strong retentive soil, is esteemed “ famous land for cheese :” while, on the light sandy soils, west of the Tame, little or no cheese is made; except for “ family use.” And Norfolk, a light land country, is unfavorable to cheese.

Hence, if any inference, with respect to SOIL, can be drawn, from the observations I have hitherto been able to make, in this district, it is, that *strong, cool* lands are good, *dry, light* lands bad, for cheese. But see vol. i. p. 318.

And,

55.  
DAIRY  
SOIL,  
and  
HERBAGE.

And, with respect to HERBAGE, it is evident, that *dogstail*, *softgrafs*, *vernal*, *raygrafs*, and *ribgrafs*, afford good cheese; for these five species constitute nine tenths of the grasses, both of "Seckington Breach" and "Statfold Ridding;" in both of which *sharegrafs* and *fleabane* are predominant weeds: indeed, at present, the former has nearly half its surface occupied by weeds: the furrows, particularly, are filled with *fleabane*, *silverweed*, *sharegrafs*, and other *sedges*.

56.

HAY  
MAKING.

JULY 24. Finished hayharvest, yesterday. This has been an unusual haytime. The little grass, which grew, this summer, was all *substance*, containing but little *sap*; consequently, required a small portion of time and exposure, to fit it for the rick.

The great art, this year, has been in not making it too much; yet making it of a uniform dryness. This was not to be done, any other way, than by getting it together, into a body; that the seedstems and drier parts might absorb the little superfluous moisture,



moisture, which the leaves afforded ; and to carry it, before it was crisp ; while it yet remained flaccid.

Being aware of this, I raked it into *rows*, immediately after the sithing ; broke it, after the rakes, into *thick beds* ; turned it ; and formed it into *small cocks*, proportioned to its state of dryness : next day, broke it out again, into *thicker beds* ; turned ; and carried, —while nearly as green, as when it was cut. Yet the rick has scarcely heated enough, to make it settle, sufficiently.

It is observable, that hay, this year, did not “ weather :” even *burnet* kept its color, and a degree of toughness ; and the grasses in general, though quite dry, remained soft and flaccid : owing, most probably, to the richness or spiffitude of the sap ; not to any extraordinary humidity in the air ; the hygrometers keeping between 4° and 8° dry\*.

The

\* These particulars are published as a CAUTION to the makers of hay, in a DRY SEASON. I afterwards met with an instance, in which the hay of that year was found defective, in fattening quality : a circumstance which, I have not a doubt, was owing to its having been improperly managed : to its being suffered to stand too long, before it was cut, and in exposing it too much, afterwards.

56.

HAY  
MAKING.

56.  
PRODUCE  
of  
HAY.

The QUANTITY OF HAY, this year, is perhaps less than ever was known. From what I have seen, and from what information I have had, one third to one half of a ton, an acre, has been, in this neighbourhood, the average produce of lands, which, in a hay year, cut from two to three tons, an acre. Taking the district throughout, both as to MEADOW HAY and CLOVER, there is not, I apprehend, more than *one fifth* of a common crop\*.

57.

WATERING  
DUNG.

JULY 26. (See MIN. 45. and 47.) On examining another yard of manure, which had been piled, some time, and finding it, in parts, mouldy, and unfit to be set on the land, I had it re-turned and WATERED; burying the outsidés and dry parts in the middle of the piles; drenching it well with water, (the drainage of the yard) as it was turned

\* These circumstances are mentioned, to show the UNCERTAINTY OF SEASONS, in this country, and to prolong the remembrance of such a season, as may not happen again.

turned over ; carefully breaking every lump, and mixing the digested with the undigested parts ; finally, watering the surface, and clapping it smooth, and close, with the back of the shovel, to keep in the heat, and prevent the outsides from remaining in a state of strawiness.

57.

WATERING  
DUNG.

By the falling of the reservoir, I judge that the piles, about three feet high, have had about two inches deep of water ; calculating on a superficies equal to the bases of the piles.

The expence, of turning and watering fifty or sixty loads, has been six shillings : not three halfpence a load \*.

58.

JULY 27. It is well understood, in this country, that HORSES will, in a COMMON YEAR, thrive, at grass, with little or no WATER.

HORSES.

VOL. II.

I

But

\* I insert this, and the foregoing memoranda on the same subject ; because, the operation, I apprehend, is new ; and I am fully convinced that, on many occasions, THE WATERING OF DUNG may be practised, with great advantage.

58.            But this year has afforded an instance, that, HORSES. in a VERY DRY SEASON at least, horses require some water.

Mr. MOOR of Appleby had some colts, in a piece of grass, without water in it. They fell away, though their pasture was good. On being let out, they galloped to a drinking pool, and drank immoderately: and, having since been allowed water, their healthiness has returned.

## 59.

COUCHY  
FESCUE.

JULY 28. Observing, at a distance, a patch of a piece of OATS, on a neighbouring farm, going off, in a singular manner, I went to examine it; and found it to be a part, thinner than the rest, of which the ROOKS have taken possession, and broken the entire plot to the ground.

Examining farther, I found that this badly cropped part is extremely foul, with what is here called "BLACK TWITCH" (*festuca duriuscula*), while the rest of the piece is pretty free from it.

There

There is no perceptible peculiarity in the soil of this part ; and the mischief is probably owing, entirely, to this noxious plant : which, notwithstanding the extreme dryness of the season, flourishes, this summer, with extraordinary vigour.

A tuft, which I have in cultivation, among other grasses, and off which I cut the feed-stems, about a week ago, has already shot up a tussock, four or five inches high ! while the other grasses are most of them at a stand, for want of moisture.

This plant appears to set drought at defiance ; it will flourish even on the tops of walls ; and might, in much probability, be CULTIVATED, in the most EXPOSED SITUATIONS, and on the DRIEST SOILS.

Its herbage is not, I apprehend, of a good quality. But although it be neglected, among better grasses, it might, perhaps, in situations where no other grass will flourish, be cultivated with advantage.

59.

COUCHY  
FESCUE.

## 60.

SHEEP.

JULY 29. A striking specimen of what naturalists term ACCIDENTAL VARIETIES fell in my way, this morning.

Mr. WILLIAM MOOR of Thorp showed me a fourshear wedder, of the horned, black-faced, shortwooled breed; bred, as a "common" sheep, on Clifton heath; yet of extraordinary form and fatness!

Excepting three wedders of Mr. Bakewell, this is, I think, the fattest sheep I have touched. His "foreflank" is singularly full: his "kernel," too, is good. He is "cracked on the back;" and his rump is somewhat "cushioned!!"

## 61.

TURNEPS.

JULY 31. It is observable, this year, that turneps sown after a certain time—the middle of June—have universally miscarried; either through the droughtiness of the season, the "fly," or other cause.

It

It was observed, by the most incurious, that the early sown turneps, whether in the garden or the field, escaped unhurt by the "fly;" and this, notwithstanding the dryness of the season, which has generally been considered as its great encourager. See MIN. 43.

In examining the young plants of No. 2, I found two or three of these little vermin, upon many individual plants; and others upon the ground. With some difficulty I caught two of them; one of which I saved, sufficiently entire, to examine it under a glass.

This little mischievous insect is not, I find, a fly; but a BEETLE\*; bearing the following description:

The whole length of the body and head is from one twelfth to one tenth of an inch.

Its width, or breadth, about half its length.

The antennæ are of ten joints; and about two thirds of the length of the body.

The wing cases are concave, and join by two straight edges: their color a dark chocolate, with a stripe of yellow white, along

I 3 the

61.

TURNEP  
FLY.TURNEP  
BEETLE.

\* The *Chrysomela nemorum* of LINNEUS.

61.  
TURNEP  
BEETLE.

the middle ; occupying about one third of the surface ; which is dimpled, polished, and shell-like. Both sides the same. The texture, brittle as eggshell.

The wings are folded back, under the cases, being nearly twice their length ;—membranaceous, with two or three strong nerves, running about half their length. Their color is a light brown, or stone color : the nerves dark brown.

Legs—six—black : the two hind ones being clubbed upward.

Head and breast—black and polished.

Abdomen—the same, with four articulations.

In catching these beetles, I found I had bruised, on the underside of the leaves I caught them upon, a number of soft insects.

TURNEP  
APHIS.

This led me to take up a plant, carefully ; and, on examining the undersides of the leaves (the first or seedling leaves) I found them *paved* over with minute animals, of the genus APHIS, of different colors ; as yellow, green, black ; with two or three small long-winged flies ; all of them perfectly tame ; and, apparently, at feed.

This



This accounted for the mysteriously slow progress the feeding plants had made ; some of them having been in feed leaf, a week or ten days : yet had made no visible effort to get into rough leaf ; and this, notwithstanding they remained upon the ground, and looked tolerably healthy ; having no other marks of disease (to the eye looking down upon them), than some punctures, or pits, on their surfaces.

On more minute examination, under a glass, I find that the animalcules and the flies are individuals of the same insect, in different states.

Under one pair of feeding leaves, I counted more than fifty of these vermin : not *eating*, but *sucking* their juices, or sap, through long probosces ; by which they hung to the leaf, as leeches.

The flies bear this description :

The body and head—black, short, nearly eggshaped ; about one twentieth of an inch long : somewhat larger than a grain of mustard seed.

Wings—four : two very long ; standing high above the tail ; more than twice the length of the body : two very short ; not so

61.  
TURNEP  
APHIS.

long as the body: both pairs transparent, and strengthened by a few opaque straight nerves. The *shade*, coppery—elegant!

Antennæ—long, slender, tapering: the joints indistinct: the length three fourths that of the body. Color black.

Legs—six, of a lighter color than the body.

Proboscis—large, long, cylindrical, jointed, ending in a *point*, which the insect, in either state, inserts in the leaf. This, when the animal couches at feed, appears to issue from the abdomen; but, on being raised upon the legs, it evidently passes to the snout. In walking, it is carried under the belly; lying close to the thorax; reaching about half the length of the body.

Abdomen—nearly globular: flattened at the apex; with a minute black club, standing out on either side: which appendages and the proboscis are the same in the fly and the louse.

The propagation of this insect I have not yet been able to discover. From what I have already observed, it appears to be viviparous. The pits on the leaves are evidently eaten by the beetles; there is not the  
smallest

smallest remains of a nidus in any plant I have yet found them upon. They are plentiful upon a neighbour's plants, which are but just opened into leaf; and which have not yet a speck upon them.

The blades of selfsown oats, among the turneps, are covered with them: not less than a hundred on a blade! they are also in great abundance upon the *chenopodium viride* (fat-hen \*) and some I have found upon the bean. But upon these two plants, they appear to be larger and blacker: the very "BLACK BUG" "NEGRO"—here provincially "SMOTHER FLY"—with which beans are frequently infested,

These four are the only plants, upon which I have yet observed them †; but upon none of which there appears the smallest vestige of a nidus. Yet upon each of these plants they may be seen of every size; some of them apparently minute enough, to be brought

\* AUGUST 6. This plant flagged; and even bowed down under their weight.

† I afterwards observed them upon a species of the dandelion or the hawkweed tribe. Here, they were of a light chocolate color: somewhat the color of the plant they were upon.

61.

TURNEP  
APHIS.

61. brought forth alive. The smallest are of a cream color—the next green—the next redish green—the largest black.

TURNEP  
APHIS.

Examining a piece of early sown turneps, I found a number of the yellow TENTHREDO FLIES \* ; as well as BEETLES ; though the leaves were large ; the plants half grown.

TURNEP  
TENTHREDO.  
BEETLE.

The BEETLES were remarkably tame : many of them in pairs ; copulating, as the house flies ; leaping, from leaf to leaf, in pairs.

Their tameness, especially after I had remained a few moments in a kneeling posture among the plants, gave me an opportunity of observing their manner of leaping ; which is evidently effected by a spring with the hind legs (as that of the flea) without raising their wings to assist them,

## 62.

AFTER-  
GRASS.

AUGUST 2. Through the bareness of the pasture grounds, this summer, it has been the universal practice to put stock into mowing grounds, as soon as the hay was out.

In

\* See NORFOLK ; MIN. 122, &c.

In order to catch the little grass, the mowers left, before it should be burnt up, I followed the practice ; putting in the cows, and some Scotch bullocks.

Of the cows I heard no complaints ; but the bullocks, very obviously, received a check ; notwithstanding the lattermath was, to appearance, an infinitely better pasture, than that they were taken from.

Mr. —, on my mentioning this circumstance, said that he had experienced a similar effect, on his cows, which evidently fell off their milk, on being turned into his watered meadows.

This he considers the more extraordinary, as his meadows, having been kept moistened, were of course “ softer,” than those which have not been watered. For it seems to be a general idea, here, that the evil is effected by the “ stubs,” of the grasses and weeds mown off, “ stubbing” the noses of the cattle ; and thereby preventing their feeding freely, on the softer parts of the herbage.

Mr. — was very anxious, the other day, to make his men mow his meadows level and close, in order to get as much hay, and to leave as little bottom, as possible :—

“ for,”

62.

AFTER-  
GRASS,

62.      “for,” says he, “it does beace but little good ;  
 AFTER-GRASS. there’s so many plaguy stubs in it, they wont eat it.”

This idea has arisen, most probably, from the graziers having observed their feeders, and the dairymen their cows, shrink, on being put upon such pasturage ; and there may be some truth in the stubs being offensive to cattle. I am rather of opinion, however, that the principal cause of their not thriving arises from the INHERENT QUALITY of the GRASS, — rather than from the STATE in which the sith leaves it.

I recollect observing, on the cattle being turned in, how voraciously they fell to ; enjoying, for the first time, this summer, a mouthful of grass ; unmindful of the “ stubs.”

If we examine the remaining herbage of ground, recently mown, we find it consist, either of the STUBS and ROOTLEAVES of plants that have run up to seed,—or of weak UNDERLING PLANTS which have not been able to cope with their more powerful neighbours,—or of LATE-FLOWERING PLANTS.

‡ The quality of the *first* is, of course, injured by age, and by the strength of the root having been spent on the upper leaves,  
 fructi-

fructifications, and feeds. That of the *second* cannot be good: they are in a similar predicament to grafs growing under a hedge, or in a wood, checked in their growth, and shaded from the fun. And the *last* partakes, in some degree, of the same difadvantages; though, of the three classes, they probably contain the most nourishment.

Some of the bullocks, I observed, began to scour, and look thin: the grafs they had been taken from, though short, had received the full influence of the atmosphere, and the whole strength of the roots; and was, in consequence, this dry year, full of nourishment: while that which they were put into, though it was sufficiently plentiful to fill their stomachs, was deficient in the essential quality.

Upon the whole, it appears to be ineligible management, to put stock into recently mown grounds; unless on particular occasions; as in a year, like this, when cattle are starving in their summer pastures: for, it is probable, the browsing and the trampling check, considerably, the after shoots; the peculiarly nutritive quality of which is well known, in every country\*.

AUGUST

\* 1796. See WEST OF ENGLAND, Article AFTER-GRASS, for a practical Remark, on this subject.

62.

AFTER-GRASS.

## 63.

## POTATOES.

AUGUST 3. Mr. — showed me a pretty large piece of beautifully clean POTATOES, the JOINT PROPERTY of HIMSELF and his WORKMEN: *he* finding land, manure, and “setts;” *they* labor, from first to last; digging, planting, cleaning, and taking up: the produce to be equally divided.

His motive for adopting this mode of cultivation was, that he, having a variety of avocations, used to neglect his potatoes, and let them get foul: now, his men, not only take the labor off his hands, but the care off his head: his interest and their's are the same.

## 64.

SPREADING  
MOLD.

AUGUST 3. I am now spreading the bank-lets of mold, left by the sides of the trenches, cut in meadow No. 6. See MIN. 32.

The lattermath having been previously eaten off, the workmen throw the mold, tempered by last winter's frosts, and this summer's sun, as far as they can, with freedom: namely,  
about



about a rod wide, on each side of the trench: except where low hollow places occur, and there the mold is thrown into them; to level them up, and prevent, hereafter, water from lodging. See as above.

On the bottoms of the banklets, I sow ray-grass and white clover; raking in the seed, with a garden rake; first smoothing the ground; giving it a gentle dip toward the trench; and paring off the angle or brink, to prevent its being trodden into the trench.

What I gave tenpence, an acre, for making, I give fourpence or fivepence, for spreading, sowing, and raking.

The waste of mold is striking: it would not, now, more than half fill the trench. We have had no heavy rains to wash it away: and the wasting cannot be accounted for, perhaps, in any other way, than by the digesting of the roots.

- 64.

SPREADING  
MOLD.GRASSLAND  
MANAGE-  
MENT.

SOIL.

## 65.

AUGUST 3. This farm is remarked as being productive of MILDEWED or BLIGHTED WHEAT: namely, wheat with shrivelled grains,

BLIGHT  
of  
WHEAT.

65.  
BLIGHT  
of  
WHEAT.

grains, and generally with black straw: more particularly No. 2 and 3; the best land on the estate.

Old Barwell, who has known the farm fifty or sixty years, says he has observed, that the blight comes on, at once, about the latter end of July; and that wheat which is forward enough to be filled, by that time, escapes it: adding that the malady was not known, at least not common, in this district, until about twenty years ago.

Has it not been caused, or encouraged, by a succession of wet seasons? It is well known, that the disease is most injurious in a wet season; and hence, principally, the scarcity and advanced price of wheat, after such seasons. See MIN. 74.

## 66.

DRINKING  
POOLS.

AUGUST 3. I have embraced the present dry year, to scour out the drinking pools of this farm.

The OLD DRINKING PIT of this country is, like that of most others, a deep hole, with high banks on every side; saving a narrow inlet

inlet or two, that the cattle may creep in and out. These inlets are soon poached up, the water muddied, and underling cattle drink at them in fear; lest a master should come unawares, and force them into the pit.

66.

DRINKING  
POOLS.

The principle I have pursued has been nearly uniform, throughout. I have had the whole done, BY HAND, and mostly, *by the grofs*; and have endeavored to leave the pits (where the original form would admit of it) in the *bell* or *fireshovel* form: namely, with a wide open free mouth, for the cattle to drink at, and with a long deep recess, for the main reserve of water to lodge in: the best form, perhaps, especially on a gentle descent, which can be given to an oldfashioned drinking pool.

Emptying mud holes, with HORSES and CARTS, is one of the most unpleasant businesses belonging to a farm: horses lamed, carts broken, men out of humor, and the bottom of the pit, of course, torn to pieces. On the contrary, emptying them with BARROWS, and by MEN who understand the business, becomes an ordinary occurrence, and, upon the whole, a great saving; I mean, if the full extent of team labor, wear and tear, were to be calculated.

66.

DRINKING  
POOLS.

The methods which I adopted, and which only, perhaps, can be pursued with propriety, are these :

If the mouth be clear, and the pit sufficiently free from water, the workmen begin upon the softest mud, in the lowest part of the pit ; laying planks, in the form of the letter Y, to wheel upon ; with a cross plank, for the feet of the barrows to rest on.

But, where more water remains in the pit, than is useful to wet the spades, and make the mud work well, they begin, in a similar way, immediately above the water, and make a hole large enough to receive it. This done, they let in the water,—lay planks across the hole,—and proceed, as before, to empty the farthest side of the pit ; taking care to leave a wall of mud strong enough to support the cross plank, and to prevent the water from escaping, before the lowest part of the pit be emptied to receive it.

Where the mouth lies too high and full, so as to contract the pit, and make the drinking place too steep, I lower it : not, however, by wheeling away the earth ; but by turning it up into a pile, in the manner of compost ; beginning at the outer margin, and working

working the earth away from the pit, as much as conveniency will allow. Also, where the mouth is blocked up, with hillocks of earth (the former scourings of the pool), I proceed in the same manner; giving, at once, the required form; but leaving a pile of mold standing upon the margin of the pit; either to be re-turned and mixed with the mud, when stiffened; or to be carted away, for bottoming the farm yard, or dung heaps.

The prices have varied with the circumstances attending each pit. The whole expence, some three or four guineas; for which two or three hundred loads of manure have been raised; beside the advantage of commodious drinking pools, for many years to come, in almost every field of the farm.

## 67.

AUGUST 10. What a precarious employment, for a man to place his dependence on, is FARMING!

PROFESSION  
of  
AGRICUL-  
TURE.

The merchant may guard against winds and weather, and even the sailor may *ensure*

66.

DRINKING  
POOLS.

67.  
FARMING.

every thing, but his life ; while the farmer is left at the will of the elements, without any surety.

Four months ago, grazing stock was invaluable ; and graziers pockets full of money : all eager after lean stock, lest their grass should be left unlevel.

But, *for want of a few showers in the spring*, the reverse is, at present, the case : even fat stock is low ; owing to a number of half fat ones being obliged to be sent to market.

Mr. ———, one of the largest occupiers in the district, says, he shall this year sink his rent (from five to six hundred pounds!) : this, however, may be the language of despair or of policy : nevertheless, his loss, as the greatest *grazier* in the country, must be very considerable. It is probable that his feeders, if they pay him any thing, will not pay parish rates and contingent expences : so far as grazing goes, he will probably sink his rent ; and this must be the case of *graziers* in general. *Dairy farmers*, of the two, will be the best off : they have made sure of something ; and their cows are healthy, and going on in their usual track.

Farmers,

Farmers, in general, must this year feel, severely, the great FALL IN THE PRICE OF STOCK ; a fall which may continue, for some years ; and is an immediate loss of capital which every one must experience.

The disappointment has been nearly as great, with respect to CROPS \*. What pains I took, last year, to clean, and bring into proper tilth, the fallow of No. 9. and to manure and nurse the turneps of No. 1. But what a return ! The barley of the former is materially injured, by coming up at twice, and that of the latter still worse. A month ago, I despaired of its coming into ear ; or even of its reaching the sith, to be mown as a crop of hay ; — *through the want of a few showers in the spring.*

\* And the injury done to the crops, by the drought of autumn, spring, and early summer, was heightened by the extreme wetness of harvest ! Well might the oldest, and, in his day, one of the largest occupiers in the district exclaim, in the latter harvest, “ the last has been altogether the most awkward year for farmers I ever knew ; the wheats came up badly ; the barleys still worse ; hay there is none ; and the little corn there was, has been spoilt by the weather : and, as to grazing, I never in my life knew any thing like this year ! ”

67.  
FARMING.

This year, poor farmers, who had not money to buy stock, and slovens, who did not stir the moisture out of their lands, are in the best situation. This, however, is no argument in favor of poverty or slovenliness. For a sloven, to once right, is ten times wrong. A uniform perseverance, in that which he believes to be right, is much surer ground for a farmer to tread \*.

#### AUGUST

\* These facts and reflections are not published with a view to discourage men from the occupation of lands, but to place the business of husbandry in its true light. Such a year, as this under notice, seldom happens. A young man might begin farming, and live to a good old age, without experiencing such a year. Nevertheless, he ought, before he begin, to know the truth,—that such a year may happen.

The practice of throwing out flattering ideas, to draw men over to the profession of agriculture, is fraudulent; and, like other fraud, is founded in bad policy. Men allured, by false representations, become disgusted by disappointment; and the profession, instead of gaining, loses by the device.

An ART, which, in a state of society, is essentially necessary to human existence, and on which, as a PROFESSION, the immediate happiness of millions depends, can be founded, permanently, on truth alone.



## 68.

WATERING  
RIDGES.

AUGUST 14. The other day, I let off the water of the farmyard reservoir (see MIN.25.), conveying it over a wide ridge of the grass ground which lies below it, by a channel, or float, upon its top, agreeably to the practice of this country; stopping at every five or six yards; *the descent being somewhat considerable.*

This method of throwing water over land, lying in ridge and furrow, *pointing down a descent*, answers tolerably well; but it is partial, and is otherwise imperfect. The parts nearest the stops get the most water; and it is impossible to prevent some share of the water from running waste into the furrows.

In attending the operation, I observed, that a foot path, which crosses this ridge obliquely, caught the water, and, conducting it *back*, threw it regularly over the part below.

The thought occurred, that, by reflexing branch floats, upon a level, between the ridges and the furrows, the sides of the lands might be watered regularly; and this was

68.  
WATERING  
RIDGES.

followed by another; that, by a trench in each furrow, to collect the waste water, and conduct it into the branch floats below, no water would be lost.

This was succeeded by a third, which is evidently preferable to either, and saves the unsightliness and encumbrance of floats and stops upon the ridges, as well as some trouble in getting the head float *high* enough, to throw the water upon the tops of the lands: namely, that of conducting it down the FURROWS: making these at once the FLOATS and DRAINS; spreading it over the lands, by means of small channels, cut *level*, and of course in the form of bows or festoons, between furrow and furrow, at distances proportioned to the descent, and with curvatures adapted to the convexity, of the ridge to be watered.

To give the tops or ridges of the lands their due proportion of water, it becomes requisite to conduct it, a little way, along the ridge (or highest part, if the lands hang *side-way* on a slope) below each festoon, by the *point* of a trench; the same depth and width as the festoon channel, at the top; contracting

or tapering to a point, before it reach the next channel\*.

The stops in the furrows, at the end of each festoon, require, as those on the ridges in the common practice, to be partial; allowing each festoon a sufficiency of water, to cover the space below it; letting the remainder pass down to the lower festoons; that the upper and the lower ends of the lands may have an equal distribution of water.

68.

WATERING  
RIDGES.

69.

AUGUST 15. (See MIN.64.) To break the clods, and let the grass through the mold, women were set to work, with spreading rakes. But this, I find, is tedious, expensive, and ineffectual; some of the clods being too hard for this tool.

SPREADING  
MOLD.

*In future*, endeavour to take the clods between wet and dry; run them over with a roller, and a pair of light harrows fastened behind

\* These channels, being numerous, are tedious to be cut with a SPADE; but, in watering ridges, on a large scale, a BREAST PLOW might easily be adapted to the purpose.

69.  
SPREADING  
MOLD.

behind it : complete the pulverization, and level the surface with a SPREADING SLEDGE \* ; finally, rake off the undigested roots, &c. and carry them to the farmyard, to complete their digestion.

All possible dispatch should be used, at this time of the year, to work mold, or other manure, down to the roots of the grass ; relieving the blades from encumbrance ; and leaving them free for pasturing stock. The lattermath and winter feedage are, by this management, improved, rather than injured, by a SUMMER DRESSING.

## 70.

STAGGERS  
in  
HORSES.

AUGUST 15. The STAGGERS has of late been a prevalent disorder, among the farm horses of this district. Few large farmers have escaped. Mr. —, in his little way, has lost four : worth, probably, upwards of a hundred pounds. What a drawback on the profits of a small farm ! As much, perhaps, as the rent he pays ; and more, probably, than

\* See YORKSHIRE. Art. MOLDING SLEDGE.

than a year's profit. What folly in a farmer to lavish his capital on such costly and hazardous stock.

70.

BEASTS  
of  
LABOR.

## 71.

AUGUST 17. Much conveniency may sometimes be had at a small cost.

ROADS.

The sandy road through No. 7. having been cut, by heavy timber carriages, into deep ruts, I employed a man, with a garden rake and a hoe, to fill them up; by pulling the narrow ridges, raised on either side, into them. The seventy rods took him three or four hours.

Having a roller and a pair of harrows at work, in the next field, I had them drawn along the road; first hung together, twice in a place; and then, with the harrows upon the roller, once in a place; leaving the road as smooth and as round as a well kept gravel walk.

The team labor took two horses and a boy, an hour and a half. The whole expence about a shilling!

AUGUST

## 72.

GEESE  
in  
COW-  
GROUNDS.

AUGUST 21. There is an idea prevalent, here, that "GEESE are healthful things among cows;" and farmers in general, I believe, make a point of having a flock in their cow pastures: not, however, by way of sweetening the grass; but of PURIFYING the WATER.

The idea seems to be founded in nature; and the practice may have been raised on experience: the violent agitation which geese, and other water fowls, sometimes communicate to water, may be said to be nature's process, in purifying stagnant pools.

## 73.

COUCHY  
SOFT-  
GRASS.

AUGUST 24. *HOLCUS mollis*; or couchy softgrass. The oat stubble of No. 18. (succeeding a wheat stubble, to bring it into course) is overrun with this vile weed; the leaves shooting up, as high as the wheat stubble, and the soil full of its couchy roots.

In

In arable land, at least, this species of *holcus* is a great pest; and it is this species, probably, which has brought its sister, *lanatus*, into undeserved disrepute.

From what I have observed, in this country, *HOLCUS lanatus*; the COMMON SOFT-GRASS; the *white hayseeds* of Yorkshire; ranks high as a *pasture* plant,—for *cattle*, at least. No. 7. abounds with it: perhaps half the blade grass of that field is of this species: nevertheless, it is esteemed excellent for *cheese*; and, from my own experience, last year and this, I am convinced, that it is favorable to the *growing* of young heifers, and the *fattening* of Scotch bullocks. *Cattle* of every kind thrive well in it: but *horses*, I have observed, do not\*.

73.

COUCHY  
SOFT-  
GRASS.NATURAL  
GRASSES.

74.

AUGUST 25. (See MIN. 65.) A strong BLIGHT took place, the beginning of this month.

BLIGHT  
OF  
WHEAT.

The

\* It is not meant to recommend the cultivation of this grass, in situations in general; but to endeavour to give it its proper rank, among pasture grasses. Nevertheless, there may be some situations, in which it may be cultivated, with propriety.

CULTIV.  
HERBAGE.

74.  
BLIGHT  
OF  
WHEAT.

The straw of backward crops, whether of wheat or oats, is much discolored. Mr. ——— has a piece of backward wheat very much “cankered.” The headland of No. 3. backwarder than the rest of the piece, is touched. Mr. ——— says, the north side of the lands in Newton Field are a good deal mildewed, while the south sides are free from the disease\*.

It is evident from this, and every year’s observation, that the **FORWARDEST** wheats are least liable to be blighted: for, having passed some certain stage of maturation, they become invulnerable to the attack of this mischievous enemy: at least no obvious injury is incurred.

It

\* This is an interesting circumstance; as affording a strong evidence, that the effect is governed by the state of ripeness; and that a few days of forwardness may be sufficient to prevent the effect. For the south sides of ridges, though always forwarder, are seldom ripe more than a few days before the north side.

It may, however, be said, that the circumstance is only an evidence of the cause of the blight being brought from the north; or that an undue degree of dampness is more liable to hang on the north, than on the south sides of ridges. And the only inducement I have for publishing this Minute is that of bringing forward a subject, which requires to be discussed.



It is also observable, that, this year, no perceptible blight took place, while the DRY WEATHER continued: but no sooner was showery weather ushered in, than a blight became obvious.

The only guard the farmer has, against the attack of this secret enemy, appears to be that of SOWING EARLY. But query, may not something lie within the power of MANURE, or of TILLAGE?

74.  
BLIGHT  
OF  
WHEAT.

## 75.

AUGUST 25. How convenient to reap corn, by the threave. See vol. i. p. 166.

I had, this harvest, fifteen or sixteen reapers, in nine or ten sets, in a small field of seven acres. When they came near the finish, they cut off each other's "entails"—or ends of the lands: the whole finishing together; yet incurring no difficulty in settling their several earnings; though they worked by the gross: each set taking care of their own sheaves, and setting them up in their own row of shucks.

HARVEST-  
ING.

## 76.

SPEAR  
THISTLE.

AUGUST 28. The late showery weather has matured the seeds of the large spear thistle, and yesterday's dry air and warm sun have burst the heads, which now appear as large as the fist,—white and ragged—the seeds beginning to take wing.

The by lanes are beset with these sturdy weeds, and the feeding pieces, or pasture grounds, in general, abound with them: but most especially those of——, where there are beds of “boar thistles,” several acres in extent, strong enough for fox covers!

WEEDS.

Taking the pasture grounds, throughout this noble farm, nearly half their surfaces are covered, and more than half the soil occupied, by weeds!

What pity some law cannot be instituted against so flagrant a nuisance. I have been scrupulously careful that not a thistle (were it practicable) should seed upon *this* farm, both last summer and this. But what avail the solicitude, and the expence, while such a pest is in its neighbourhood? Calm as the weather has been, I have seen full-bodied seeds

seeds carried a considerable way over it. Should a strong — wind set in, more than half the farm must of necessity be seeded! The other part of this estate is in the same predicament. Were the whole in my occupation, I would not, for twenty pounds, so great an evil should befall it.

Surely, if an action of damages would not lie, in a case of this nature, an indictment in the court leet might be preferred for a nuisance.

As to the farm itself, it must receive an injury, this year, which will require a century to do away. There are not only beds of thistles, but thickets of docks, three or four feet high, for acres together! This dry summer has cleft the surface of the earth, to a great depth; and each cleft, in spots like these, must, in the nature of things, have swallowed down a potion, which will poison it for ages to come.

How much it behoves the managers of estates to look to the condition of farms, at this season of the year; to encourage cleanliness, and good husbandry; and to treat, with due severity, a slovenly tenant.

76.  
MANAGEM.  
of  
ESTATES.

Every lease, or other written agreement, for the occupation of lands, might well have a clause, laying penalties on SLOVENLINESS: to be ascertained as DILAPIDATIONS and WASTE.

77.

WEEDING  
STUBBLES.

AUGUST 30. In the wheat stubble of No. 3. some docks, overlooked by the weeders, were left standing by the reapers.

A boy, employed to frighten rooks from the snucks, took a pruning hook and a barrow into the field with him; and while he scared the birds, cut off (carefully so as not to shed the seed) and collected the docks.

Early in the morning, while the dew is on, or showery damp weather, is the fittest opportunity for this operation; and these are leisure times, when hands are of the least-value.

AUGUST

78.

AUGUST 30. The weather being unsettled, and unfit for mowing barley, I set the workmen, yesterday afternoon, to draw over some old thatch; the longest for thatching ricks, the next for stopping roofs, the refuse for the dunghill.

MINUTIAL  
MANAGEMENT.

This morning, they are pruning hedges, mowing weeds, opening watercourses, setting up posts and rails in piles, to prevent their rotting on the ground, and to free the grass among which they lie scattered, &c. &c. &c.

The difference between a husbandly NEATNESS, and a wasteful SLOVENLINESS, wide as it is, lies chiefly in being attentive to MINUTIÆ; and in making the most of a BROKEN DAY; which, especially at this season of the year, is too frequently spent in idleness, when it might be employed in useful purposes\*.

ELEMENTS  
of  
PRACTICE.

L 2 AUGUST

\* This, as well as the last and the ensuing minutes, may serve as hints to young farmers.

## 79.

HOING  
TURNEPS.

AUGUST 30. It is generally bad management to HOE TURNEPS in MOIST WEATHER; unless when the plants are taking harm, by crowding each other.

The plants of No. 5. stand much in clusters. I have therefore given the hoers (who have taken them by the acre) in choice, whether they will desist, entirely, or "thin the clusters;" and go over the whole, again, when the surface becomes dry. This, though more trouble, than going over them only once, they have chosen, in preference to lying idle; and the plants, now ready to run up, will receive considerable benefit, from this timely operation.

## 80.

## GLEANING.

SEPTEMBER 5. Last harvest and this, I have adhered to my accustomed rule, of suffering no GLEANING, until the shucks be carried: which is, I find, an established practice, with many farmers of this district.

This

This harvest, however, has shook the principle on which I have grounded my conduct.

80.  
GLEANNING.

Heretofore, I have considered the admission of children among sheaves, and unbound corn, as introducing them into the school of theft. Their parents expect some certain quantity of corn to be carried home. If this quantity fall short, correction follows of course. To obtain this quantity, fairly, requires an exertion, and a degree of labor, which they find irksome; but collecting it, from the sheaves, or the unbound corn, is an easy task: and having, thus early in life, established the fact upon experience, that it is easier to steal their bread, than to work for it, it is to be feared, that some of them, at least, retain the principle.

But my experience, this year, has taught me, that forbidding gleanings, until the shucks be out of the field, is not only productive of another species of theft; (that of breaking into the field by stealth, when no one is there, to give an eye to their actions; and, of course, proving an encouragement, rather than a check, to dishonesty;) but incurs a waste of corn: for that which was

80.  
GLEANNING.

left, in this instance, after the corn was carried, was scarcely worth picking up. The rooks, partridges, small birds, mice, and other vermin had pillaged it of its better part: and this must always be the case; though it never struck me, so obviously, as it has done this year.

What line can be drawn? What rule of conduct be laid down? The ears of wheat which are scattered, unavoidably, in greater or less quantity, in reaping the crop, have been considered, time immemorial, as the perquisite of the poor. To debar them from collecting such scattered corn, and to give it to vermin, cannot be right. It is not only a present relief to them; but the act of gathering it is, or might I should think be rendered, a school of industry, and, perhaps, of honesty,

Thus: permit the gleaners to follow the reapers; but let a watchful eye be kept over them; and treat, without lenity, every attempt at pilfering.

This, upon children, at least, might have a good effect; by teaching them, at an age when lessons make deep impressions, that dishonesty and disgrace are inseparable.



One rule, I am certain, ought to be rigidly attended to. No person should be permitted to GLEAN, who is able to REAP. GLEANING ought, most undoubtedly, to be considered as an exclusive privilege of CHILDREN, CRIPPLES, and SUPERANNUATED REAPERS.

What a loss the neglect of such a regulation is to this country! Some hundred pounds are annually carried out of it, by itinerant reapers: whereas, if every woman, who is indigent and able to work, were, in this country, as in Yorkshire, to carry a sickle into the field, every sixpence of it might be saved.

In Yorkshire, all the wheat, generally speaking, is reaped by WOMEN. There, a young woman would be ashamed to be seen gleaning; and the actual disgrace is equal, in any other country. There are few places, I apprehend, where there are not children and old people, enow, to do the honest part of gleaning.

By thus securing the gleaning to the CHILDREN, and immediate PAUPERS, and paying the wages of REAPING to their OWN PARISHIONERS,—their laborers wives and daughters,—the occupiers, it is highly probable, would feel the benefit of such a regulation,

80.

GLEANNING.

FEMALE  
REAPERS.

80.

FEMALE  
REAPERS.

gulation, in their poor rates; and the poor, at the same time, be rendered, by habits of industry, more valuable members of society.

82.

SEASON  
of  
SOWING.

SEPTEMBER 9. This year, I grew ten or twelve acres of OATS, on a foul wheat stubble, once plowed; by way of bringing it into course, for fallow next year.

About two acres (a cool moist part of the piece) were sown the 7th April; the whole being plowed in March. But the remainder of the piece I suffered to lie unsown, for two reasons: the dryness of the soil, and the backwardness of the season: the fallow did not blow, before the 16th April; nor did the grosbery foliate, before that time.

Nevertheless, I finished sowing the 18th April, to endeavour to hit the middle way between the SEASON and the SUN; for, although I am clearly of opinion, that the latter ought not to be wholly attended to; yet, it is more than probable, that it should not be wholly disregarded: because, when the season is backward, it is generally rapid; and  
although

although oats, for instance, may be sown by the fallow; yet, before they have had time to prepare for a state of *vegetation*, and to struggle through the soil, the hawthorn may (as it did this year) have foliated: and it is, probably, the *emergence* of the plant, not the *deposit of the seed*, which ought to keep pace with NATURAL VEGETATION.

82.

SEASON  
of  
SOWING.

All the oats in the country (Mr.———'s perhaps only excepted) were sown before the SALLOW BLOWED: in general, between the 1st and the 15th April.

Those which were sown early, and immediately after the plow, before the frost had taken the surface, came away, at once, and looked beautifully: while those of No. 17, sown by the SALLOW, came up in plots, and had a mean appearance.

The plants, however, which rose, were strong, and of a good color, with the ribbon broad; and, when the panicles were protruded, they proved large and fruitful: so that, before harvest, they put on the appearance,—notwithstanding the season and the state of the soil,—of a tolerably full crop: while those, which had been sown, early,  
and

§ 2.  
SEASON  
of  
SOWING.

and looked so beautifully in the spring, dwindled away; becoming weak, and thin; and, when mown, afforded no swath. Neither Mr. — nor Mr. —, I apprehend, had a load an acre; notwithstanding the soil was evenly occupied: while in No. 17, where not half the seed vegetated, at the time of sowing, and where, in many places, not half the soil was occupied, there was from a load to a load and a half an acre. Had the whole of the seed vegetated, at the time of sowing (and that it did not vegetate then, was not owing to the *lateness* but the *dryness* of the season), there would, in all probability, have been, notwithstanding the droughtiness of the summer, and the low condition of the soil, two or three loads, an acre.

The part sown, first, though peculiarly moist and cool, and fully furnished with plants, bore no greater burden, and much less luxuriant plants, than the part sown last; though of a drier nature, and not half covered.

Therefore, this year's experience, with OATS, has strengthened my opinion, of the propriety of sowing, by the SEASON, rather than by the SUN.

However,

However, for the reason mentioned, it may be prudent, in an *early* season, to *follow*, in a *late* one, to *precede*, the PROGRESS OF SPRING.

It may, nevertheless, be proper to remember, that this caution is drawn from *reason*, and not from the *experience of this year*: for the oats, sown two days after the blowing of the fallow, were evidently stronger, more healthy plants, than those sown three days, before that circumstance took place.

It is observable, however, that the part sown first, was first ripe; and that the TIME OF RIPENING, throughout the country, corresponded, in this instance, with the TIME OF SOWING.

Many oats, in different parts of the district, have this year been "SHEAVED:" namely, mown *outward*, gathered from the swaths, bound, and shucked; in order to be cut, with greater propriety, into chaf, or "cutmeat," for horses, &c. &c. this year of scarcity of hay. Sheaf corn lies straighter in the cutting box, and is of course less liable to be cut at a double, than loose corn.

The common price has been five shillings, an acre, for mowing, binding, shucking, and raking. I had

82.

SEASON  
of  
SOWING.HARVEST-  
ING  
OATS.

82.  
HARVEST-  
ING  
OATS.

I had a few acres harvested, in this way; partly for the purpose of cutting; and, in part, to secure the fodder, and to put it, as much as possible, out of harm's way, this hazardous harvest. The rest I harvested in swath.

The whole received a considerable quantity of wet; and those which were exposed, in swath, were of course considerably hurt; the corn discolored and the straw weathered;—while those in the sheaves were little, or not at all, worse for the weather. The superior quality of the straw, of those which were sheaved, is, this extremely scarce year for fodder, worth ten times the extra labor. Indeed, if turning, cocking, extra trouble in carrying and ricking, the extra shedding, and the raking after the carriage, be taken into the calculation, the saving, perhaps, would be found on the side of the sheaves.

Of this, at least, there is no doubt, that, in unsettled weather, the SHEAVING OF OATS, if hands can be got, is incomparably better management, than exposing them in swath. For, if mown oats be carefully gathered, and somewhat loosely tied, in small sheaves, carefully set up, and securely covered, scarcely any weather will hurt them.

In the harvesting of OATS, the primary objects, to be attended to, are the *color* of the grain, and the *sweetness* of the fodder. *Clean thrashing* is a secondary consideration: for, if a few light grains be left in the straw of *oats*, the fodder is the better, and the sample more sightly.

Hence, OATS should be harvested, as much as may be, in the *shade* (see MIN. 10), and, of course, in COVERED SHUCKS, rather than in SWATHS, or in SINGLE SHEAVES. See YORKSHIRE; section HARVESTING.

But, in harvesting WHEAT, different considerations take the lead. The *color* is not an object; while *thrashing clean* is of the first importance: for the grains, which are left in the straw of *wheat*, are not only lost, but the thatch is injured by them.

Hence, WHEAT cannot be exposed too much to the weather, provided it is not injured by sprouting: nor OATS be dried too much in the shade; provided they will thrash, without very extraordinary labor.

A penny or twopence, a quarter, in the price of thrashing oats, is inconsiderable, compared with sweet fodder, and a bright sample.

82.

HARVEST-  
ING  
OATS.HARVEST-  
ING  
WHEAT.HARVEST-  
ING  
OATS.

Oats

82.  
HARVEST-  
ING  
OATS.

Oats in shucks, well covered, are nearly as safe, in the field, as in the rick yard; and it matters not, whether they remain there, a week, a month, or a longer time; provided, in the end, they be carried perfectly dry.

83.

HARVEST-  
ING  
BARLEY.

SEPTEMBER 11. The BARLEY, at length, is mostly harvested: except some late-sown pieces: and some which, coming up at twice, is suffered to stand, to let the second crop mature.

Very little, however, stands in the latter predicament. I have seen barley cut, even a week or ten days ago, literally as green as grass! and carried before it was half dry: neither corn nor hay! and this, probably, because its owner would not have it said, that he was behind his neighbours: the struggle throughout harvest, whether of hay or corn, being about who shall finish *first*: no matter *how*!

This has been a difficult barley harvest; and, it is highly probable, that, got in the condition it mostly has been, not half the  
barley



barley grown in the district will MAIT. Whereas, under common good management, the weather has been such, that most, if not all, of the early ripe barlies might, I apprehend, have been rendered fit for the maltster's use.

83.

HARVESTING  
ING  
BARLEY

But the injury done to the grain is, this year, the smallest crime: spoiling the straw, when FODDER is inestimable, is a crime, not only in husbandry, but against the community.

From the state in which I have seen barley carried, and from what I have gathered on the subject, in conversation, it is probable, that the majority of the barley, of this year, will come out of the mow or rick, *mouldy*, or *mow burnt*.

Mr. — of — had a rick which fortunately fell down; otherwise, it seems, it must have taken fire. One of his tenants, taking the alarm, pulled some out of a barn, which was in a similar or a worse state. And Mr. — of — thought it prudent to do away the risk of setting his barn on fire, by a similar expedient\*.

The

\* It came out afterward, that Mr. — of — (one of the largest, and called the best, farmer in the country)

spoilt

83.  
HARVEST-  
ING  
BARLEY.

The fact is, the barley of this year has heated more than usual; and for an obvious reason. Although the first crop might be thoroughly ripe when cut, the second (which almost all barlies had more or less), and perhaps a third, were in a grassy succulent state; and not being allowed time enough to weather, nor a sufficiency of sun and air to render it crisp at the time of carrying, it was, of course, carried heavy, soft, and full of sap; and if not cold enough, to run into cakes of mould, generated, of course, an undue degree of fermentation. A hint, this, to the harvesters of barley, under similar circumstances.

84.

TURNIP  
BEETLES.

SEPTEMBER 12. *August 7.* Caught seven TURNIP BEETLES; (see MIN. 61.) put them into a phial; and fed them with slips of leaves of fullgrown turneps.

*August*

spoilt the greatest part of his crop! also Mr. — and Mr. —, both maltsters!! also Mr. — and Mr. —; and at length, that there was scarcely a farmer in the country, who had not “pulled to pieces!” What a lesson, this, to the harvesters of barley!

*August 9.* Some eggs excluded, and stuck to the side of the bottle; resembling the eggs of common flies,—flyblows.

*August 14.* Five still living, and active: (two escaped.) They have grown very considerably:

*August 19.* By way of experiment, fed them with young turneps, in different states. They prefer young seed leaves to those which are older; and to young rough leaves.

In feeding, they begin upon the *sides* of large leaves (even seed leaves), eating them into pits, or sometimes through into holes; but of young tender seedling leaves, just burst from the seed, they begin upon the *edge*; taking it between their forceps, and pinching it off, piece after piece, very dextrously.

They are not, however, voracious:—a very small quantity, even of this delicate food, satisfies them. I apprehend, that one pair of very small seed leaves would last one of them two days.

*August 21.* They have eaten a young tender rough leaf almost up; little more than the nerves remaining; while the seed

84.

TURNEP  
BEETLES.

84.  
TURNEP  
BEETLES.

leaves of the same plant are untouched ; having, it is probable, become stale and unpalatable.

Continued to feed them with slips of large leaves ; sometimes neglecting them, perhaps, for three or four days ; until the slips became dry and shrivelled : nevertheless, in this state, they fed upon them.

*September 8.* One died : perhaps weak, through want of food ; and, getting itself *attracted* to the bottle, in a drop of dew, exuded from the slips of leaves, could not extricate itself.

*September 11.* My curiosity being gratified, by five weeks observation, and lest similar accidents might happen, through neglect, I smothered the remaining four with sulphur.

When we reflect on the small quantity of food these little insects eat at a meal, it seems almost incredible, that a crop of turneps should be destroyed by them. If they ever do cut off a crop, of which I begin to have my doubts, their number must not only be immense, but they must take the plants in some critical state ; either at the instant the seed leaves are unfolding, or in the moment  
when

when the rough leaves are bursting forth ; while each germ is but yet a meal.

But even admitting this last to be the case, they can devour only a certain quantity ; and the most effectual remedy, or prevention of the evil, appears to be that of providing enough for them to eat, and enough to leave : that is, to sow a sufficient quantity of seed, to raise plants enow for the beetles, and enow more for a crop.

ONE POUND OF SEED, sown broadcast, let it be sown ever so skilfully, is barely enough for a crop ; and affords not, of course, a plant for the beetles ; or, if the beetles choose to partake, there remain too few for a crop.

The beetles, however, seldom clear the ground entirely. From which may be inferred, that a pound of seed is sufficient for them : and it appears to be no more than common prudence, to sow, at least, TWO POUNDS OF SEED, instead of one ; the usual quantity of this district. In a difficult season, THREE POUNDS, an acre, I am of opinion, ought to be sown.

I am clearly of opinion, however, from the foregoing experiments on the beetle, as

84.  
TURNIP  
BEETLES.

well as from my experience, this year, in the field,—and from ample observations, on the infant crop of CLOVER, as well as of TURNEPS, during the last fifteen years,—that the blame is frequently thrown upon the “fly,” when the destruction of these crops is owing to some other cause.

A concurrence of circumstances, this year, tend to show, that the cause originates in the SEASON.

Turneps, sown during the former part of June, succeeded,—escaped in a manner unhurt,—because, at the beginning of the month, the soil had been moistened, nearly plow deep, by rains which then fell. The seeds of course vegetated, and the young plants, finding a sufficiency of *moisture* within *the soil*, struck downward, pushed out their rough leaves, and throve, notwithstanding the *dryness of the air, and surface*.

I recollect an observation made, at that time, by an observant and superior manager, that it is not *dry weather*, alone, which renders the “fly” mischievous; but *showers in a dry season*; and, dropping the idea of the fly, there may be much truth in the observation.

Thus,

Thus, the moisture of the soil, given by the rain of May-June, being exhausted, by a fortnight's dry weather, turneps, sown after the middle of June, (see MIN. 61.) either came up partially, or did not vegetate, until some thunder showers fell, in July; when loud complaints, from every quarter, were heard against the "fly."

The cause of destruction, in this case, appears evidently. These showers, none of which, perhaps, moistened the soil more than two inches deep, were sufficient to induce the seed to vegetate; but, by the time the seed leaves were formed, the moisture was wholly drawn off, by the intervening days of drought; and the plants, deprived of nourishment, passed away, as by a charm; parched up, as in an oven.

Again, those sown the first week in August (see MIN. 87.) after the steeping rain of the third of that month, flourished, in defiance of the united force of insects; because the soil was fully and *permanently* (not transiently) moist. The seed vegetated, the infant plants pushed on, into rough leaf, and might be said to rise without a check; notwithstanding

84.

TURNEP  
BEETLES.

84. the beetle, the aphis, and the tenthredo, were in force \*.

TURNEP  
EETLES.

Also,

\* Since these Minutes were written, a *discovery* has been made, corroborating the above idea, that the "FLY" is not guilty of all the mischief, which is commonly laid to its charge; but attributing the latent cause of injury, not to the SEASON, but to a SLUG: rolling in the night being recommended as a remedy.

That slugs are destructive of crops, in their tender state, is well known to the gardener, and, in some instances, to the farmer; particularly to the growers of flax (see YORKSHIRE, Sect. FLAX.)

In this case, however, the crop succeeds *sward*, which may be supposed to be full of slugs and other vermin. But how a *fallow*, which has been, or ought to have been, some days or weeks, exposed to the sun and winds, without any thing vegetable upon it to support slugs, should nevertheless contain, enow, to eat up a turnep crop, in a day or a night, is not quite so evident. And how, in any case, they should be led to cut off a crop, in twentyfour hours, which for several days, perhaps, they had left untouched (for in such way an infant turnep crop too frequently makes its exit), is still more mysterious. Their motion is slow, even to a proverb;—they have neither wings to fly, nor feet to walk; they are, of course, bred in or near the soil they inhabit, and, as other animals, feed, no doubt, daily and progressively.

I do not mean to say that the slug is not an enemy to the turnep crop, especially on fresh ground, which has not been sodburnt, as well as on ill made fallows; on which, it is highly probable, they are, as the beetle, every year, and

in





84. TURNEP  
TEN-  
THREDO. cleaned. Both of them lively, though the morning is cold. Warmed the bottle, by holding it in the palm of the hand: they presently gave a proof of their health and *vigour*.

From the observations and reflections, on these mischievous insects, this year, the most probable means of avoiding their mischief appear to be those of observing the coming of the flies, and, as soon as they disappear, mowing off the leaves of the plants: thus destroying, with certainty, the caterpillars in the nidus state.

TURNEP  
APHIS.

Also, on *August 7*, placed, in a third phial, some seed leaves, beset with aphides, both in the larva and the fly state.

The leaves in a few days withered, and the larvæ died.

*August 11*. Two of the flies alive. Put in a fresh piece of leaf. The same day, perceived a minute animal upon this piece of fresh leaf; and presently afterward (in the course of a few minutes) another; both of them *perfect* and *active*.

*August 15*. Found a fly, with a white egglike cist fixed under its abdomen. And  
another

another (dead and fixed to a blade of oats), which has all the appearance of pregnancy.

*August 19.* I find a fresh brood, among the young plants of the second sowing; but they are not so numerous as on the first.

After this time, some heavy showers and cold nights checked their mischief, and most of the turneps, sown the beginning of August, received little injury from them.

This appears to be a *new* enemy of the turnep crop. It has not at least, been *observed*, I apprehend, in this or any other district, before this year. Or, perhaps, they have been more numerous, this year, than was ever known before. Lying close on the underside of the leaves, a few may pass unnoticed.

AS TO A PREVENTIVE, OR A REMEDY of the evil effects of these insects, should they occur again in the abundance they did this year, none perhaps, altogether effectual, can be applied with certainty. Being, in the larval state especially, extremely soft, tender, and easily crushed, a light roller (especially if muffled in some soft elastic covering so as to press in between the clods) might, perhaps,

84.

TURNEP  
APHIS.

haps, be sufficiently effective in destroying the insects, without being injurious to the plants\*.

## 85.

CREEPING  
CROWFOOT.

SEPTEMBER 13. Observing the DAIRY cows neglect a tolerably good grafs pasture, for an oat stubble, which appeared to have nothing but *weeds* to invite them, I went among them, to discover what plant was their inducement.

The oats having succeeded wheat (see MIN. 82.), the ridges, in plowing for the oats, had been rebacked up; and, to prevent their lying too sharp, the first pair of furrows had been dropt somewhat short of each other; leaving in some places a narrow stripe or seam, upon each ridge, unmoved and uncovered. Of these seams the CREEPING CROWFOOT, with which the wheat stubble abounded, had taken full possession; having formed a mat of herbage on each ridge; and the cows, each taking her ridge, were

\* See NORFOLK, MIN. 122. for an instance in which a heavy roller, run two or three times over young turneps, did not appear to be injurious, to the growth of the plants.

were tracing these lines of herbage. A farther evidence, that the *RANUNCULUS REPENS* is a valuable species of herbage. See GLOUCESTERSHIRE;—LIST OF MEADOW PLANTS.

85.

CREEPING  
CROWFOOT.

86.

SEPTEMBER 16. I am now manuring the young grasses of No. 9. (off which the barley is just carried) with a pile of compost, *created*, in a manner, out of nothing: the sweepings of the rickyard, hovels and other holes and corners (which have not, probably, been cleared for many years past), thrown into a mudpit to digest: also rubbish from buildings and repairs, &c. &c.

RAISING  
MANURE.

It has had some labor and attention bestowed upon it; but not equivalent to one fourth of its present value. About fifty cart loads of rich and ripe compost\*.

SEP-

\* This, not by way of blazoning my own industry, but of stimulating that of others.

## 87.

CULTURE  
of  
TURNEPS.

SEPTEMBER 25. Yesterday, finished the hoing of turneps.

The probable scarcity of winter food induced me to convert the intended summer fallow of No. 5.—an unpardonably foul new ley—into a turnep fallow.

This foul piece of land was broken up, the second week in June; crossed, in the second week of July; manured, harrowed, rolled-and-harrowed, plowed, and sown, the first week in August.

Notwithstanding the rolling, harrowing, and rain, the surface remained rough, after sowing; some of the clods being yet unsubdued; and the roots and stems of the grasses and weeds remained entire, though to appearance dead.

The seed, however, vegetated, and the plants came away, with unusual vigour and firmness: I never saw seedling leaves so large and luxuriant: while those from the re-sowing of No. 2. a much richer and a much *finer* fallow, were small and weak.

If one may venture to reason upon this capricious crop, the firmness (luxuriance, succulency) of the former was owing to the POROUSNESS of the SOIL, given by the unreduced clods and vegetable substances, intermixed with the mold; and the weakness of the latter, to too great a fineness and *cleanness* of soil, which, falling under the harrow into a compact state, became too close and suffocating to an infant plant, which seems to delight in an open soil, and a free supply of air.

It was a general observation, at the time, that young plants, growing on land which had been sown only once, were much stronger, than those on land, which, having missed the first sowing, had been resown; and which had, of course, been reduced to a fine pulverous tilth\*.

Observing, last year, in No. 1. that a space on each side of the INTERFURROWS, of a width proportioned to the degree of flatness and wetness of the soil, was left destitute of turneps, owing to the moisture which settled down

\* For another instance of undigested vegetables being serviceable to young turneps, see NORFOLK, MIN. 71.

87.

CULTURE  
of  
TURNEPS.

87.  
CULTURE  
of  
TURNEPS.

down the sides of the lands, as well as to a coldness and poverty of soil, which will always take place when land, anyway retentive, is raised into high wide ridges, agreeably to the practice of this district,—also observing, this year, in No. 5. that some of the couch, which had been drawn to the surface, by the harrow, had, notwithstanding its apparent deadness, begun to shoot,—I plowed two bouts (two pairs of furrows) in each interfurrow of this piece, and, picking off the couch from the sides of the lands, threw it upon the landlets thus formed in the interfurrows\*.

There is a fourfold advantage arising from this point of management. The cleansing of the land (the interfurrows most particularly), encreasing the turnep-growing surface (last year there was, on a par, a yard's width on each side of every furrow without turneps upon it, or bearing such as were not worth carrying off), lessening the quantity of HOING (which I had done cheaper on this account),

\* This furnishes an evidence, were any evidence required, that, when land is *very foul*, even a TURNER FALLOW, in a dry season, is inadequate to the purpose of cleansing it.



account), and laying the sides of the lands dry, during winter.

The QUANTITY OF SEED, throughout, has been *one* pound, an acre: excepting on one land which was, by way of experiment, sown at the rate of *three* pounds an acre. (See MIN. 84.) The result of which is, that, while the rest of the piece is scattered with "galls," or vacant places, this land has not, generally speaking, a plant wanting.

Began HOING the 26th of August,—at five shillings, an acre, with ale and beer: to be hoed with six inch hoes; all the ground to be cut over; and the plants to be set out close, as nine or ten inches; the season being too far spent to expect a great size of root.

Never, perhaps, did plants grow so rapidly, as the first hoed ones of this piece: and it is a striking circumstance, in favor of HOING (*turneps*), that the growth and size of the plants did not keep pace, or succeed each other, according to the times of *sowing*, but followed the *hoe*, with great exactness. The regular succession was broken, by thinning the clusters of part only (see MIN. 79.). And, what is equally interesting, and in favor of hoing, *early*; those hoed the first day are,

in

87.

CULTURE  
of  
TURNEPS.

HOING  
TURNEPS.

87.  
HOING  
TURNEPS.

in appearance, several weeks forwarder than those hoed the last; the tops and roots three times the size; though there was but one week's difference in the time of hoing! The difference, indeed, is so striking, and so regular, that the day of hoing might almost be known, by the size of the plants: a circumstance to be accounted for, only, in the rapidity of their growth, in this instance. For the weather being, at once, showery, warm, and *windy*, such a strength of vegetation took place as I have seldom seen. The plants doubled their size, in the course of a few days; so that the clusters began to run up; and no hoers were to be had, to thin them.

This was a predicament which required an expedient. For all the latefown turneps in the country being in a similar state, the few hoers, the country affords, were employed.

Having no alternative; I ordered the smith to cut up an old sithie, into three turnep hoes; which he did, in the course of a few hours; and, the 14th September, set three laborers to work—men who, generally speaking, never had hoe in hand—to thin  
the

the clusters: and, the weather continuing fine, and the plants continuing to thrive luxuriantly, they afterwards assisted in singling them.

The errors of beginners, I find, are these: they take too long hold of the hoe, and lift it too high; cutting off the tops of the plants, which stand before them, as they bring the edge of the hoe to the ground. They strike too quick, and without sufficient decision. They keep their eye upon the *hoe*, not upon the *plant* to be set out: they pull the hoe directly *forward*; cutting, or pulling up, every thing in its way; and raise it out of the ground, *towards* them; thereby throwing the mold, with which it is loaded, upon the plants already set out: in short, they handle a *hoe*, as they do a *mattock*.

The rules laid down to them were these:

Strike slowly; and suffer the hoe to remain *in* the ground, until the eye has determined on the next movement: resting upon the arms, in a stooping posture; with the right hand from fifteen to twenty inches, from the head of the hoe, and the left hand, twelve or fourteen inches, above the right.

87.

HOING  
TURNEPS.

87.

HOING  
TURNEPS.

In fetching the next stroke, not to raise the hoe, perpendicularly; nor to disengage it from the mold, by pulling it *toward* them; but to thrust it *from* them, nearly horizontally; never suffering its edge to rise higher, than the clods;—keeping it among or under the leaves, rather than above them: and, in making the stroke, not to bring the hoe in a direction perpendicularly to its edge, but somewhat obliquely, or cornerwise; by which means it cuts easily, and keeps its edge clean: a knife forced down a stick, at right-angle, would be much less effective, than one drawn obliquely, in the usual manner.

Let each stroke have its special intention: generally speaking, each movement ought to single a plant: it ought at least to effect something; and that particular thing should be determined upon, and the eye finally fixt, before the hoe be lifted; lest, for want of a determinate object, it be drawn at random, and do mischief instead of good.

Practice, alone, can give a quickness of judgement, a quickness of eye, and a quickness of effective strokes: consequently, a learner in turnep hoing, like a learner in music, in fencing, or in any other art, should  
begin

begin slowly, and let a quickness of motion encrease with his practice.

Two young fellows, who were anxious to learn, and who followed implicitly the rules laid down to them, became, in a few days, tolerable hoers.

This summer has been singularly difficult, with respect to the cultivation of the turnep crop. Some of the turnep farmers, west of the Tame, are said to have sown four times! three sowings (on the same ground) have been common, throughout the country; and, at last, there are very few crops which will pay for the expence of hoing.

No man, I believe, on this side of the Tame, has eighteen acres of turneps, equal to those of No. 2. and No. 5. And, having necessarily bestowed more attention, and thereby obtained more *experience*, in the turnep husbandry, this year, than on any former occasion, I will endeavor to set down what appears to me, at present, the most eligible method of cultivating the TURNEP CROP, ON RICH RETENTIVE SOILS.

1. If the soil be foul, or if early sowing be proposed, BREAK UP, in autumn, by a ricebalk or half plowing, across the lands;

87.  
CULTURE  
of  
TURNEPS.

gathering a bout in each interfurrow, and opening the cross trenches; in order to lay the soil as dry as possible, during winter. But, if the soil be tolerably clean, and early-sowing be not wanted, break up, in the spring; in order that the roots and stems of grasses, &c. may remain in an undigested state, and assist in rendering a closely textured soil loose and open, and fit for the reception of the weakly fibres of seedling turneps; whose roots have a downward tendency; yet are, in their infant state, by no means robust enough, to struggle with a stubborn soil;—though it is highly probable, from the incident, this year, in No. 2. that, having once established its taproot, the turnep becomes a powerful plant, able to penetrate a compact soil.

2. CROSS, as well as give the FIRST STIRRING (the third plowing) without a previous harrowing;—and, if the root weeds be not yet subdued, give a fourth plowing, before the harrows be suffered to come upon the soil.

3. Spread DUNG on the rough plit, and in a middle state as to digestion: if too long and strawy, it is pulled up by the harrows,  
and

and becomes a cause of "galls and clusters;" if wholly digested, it loses the valuable quality of rendering the soil loose and open.

87.  
CULTURE  
of  
TURNEPS.

4. As the dung is spread, harrow, and ROLLANDHARROW, until the surface be perfectly reduced;—and, in this state, let it lie until the seed weeds have vegetated.

5. Turn under the weeds and manure, by a mean-depth, or somewhat shallow plowing; and, if the soil be in a proper state, and the season of sowing be arrived, so w on this plowing; if not, harrow, rollandharrow, and suffer another crop of seed weeds to rise: remembering that the stronger the weeds are, before they are plowed under, the fitter the soil will be for the reception of the seedling turneps; most especially if it be of a tenacious quality.

6. Harrow, immediately, the plit of the seed plowing, with *rough harrows*; in order to give a uniform looseness to the surface, as well as that the seed may be buried at a uniform depth. — Sow, — and immediately COVER with one full tine of a pair of *light harrows*, — and, *if possible*, with the horses trotting.

87.  
CULTURE  
of  
TURNEPS.

7. For a crop, to be eaten off in autumn, sow the “*tankard turnep*” \*, in JUNE : but, for winter and spring feed, sow the common *white loaf*, in JULY : and if these miscarry, or if stubble turneps be attempted, sow “*stone*” turneps † in AUGUST.

8. In a common season, sow TWO POUNDS of SEED, an acre ;—all upon the same surface. For, perhaps, the more nearly the plants rise together, the less danger there is of their being wholly cut off, by insects ;—the beetle especially. But, if insects are known to be in force, or if any doubt arise, either as to the quality of the seed, or the season, sow at least THREE POUNDS of SEED, an acre.

9. If the soil lie in broad round lands, agreeably to the practice of this country, plow one, two, or even three, bouts in each INTERFURROW, according to the width, height, and wetness of the lands, as soon as the feed weeds have done vegetating ;—and, if any root weeds appear to be alive on the surface,  
or

\* The “*pudding*” turnep of Norfolk ; which has a rapid growth ; but, standing high above the ground, cannot bear the winter.

† A small hard sweet turnep, which stands the winter, with singular hardness.



or being dead, if any are likely to impede the hoe, pick them off, and cast them upon the intervals.

10. Begin HOING, whenever the plants of the clusters begin to interfere, and draw each other upright; for the leaves of a turnep should spread horizontally upon the ground, and, in the first stages of their growth, take the form of the rose.

If the crop rise in clusters, with thin interspaces, the CLUSTERS should be THINNED, with the HOE. But, if the crop be uniformly too rank, and the plants too thick upon the ground, the HARROW, perhaps, is a more eligible implement; as giving a most desirable openness to the surface, and freedom to the tender fibrils of the seedling plants.

As soon as the plants, in general, are free from the danger of being buried by the hoe,—namely, as soon as the leaves are as broad as the thumb, and the plants as large as the palm of the hand,—begin to set them out;—the early sown ones, from ten to twelve or fourteen inches asunder, the late sown ones, from seven to nine or ten;—the former with eight to nine inch hoes, the latter with five to six inch; being careful, this first hoing,

87.

CULTURE  
of  
TURNEPS.

to cut over the whole surface, and to leave the plants thick enough ; being less anxious about a double plant, than about cutting up a single one where a plant is wanted.

The *early sown* plants should have a SECOND HOING, before their tops begin to interfere ; in order to displace supernumerary plants, and to give those, set out, the entire possession of the surface.

The *backward* plants, however, can seldom require more than ONE FULL HOING ; there is no danger from a second crop of weeds, in autumn : nevertheless, if the plants be promising, they should be looked over a second time, and the supernumerary plants be displaced.

11. If the first sowing miscarry, and the failure be fully and clearly ascertained, before the weeds have got too strong to be eradicated with rough harrows, *barrow, only*, before RE-SOWING ; but, if the weeds have got fast hold of the soil, or if the season be too moist to obtain a proper tilth, by harrowing alone, *plow*, a mean depth, and harrow, sow, and cover as before.

It is observable, however, that many valuable crops of turneps have been plowed under,  
for

for want of judgement, or of patience, to see the event. The plants of the two first sown lands of No. 2. looked, once, as not being entitled to the occupation of the soil; but, now, they wear the appearance of a tolerably full, fair crop,—of much greater value than a fresh stock of plants, obtained from a third sowing, could have arrived at: beside the sowing of the seed, and labor. See NORFOLK, MIN. 3. on this subject.

87.  
CULTURE  
of  
TURNEPS.

## 88.

SEPTEMBER 27. There are considerable quantities of LATTERMATH HAY now down, and spoiling with the wetness of the season.

HAY  
HARVEST.

This month, throughout, has been a second hay harvest: not of lattermath, only, but of such mowing grounds, as never rose to the sithe, until after the rains set in, and which have, since, been kept free from cattle; for the purpose of trying, at least, to lay up a little hay from them.

But the hope has been in a great measure frustrated. Very little, if any, has been got in a state fit for fodder! What a temper-trying year for the farmer!

FARMING.

SEP-

## 89.

MARL

SEPTEMBER 27. Some time ago, Mr. Hill of Hall End showed me a striking improvement, which he is making, upon a coarse meadow, by MARLING.

From an unproductive rough meadow, covered with all kinds of weeds and rubbish, it is become a fine turf: full of white trefoil, the meadow vetch, and the finer grasses: and what enhances the value of the improvement, the herbage is not only better, but the produce (Mr. H. says) is much greater, than it was formerly.

EXPERI.  
MENTING.

The SPIRIT OF EXPERIMENTING led Mr. H. to this marl. Wishing to improve this meadow, he set on a variety of manures, and among the rest some white earth which he found, by accident, in a large excavation on his farm; no doubt, in former times, a marl pit.

The first year, the alteration was not great; but the second (namely, last year) the *discovery* came out: some experiments with swine's dung, nightsoil, &c. &c. fall short of the marl, Water let in from an adjoining road stands

next

next it. This appears to be a valuable discovery; and is a striking evidence of the use of EXPERIMENT.

89.  
EXPERI-  
MENTING.

Yesterday, I took a look at the pit; which is now in work.

MARL.

The jam or bed rises to within eighteen inches of the surface; and Mr. H. is following it ten or twelve feet deep.

A specimen that I took from the middle of the jam, as well as that which I took off the grass, is strongly calcareous\*.

It is extraordinary, that a bed of grey marl should occur in a country, in which nothing, but red earths, in any degree calcareous, is prevalent. It is observable, however, that North Warwickshire is divided from this district, by the valley through which the Anker runs; and they may, in the general rupture, have been brought from distant situations, or have been torn from different strata.

And it seems more extraordinary, that a mine of calcareous earth, which has evidently been known in ages past, should have been so entirely neglected, and so effectually forgot, that, had it not been for the SPIRIT

OF

\* But see vol. i. p. 156.

89. OF EXPERIMENTING, it might have lain neglected, for ages to come.

MARL.

There are evident vestiges of a pit — an immense excavation—(with bushes and even trees growing in its area) containing half an acre or an acre of ground, which appears to have been all worked over, ten or twelve feet deep: and, on one side, fifteen or twenty!

It is highly probable, that, if proper search were made, other beds of a similar nature might be found in North Warwickshire.

## 90.

BARLEY.

SEPTEMBER 28. This year, I have grown thirty acres of BARLEY: namely, eighteen acres, *after summer fallow*; sown between the 23d April and the 3d May: and twelve acres, *after turneps*; sown between the 5th and the 8th May.

The circumstances which have attended the VEGETATION OF BARLEY, this year, are such as seldom happen.

On the north sides of the lands of the former and upon the springy parts (see MIN. 106.)

the

the majority of the seed, sown in *April*, came up in due time after sowing. But on the south sides of the lands (lying nearly east and west, but reduced to gentle waves) the greater share lay in the ground, until the showers of *May-June* brought up a second crop; and the whole did not appear, until the rains of the *middle of June*: excepting a land whose seed was plowed under (see MIN. 41.); and this came away, chiefly, at the time of sowing.

The latter sowing of this piece came up, in a similar manner; except, that a less proportion rose, at the time of sowing.

The other piece, being, at the time of sowing, not only dry, but cloddy, scarcely any part of the seed vegetated, until the *beginning of June*; and much of it lay in the ground, until the *latter end of June*. Beside, that which came up in the beginning of June, received a check, by the succeeding drought; so that, in the month of July, there was no appearance of its ever rising to the sith, even as herbage, much less of its reaching maturity, as a corn crop.

However, the ample rains, in the wane of June, gave a loose to it; and, during the whole

90.  
BARLEY.

90.  
EARLEY.

whole of August, it made an extraordinary progress. But the season was far spent: and the blight which took place the beginning of August, did not only blacken the straw, but has shrivelled the grain (a circumstance I never observed before, in barley): and, added to this, the third crop is now coming out into ear! so that the crop, taken altogether, is in the most awkward state: the little which came up first, is discolored by the blight, and by standing too long; the second crop is not yet ripe enough to cut; and the third is now in green ear.

TIME  
of  
SOWING.

These circumstances furnish ample grounds of discussion, with respect to the SEASON OF SOWING.

The fact which first presents itself is, that the success of the crop depends on the TIME OF VEGETATING, and not on the TIME OF SOWING: a fact, which though it may be said to be selfevident, was never, perhaps, so fully demonstrated, in practice, as it has been, this year.

The times of sowing, and the times of vegetating, of the barley under consideration, have been mentioned: namely, the major part of A. came up, at the time of sowing

(the



(the latter end of April), the remainder, the beginning of June. The minor part of B. vegetated, at the time of sowing (the beginning of May), the majority coming up, the beginning of June. Very little of C. rose at the time of sowing: the principal part vegetated the beginning of June; and the remainder the latter end of that month.

It is observable, however, that the soil of this piece lying rough, and of course hollow, the showers of May-June, though they caused much of the seed to vegetate, were not adequate to the proper nourishment of the plants; so that they remained, in a stunted state, until the rains of the 18th and 19th of June relieved them.

Therefore, the failure of this piece was neither owing to the time of sowing, nor to the time of vegetating, but to the stubbornness of the soil, rendered still more unfriendly to the infant plants, by the forwardness of the season, after vegetation: otherwise, the crop of this piece would, in the ordinary course of things, have been similar to those of A. and B. and would have been the best crop of the three; because the greatest proportion of seed vegetated, the beginning of June.

For

90.  
TIME  
of  
SOWING.

90.  
TIME  
of  
SOWING.

For it has been evident, to common observation, throughout the country, that barlies which were sown and came up early, though they looked promising, in the former part of summer, shrunk, and dwindled almost to nothing, before harvest:—The grain weak, and the straw short and feeble; barely able to support the light burden it had to bear. While the second crop of A. and B. more particularly the latter, was stout well cared barley: from twentyfive to thirtytwo fullsized grains, in each head; and, notwithstanding the season, and notwithstanding this part was sheaved, near two loads of *sheaves*, an acre.

It has been already said, that this growth came up in consequence of showers, at the close of May; and it is a remarkable fact, that the hawthorn blowed, the 1st of June!

It is therefore evident, from this year's experience, that, with a view to a fullness of crop, *barley should VEGETATE while the HAWTHORN is BLOWING.*

It is also observable, that the FOLIATION of the OAK was not, this year, a proper guide to the SOWING OF BARLEY. For although, in general, it foliates about the time that the hawthorn blows, its foliation, this year, took place.

place twenty days before the blowing of the hawthorn! The roots of the oak range deep, and may be influenced by causes, which do not operate near the surface; while the hawthorn feeds, principally, in the same pasture with the barley. It nevertheless seems *reasonable*, when the hawthorn blows late, to be before, rather than behind, the season of blowing. For it is observable, throughout, that the TIME OF RIPENING corresponds, in a great degree, with the TIME OF VEGETATING: unless when the maturation was disturbed, as it was in C. by an adventitious circumstance.

90.  
TIME  
of  
SOWING.

91.

OCTOBER 1. In market conversation, the CHANGING OF SEED became the subject. Mr. ———, the largest occupier in the district, thinks it of no use. He has not changed his red wheat, for ten or twelve years; and yet experiences no falling off. Other farmers, who have done the same, are even celebrated for their seed wheat.

CHANGE  
of  
SEED.

91.  
CHANGE  
of  
SEED.

I never, however, have perceived so general a spirit, for the changing of seed, as prevails in this district. Mr. — of — has some wheat, just arrived from Cambridge-shire, which stands him in nine shillings a bushel, Winchester measure; and fetches it ten or twelve miles. He, on the other hand, sends some, this year, into Shropshire. Even the little field farmers have been accustomed to sow wheat of the southern counties; but, from what I can learn, the spirit begins to abate.

Indeed, the practice, here, as everywhere else, seems to be founded on general notions; and no one appears even to reason upon its propriety: much less brings any other proofs of its utility, than “it must be so”\*.

OCTOBER

\* I do not mean to say that the CHANGING of the “seed,” or rather the VARIETY, of cultivated crops is of no use: I have long been of *opinion* that it is useful (see MIN. in SURREY). I can say, with truth however, that I do not *know* it to be of any service. It appears to be, at present, one of those MYSTERIES of husbandry, which nothing, perhaps, but a PUBLIC ESTABLISHMENT will ever be able to clear up.

## 92.

OCTOBER 1. It is remarkable, that there is not, in this quarter of the district, a good crop of barley, after turneps.

BARLEY  
after  
TURNEPS.

Mr. ———'s, though the first sown barley in the country, and on one of the best pieces of land in it, is not equal to that of No. 1. And Mr. ———, who got his turneps off early, and his land plowed in time, and whose barley, in the spring, looked promising, had a poor crop; at harvest.

Some years ago, the Shuttington farmers, by general consent, turneped their fallow field. The consequence was, they constantly lost their barley crop: and for this reason, I understand from different men of that township, the practice was discontinued\*.

It strikes me forcibly, that, if TURNEPS be cultivated on the *stronger lands* † of this, or perhaps any other district, they ought to be succeeded by WHEAT, or OATS, rather than BARLEY.

O 2

OCTOBER

\* See also NORFOLK; sect. BARLEY; art. *Soilprocess*.

† On the lighter lands, on the Forest side of the district, good barley is got after turneps.

## 93.

VEGETABLE  
ECONOMY.

OCTOBER 3. The barley of No. 1. had not ripened, perceptibly, for some weeks, before the late sharp frosts: since which it has ripened, daily. There are twice the number of ripe ears, now, there were a week ago: they are not only changed as to color, but the corn is obviously plumper. Before the frosts, the heads seemed slender and puny; so much so, that I had consigned the whole to the *miller*: now I begin to hope that some of it may, this year of scarcity, be fit for the *maltster*.

It was a general observation, it seems, in this country, in the year 1782, (a wet backward summer) that the late ripe crops did not ripen until frost came: even wheat was cut, in December.

How is this to be explained? Frost, we scarcely can doubt, compresses the sapvessels of vegetables, and, probably, forces the sap out of them: back to the earth, it is generally supposed; but, perhaps, the natural receptacles of the plants are first supplied.

It is observable that fruits ripen, leaves fall, lattermath shrinks—by frost.

OCTOBER

## 94.

## LABORERS.

OCTOBER 3. It having always appeared to me incomprehensible, how a common farm laborer, who perhaps does not earn more than six or seven shillings a week, rears a large family, as many a one does, without assistance,—I desired old George Barwell, who has brought up five or six sons and daughters, to clear up the mystery.

He acknowledges that he has frequently been “hard put to it.” He has sometimes barely had *bread* for his children: not a morsel for himself! having often made a dinner off *raw bog peas*: saying, that he has taken a handful of peas, and ate them with as much satisfaction as, in general, he has eaten better dinners: adding, that they agreed with him very well, and that he was as able to work upon them, as upon other food: closing his remarks with the trite maxim—breathed out with an involuntary sigh—“Ay, no man knows what he can do, till he’s put to it.”

Since his children have been grown up, and able to support themselves, the old man

94.  
LABORERS.

has saved, by the same industry and frugality which supported his family in his younger days, enough to support himself in his old age ! What a credit to the species !

95.

MANURE.

OCTOBER 3. I have often wished for some luxuriant quickgrowing plant, which does not readily shed its seed, to sow upon dung heaps, piles of compost, mold, &c. ; in order to smother the seedling weeds, to shade and mellow the surface, and to be dug in, to assist fermentation.

Mr. ———, this summer, turned up a pile of compost, on which there is, now, a thick-set crop of TURNEPS !

Whether the seed was sown, or for what purpose if sown, or whether it was turned up with the mold, I know not, nor is it material ; but that no plant is better calculated for the purpose, than the TURNEP, is sufficiently evident ; nor any one, except RAPE, whose seed is more easily procured !

OCTOBER



## 97.

OCTOBER 15. See MIN. 23. From that time, I have been assiduous in registering the rural transactions of this district; not with respect to the INCLOSURES only, but to the COMMON FIELDS: catching, from time to time, by incidental or intentional observation, the CURRENT BUSINESS OF FARMERS; thereby fixing not dates, only, but other facts in practice; which, without a PERIODICAL REGISTER, might have escaped un-noticed.

The several articles of this JOURNAL I have, from time to time, *posted*, or transferred, to their respective heads, in the SYSTEMATIC REGISTER; and, now, select such articles, as will serve to give a general idea of the business of each MONTH, in the INCLOSED TOWNSHIPS.

## OCTOBER.

Continuing to break up, and manure, oat stubbles, for wheat.

Continuing to sell fat stock.

Buying in store ewes.

O-4

Changing

CALENDAR  
of  
HUSBANDRY

97.

CALENDAR  
of  
HUSBANDRY

Changing servants.  
Paying Ladyday rents.  
Thrashing seed wheat.  
Sowing wheat: mostly sown this month.

## NOVEMBER.

Breaking up wheat stubble, for barley.  
Finishing fat cows, with preserved pasture, hay, and, perhaps, turneps thrown on grass land.  
Some hurdling off turneps, with sheep.  
Beginning to cut hedges.  
Opening surface drains (a good time).  
Some planting quick hedges.  
Manuring young grasses, and grass lands,  
Collecting fuel.

## DECEMBER.

Thrashing, and carrying out corn.  
Attending yard stock, and store sheep.  
Fattening, and beginning to kill, pigs.  
Drying off cows.  
Continuing to break up pinfallows.  
Manuring pinfallows, and grass lands.  
Plashing hedges.

## JANUARY.

Continuing the works of last month.

Some

Some stallfatting cows, with hay and cut-  
meat.

97.

Some breaking up turnep fallows, in open  
weather.

CALENDAR  
of  
HUSBANDRY

Some marling, in frost.

### FEBRUARY.

Beginning to break up turf, for oats.

Attending to dairy cows, now calving.

Rearing the cow calves; fatting the  
bulls.

Attending store and fatting stock.

Beginning to look out for "barren  
beace."

### MARCH.

Continuing to plow for oats.

Some continuing to break up turnep fal-  
low, for barley.

Crossing pinfallows.

Plashing and planting hedges.

Busy after lean cattle.

Attending ewes and lambs.

Beginning to sow oats.

### APRIL,

Sowing oats.

Paying Michaelmas rents.

Crossing

97.

CALENDAR  
of  
HUSBANDRY.

Crossing and harrowing pinfallows.  
 Some sowing turnep ground, with barley.  
 Continuing to buy barren cows.  
 Buying and felling incalvers.  
 Sowing barley, on pinfallow.  
 Planting potatoes.  
 Stonepicking, and spreading dung.

## MAY.

Sowing barley.  
 Some crossing turnep fallows.  
 Fetching lime  
 Some underdraining (a bad time).  
 Continuing to attend spring fairs.  
 Beginning to make factor's cheese.  
 Weeding wheat.  
 Shearing sheep.  
 Selling fat lambs.

## JUNE.

Some stirring and liming turnep fallow.  
 Weeding corn.  
 Some beginning to sow turneps.  
 Mowing clover.  
 Carrying out manure.  
 Beginning to mow grass.

JULY

97.

CALENDAR  
of  
HUSBANDRY

## JULY.

Haymaking.

Some sowing turneps.

Selling forward cows.

Some manuring grass land (a good time).

## AUGUST.

Corn harvest.

Putting bulls to heifers.

Selling fat stock.

Some breaking up stubble for turneps.

All beginning to break up oat stubble,  
for wheat.

## SEPTEMBER.

Plowing and manuring oat stubble, for  
wheat.

Some mowing wheat stubble.

Selling fat stock.

Beginning to buy lean ewes.

Beginning to sow wheat.

## OCTOBER

98.

COMMON  
FIELD  
HUSBANDRY

OCTOBER 15. Those observations likewise enable me to make out a sketch of the COMMON FIELD HUSBANDRY of this district.

Half a century ago, the district was principally open. Now it is mostly inclosed. In *this* quarter of it, there are only four townships that remain in any degree open: *Newton, Austrey, Shuttington, Edinghall*: and, in the *Bosworth* quarter, there are some three or four more.

Each TOWNSHIP appears to have been laid out, originally, into *three arable fields*, with grassy balks, and "ley lands;" a *common meadow*; and a *common cow pasture*\*. The fallow field is a stinted *sheep walk* †. And *horses*, in summer, are teddered on the balks, and ley lands, of the corn fields,

The

\* REDMORE, in one of whose *hags*, tradition says, KING RICHARD lost his life, is still a COMMON COW PASTURE.

† Those who do not keep sheep let their "comins:" one person, perhaps, renting the sheep feed of the entire township.

## The COURSE OF HUSBANDRY.

98.

Fallow,  
Wheat or barley,  
Pulse or oats \*.

COMMON  
FIELD  
HUSBANDRY

Of late years, CLOVER has been substituted, in some instances, in the place of beans †; and, in others, TURNEPS have been sown, on the fallow, for barley: the last, however, is a practice which has not gained an established footing; being now nearly, or wholly, laid aside; except in a very scarce year for fodder, as the present, when part of Newton field was sown with turneps.

## FALLOW.

Break up (after barley sowing) late in the spring: of course the operation is difficult, though

\* In 1785, SUTTON AMBION, and the adjoining field,—the site of the “battle of Bosworth field,”—were in WHEAT. Hence, if the present course of crops is of three hundred years standing, they were likewise in wheat, or in a state of wheat harvest, at the time of the battle.

† The clover is mown twice, the first year; and plowed up for fallow, the second.

98. though the furrows, in this plowing, be thrown *downward* \*.

COMMON  
FIELD  
HUSBANDRY

The first stirring, in June, *upward*:

The second stirring (which slovens not unfrequently omit) in August; sometimes *upward*, sometimes *down*.

Set the MANURE, generally, on the first or second plowing; and in a long strawy state; raw as it rises out of the dung yard: to appearance, a slovenly practice. Nevertheless it may have been, originally, founded in experience. The strawiness may serve to keep the fallow soil, in an open, porous state; preventing its being run together, by heavy rains; a principal danger, perhaps, incident to fallowfield lands. See MIN. 21.

### WHEAT.

The seed is invariably plowed under: the ridges being gathered *upward*, with the seed plowing.

The

\* The ridges are high; but not equal in height to those of the vales of Gloucester and Evesham. See GLOUCESTERSHIRE.



The management, in other respects, is similar to that of wheat, in INCLOSURES\*.

98.

COMMON  
FIELD  
HUSBANDRY

## BEANS.

Slit open the ridges of the wheat stubble, in winter, by two furrows, thrown outward.

Begin plowing, *upward*, in February, or as soon as the weather will permit: and sow when the season is suitable.

If a favorable seed time offer, in February, it is now become pretty generally the practice, to sow on the stubble, and *plow the seed under* †. But, if the early part of the season be unkind, the land is plowed, as the weather will permit, and the seed sown, as soon as the land will work, and *harrowed in*. All sown broadcast.

It is observable, that, in the PRODUCE of the common fields, *wheat* far exceeds every other crop. It is true, the soil is fallowed and manured for wheat; but the *beans* and the *oats* follow immediately; and, of course, have a considerable share of the improvement. And all, perhaps, that can be drawn from  
this

\* See vol. i. Art. WHEAT.

† See vol. i. Art. BEANS.

98.  
COMMON  
FIELD  
HUSBANDRY

this striking circumstance is, that WHEAT is, in this country, the most PERMANENT of cultivated crops.

Upon the whole, it is evident to ordinary observation, that the COMMON FIELD HUSBANDRY, of this, as well as of other districts, is INCONVENIENT and UNPRODUCTIVE : and it is a matter of some astonishment, that the best lands of the island should have been suffered to lie, so long as they have done, in such an UNPROFITABLE STATE.

99.

MARKETS.

OCTOBER 17. FAZELEY FAIR (see MIN. 13.) a full fair of cattle : from eight hundred to a thousand head : most of them half fat : some few tolerable beef.

GRAZING  
CATTLE.

The sale extremely flat. The underfat cattle were obliged to be sold ; many of them, at any price. Seven or eight pounds were asked for cows, which, if they had been fat,—as in a common year they probably might, with the same *time* they have had this — would have fetched twelve or fourteen pounds. Much beef was sold, at  
twopence;

twopence a pound: perhaps, for the half fat sort, twopence halfpenny was a medial price; and much went out, unsold. See MIN. 67.

99.

GRAZING  
CATTLE.

## 100.

OCTOBER 17. In July 1784, I made, on a turnep fallow, an experiment, with BREDON LIME. (See vol. i. p. 149. and MIN. 2.

LIME.

The field, in general, was limed with about five quarters, an acre. Part of one land had double that quantity: part of another, none.

The TURNEP crop received no obvious advantage from the lime.

But its effects on the BARLEY are evident. The part *not* limed is evidently the *worst* crop. Nearly in the proportion, I apprehend, of four to three. In this case, therefore, the barley, alone, will nearly pay for the lime.

But, what is still more interesting, the part limed, with ten quarters, an acre, is the best crop in the piece. Therefore, the notion, that a quantity of Breedon lime,

100. greater than five quarters an acre, is ruinous  
LIME to crops, appears, by this experiment, to be  
entirely without foundation.

Upon foul pinfallow, it may be injurious; by encouraging (not "breeding") couch: but, on a clean turnep fallow, it has, in this instance, spent its strength on the crop.

### 101.

LABORERS.

OCTOBER 19. Of six laborers, which I have had in employ, today, two have a mile, one has two miles, and three have three miles, to walk home!

How inconvenient to live *far* from a village. Either second rate workmen must be put up with, or extraordinary wages given. For what man, who can get work and wages, at home, would voluntarily undertake the task of walking three miles, to and from his work.

OCTOBER

## 102.

OCTOBER 23. The evening before last, got harvest home!

HARVEST-  
ING  
BARLEY.

This being the most remarkable case, in HARVESTING, which has occurred to me, I have regularly set down the incidents, as they passed, and now reduce them to a minute, that I may not lose the remembrance of any part of a transaction, which is, taken all in all, the most interesting one I have met with, in my practice.

The harvesting of produce is the most serious employment of husbandry: for, if a crop *fail*, through improper management or untoward seasons, the soil is not exhausted, but remains in strength for a future season: but when once a crop is *obtained*, the soil has, of course, undergone a proportional degree of exhaustion, and any injury received by a RIPENED CROP, whether of grain or herbage, becomes a dead loss, which cannot be retrieved.

Therefore, every thing which tends to reduce the HARVESTING of CROPS, to a degree

102.  
HARVEST-  
ING  
BARLEY.

of CERTAINTY, is of the highest importance to the ARABLE FARMER \*.

From so much experience, accompanied by unusual attention, something, surely, may be drawn, bordering, at least, upon GENERAL RULES. The following are what occur to me.

If the days be long, and the weather settled, mow barley into SWATH, and harvest it agreeably to the practice of the country it grows in.

If either the days be short, or the weather be unsettled, set it up in SINGLE SHEAVES †.

But (in either of these cases) if the *hedges* be high, and the situation flat, first cut down the hedges, and then cut the barley. See MIN. 160.

If through late sowing, or an untowardness of season,\* barley do not RIPEN, before the wane of September, let it stand, until some  
smart

\* 1796. In the first edition of these Minutes, a detail of this incident of practice was given. Being aware, however, of a want of interest, in recitals of agricultural operations, I now omit the detail: but insert the practical inferences it affords.

† Gaits. See YORKSHIRE; sect. HARVESTING.

smart FROSTS have performed that, which the sun, in autumn, is unable to accomplish. Beside, the season is frequently more settled, in the beginning of October, than about the equinox.

If swaths, mown during an appearance of fine weather, be nevertheless caught in rain, set them up in SHEAF PIECES\*, the first fair opportunity; and, as soon as the tops and binding places are a little dried, and leisure will permit, put bands round them; or, if settled fair weather return, return them again into swaths, as soon as the ground is perfectly dry.

With respect to the treatment of SINGLE SHEAVES,—if the barley be green, grassy, or weedy, they should have, at least, a fortnight of FIELDROOM;—observing, that, when one side is sufficiently weathered, to turn the opposite towards the sun: an operation that is readily performed.

If, when they are sufficiently weathered, the bandplaces be thoroughly cured, and sufficiently dry,—throw them down, to air the butts; and carry without further trouble.

P 3

If

\* Untied gaits; which, while corn remains damp, will stand tolerably well.

102.

HARVEST-  
ING  
BARLEY:

102.  
HARVEST-  
ING  
BARLEY.

If the butts be clean, and forwarder than the band places, bind in the common binding place, and either open the heads, as they lie upon the ground, or set them up in shucks, until thoroughly cured.

If the sheaves be sufficiently weathered, but damp, both in the butts and binding places, and a fair opportunity is wanted to be embraced, open them, in the morning, and carry, in the afternoon: but, if one day be not sufficient to get them into order, disband them, the first day, and spread them open, the next; or, if the weather be suspicious, pull up the bands, rend open the bandplaces, and let them remain, until one fine day will fit them for the rick.

If the foil get rotten, the days be short, and hands scarce, or the weather be such that the barley cannot be got into sufficient order,—make SMALL RICKS in the FIELD, by means of SLEDGES; and embrace a clear frosty day, in winter, for carrying them to the BARN.



## 103.

OCTOBER 31. A neighbouring farmer relates several instances, strongly corroborating the idea, that BREEDON LIME *encourages* twitch (he is clearly of opinion that it *breeds* it).

LIME.

A relation of his, on the banks of the Trent, bought a boat load of this lime, and set it on, for wheat, the same thickness he had usually set on Tickenall lime: namely, two loads, an acre. The consequence was, his wheat crop was spoiled! the land a bed of twitch! and a person in this neighborhood, he says, spoiled his wheat crop, by the same means. He himself, too, can see, in a cold springy grass ground, every place where the cart stopt, in spreading Breedon lime upon this piece, some years ago! adding, that he will never set another heap of this lime, in the area of a close: for, wherever he has made his heaps, the soil produces, thenceforward, a bed of twitch\*.

P 4

On

\* But even this is not the case in No. 1. See MIN. 100.

103.  
LIME.

On the contrary, he has repeatedly observed, that, wherever a heap of TICKEN-ALL or WALSAL LIME has stood, there the place, on being laid down to grass, becomes covered with a mat of "honeyfuckle clover."

These are curious facts: for such I apprehend them to be; not only from the manner in which they were related; but from corroborating evidences: indeed, to part of the assertion, I can myself give testimony. I have seen a hillstead of Breedon lime, as thickly set with couchgrass, as a brush is with hair: much thicker than I have ever seen it, in any other situation.

Interesting, however, as these circumstances appear to be, in the nature of manures, and the vegetable economy, I see no useful inference that can be drawn from them; except that Breedon lime is unfit to be set on land which is foul with couchgrass; but that, for the lands of this country, *properly cleaned*, it appears to be a proper, and a powerful manure.



## 104.

NOVEMBER 1. (See MIN. 70.) It seems to be univerfally agreed, that fo general a lofs of horfes, by the STAGGERS, was never before fufained, in this country.

STAGGERS  
in  
HORSES.

The “Walfal medicine,” by which many have been thought to be cured, has at length mifcarried. But that of a farmer, near Stafford, has not yet failed: it is even faid to have fucceeded, after the paroxifm has commenced. Mr. LEE of Coton Park, who has ufed it, and, he believes, with fuccefs, fays it contains ASSAFŒTIDA. A carrier, after having loft twenty or thirty horfes, has faved (or believes that he has faved) forty or fifty, by the “Stafford medicine.” But fee MIN. 116.

## 105.

NOVEMBER 2. Converfing with Mr. — about his fharhogs (fee MIN. 15.) I asked him by what means he brought fuch young  
fheep.

SHEEP.

105.  
SHEEP.

sheep to so high a state of fatness (about eighteen or nineteen months old—thick fast fat!). He answered, “I don’t know; they were lambed fat, and have been fat ever since:” adding, that they have been kept as well as he could keep them. And it seems to be generally understood, here, that it is not a difficult thing to keep young sheep in high condition; but very difficult, if once let down, to get them fat again, until they have acquired some age.

It is also understood, that young sheep weigh well, for their size; and that such as have never had a check, prove well on the inside!

Nothing weighs so heavy, for its size, as a *running calf* (see NORFOLK): and it is observed, that shorthogs weigh in a similar manner. They must be, to those who are in a good breed, have plenty of grass, and a sufficiency of winter keep, a most profitable species of stock.

## 106.

NOVEMBER 6. Yesterday, finished my first essay in UNDERDRAINING ; here, provincially, “ SOUGHING ;” pron. *Suffing*.

UNDER-  
DRAINING.

Last year, I had too much to engage my attention, aboveground, to think of seeking employment under it. But having, now, pretty well subdued the weeds, and brought the surface waters under subjection, I have thought this autumn the proper time, to attack the waters beneath the surface.

The worst piece on the farm, with respect to the DEFECTIVENESS of SUBSOIL, is No. 9.

The parts affected in this field have been very obvious. The wheat stubble, upon them, was a mat of couch . evidently worse than the sounder parts (see MIN. 18.). At the setting in of the dry weather, the fallow being then got to pieces, the springy parts were not less obvious : remaining black and moist, after the rest of the piece had become dry and dusty ; the moist parts having the appearance of the shadows of clouds on the surface.

106.  
UNDER-  
DRAINING.

surface\*. They were likewise evident in the barley crop; both at the time of coming up, and on the ripening of the crop.

Thus I gained a strong general idea of their situation; but, being otherways busily engaged, I did not identify them particularly, as I might and ought to have done, by stakes or any other permanent marks.

October 20.—Old SAMUEL of FAZELEY (see vol. i. p. 140.) began the operation.

Having shown him, in a general way, the parts affected, and given him the ditch of plantation A. (sunk with a view to this purpose) for his main drain, I left him to trace his own lines.

His only guide was the “willoweed”—(*polygonum pennsylvanicum*—the pale persicaria) and his only level, the eye: he never made use of any other!

Beginning on the upper side of the piece, he set out his first trench, fifty five yards long, and fifteen inches wide: giving it such a descent, as the eye could not well be deceived in.

This

\* And, what is very noticeable, these watery parts smelled like a pool recently dried up; having the true mud flavor.

This trench he sunk "fix diggings"—of about five inches each; making it thirty inches deep; and contracting it to four inches and a half, at the bottom: in this instance, "hitting the springs," with great judgment.

In filling in this trench, with stones (pebbles picked off plowed grounds) he began, at the upper end, with a course, about five or six inches thick; in order that the water, which kept trickling along the bottom, might not be stopped and fouled, ("beginning at the top brings down clean water;") and, having reached the lower end, returned with another course; making the two about eighteen inches deep; each foot in length taking nearly a cubical foot of stones.

The mouth he formed with four bricks, laid in clay, and backed by the largest of the pebbles; leaving a pipe, at the mouth, four and a half inches square.

The surface of the stones being levelled, they were covered with whole spits, or clods, of the stiffest of the clay, or strong clayey loam, which rose out of the trench; chopping and treading them down, close and  
tight,

106.

UNDER-  
DRAINING.

106.  
UNDER-  
DRAINING.

tight, upon the stones; next, filling up the trench, level, with loose mold; and, on this, placing the first spits, or turf of young grasses; finally spreading the remaining mold, thin, over the adjoining surface.

The cost of these fiftyfive yards stands thus:

Opening the trench—three days at

18d.	—	—	4	6
Filling in about		—	2	3
Four loads of pebbles		—	4	0
Carriage of these		—	6	0

Together — — 16 9

near fourpence, a yard.

October 25. Began a second trench, thirty yards below the first.

*Observations.* The proper distance between the cuts depends upon the nature of the subsoil. In this country, it is found that drains will draw off the superfluous water of some ground, at twenty yards asunder, of others, at not more than ten yards; fifteen yards being esteemed a mean distance. Therefore, this drain was set out at thirty yards from the former, not more to reach a well known part affected, than in order that, if these two should not be found sufficiently effective,



effective, another may, hereafter, be run up between them.

In setting out this trench, the workman extended it one landwidth, farther than the other; and, from a knowledge of the ground, as well as from the superficial appearance of the next land—the soil and the herbage appearing comparatively weak and spiritless—I extended it another landwidth, still farther: in all seventyseven yards.

This trench required to be sunk deeper than the first (the veins lying deeper); namely, “seven diggings;” making it three feet deep, and eighteen inches wide at the top.

The subsoil, at the lower end of this cut, proved to be a middle loam, without much intermixture of sand (among which chiefly the water lodges); nevertheless, even there, some water appeared. That of the last land, but one, a stiff retentive clay, without any water. But that of the last land proved a mere grout. A very quicksand. With an abundance of water.

*Observations.* How much circumspection is requisite in this operation! And how requisite it is, when an opportunity offers, to identify

106.

UNDER-  
DRAINING:

106.  
UNDER-  
DRAINING.

identify the diseased parts, by stakes, pits, or other permanent marks.

In filling this trench, the rotten sandy part was bottomed with wood (oak faggots) to prevent the grout from boiling up among the stones, and thereby choaking the fough. Upon this brush wood, stones were laid, as before, eighteen inches deep, and, upon these, wheat straw, about an inch thick: there not arising, from this trench, stiff clay enough to cover with; and to cover with looser loam is dangerous; as it is liable to be washed down among the stones, by heavy rains; and by this means to choak the fough.

This drain cost, on the foregoing calculation, near sixpence a yard.

*Observations.* In the case under notice, the stones were upon the premises (having been formerly picked off the land), and the carriage was done at a leisure time.

It is likewise observable, that, where it so happens (as it may frequently) that stones are picked off the land to be drained, the cost of them may be said to be nothing; as the carriage, which otherwise would have been requisite, is lessened by their being  
used

used on the land. In this case, therefore, the hand labor is the whole expence: which, in the first instance, was threehalfpence, in the latter twopence halfpenny, a yard.

106.

"UNDER-  
DRAINING.

Hence, in a country, where it is expedient to pick stones off the land, it becomes necessary to common prudence, to drain (if draining be required) where stones are already picked, or to pick them (if expedient) where draining is requisite.

*November 1.* Began to fough some "gouty places" in the meadows, marked by a rough tumid surface, covered with rushes, other aquatics, and coarse "four" grasses.

In this case, the parts affected being obvious, the workman was left to perform his operation in his own way; which was that of directing his trench to the *upper side* of the diseased part; keeping, however, somewhat below the *margin*.

*Observations.* I am of opinion, however, that, if the trenches had been kept still lower, the drains would have been more effectual; at least, more certainly so. The matter of a tumor, on the surface of the earth, is, like that of a tumor in the animal

106.  
UNDER-  
DRAINING.

body, lodged near the *center*. The *margins* are mere effects, and may spread much wider than the cause, which may lie in a small compass; and, after having attended closely to this instance of practice, it strikes me, forcibly, that all underdrains should be run up directly into the center of the part affected\*.

This experienced and intelligent workman relates some remarkable *cases*, in underdraining: two or three of them may be worth preserving.

He

\* 1789. A person of Warwickshire has lately made what is spoken of as a discovery, in the art of underdraining; by bringing the water to the surface, or to the bottom of a fough, when this does not happen to be deep enough to reach it, by means of a *boring tool*.

On the sides, or at the feet of hills, this expedient may frequently be useful, in relieving the land which lies *above*. But, in *ordinary situations*, its effect, I conceive, cannot be great; as, in the nature of fluids, it cannot raise the water one hairsbreadth higher, than the bottom of the drain; and, of course, the land *immediately on either side of it*, would lie as dry without, as with, a hole in the bottom of the fough;

1796. Nevertheless, in *particular situations*, the boring tool may be applied with advantage; and Mr. ELKINGTON, the person here alluded to, is possessed of superior skill in applying it, with effect.

He cautiously avoids, if possible, coming within reach of the roots of a tree; especially the willow and the poplar; whose roots he has known to choak up a fough, on the side of a hill, so effectually, in a few years, that the water has broke out at the surface, in the manner of a spring.

In Worcestershire, in cutting through a hanging bog, he broke in upon a deep quagmire, which he could not fathom with a pole, eight or ten feet long; the matter boiling up so fast upon him, that he was obliged to let the trench lie open, some time, to spend itself. The flow of matter having entirely subsided, he bedded the bottom with heath, trodden firmly down; forming the drain, in this case, with iron-forge cinders; which he considers as the best material of foughing.

He mentions a case, in which he "quartered" a large piece of ground, at every fourteen feet: namely, cut it into panes or chequers, by parallel lines fourteen feet apart! But having sunk "wells" in the centers of some of the panes; and finding that even this was not effectual, he ran fresh drains, diagonally, across such of them as he

106.  
 UNDER-  
 DRAINING.

thought required it, and by this means drained all his wells : an effectual, but costly operation.

*Observation.* The idea of the *wells* is a good one : it is highly probable, however, that, notwithstanding drains, recently made, may not lay every part dry, *immediately* ; yet, in process of time, their draught may be extended. And this principle holds good, generally. For, although recent drains may not take immediate effect ; yet, by a continuance of draught, the VEINS, or natural channels, which conduct the water to the drains, may, in the nature of fluids acting on loose matter, not only be *enlarged*, but *extended*.

GENERAL OBSERVATIONS. Underdraining is not that formidable business I have hitherto considered it. One old man has, in fourteen days, for which I have paid him a guinea, done away (I hope) the *principal* defects of the subsoil of this farm. Even supposing the stones to have been purchased, and the carriage of them hired, the whole expence would not have amounted to more than five pounds.

106.

UNDER-  
DRAINING.

In this way, I am clearly of opinion, every estate should be drained: beginning with the parts most affected; no matter how they are scattered.

Two great advantages are had through this mode of procedure. The greatest nuisances are done away, the most immediately; and no labor is lost.

Whereas, by the usual method of cutting one field to piecemeal, while others, equally affected, remain without any relief, many disadvantages arise. The expence generally becomes enormous; many unnecessary cuts being made. Stones are to be drawn, from every distant part, to this one spot; which is, in consequence, cut up and injured, by that labor, which another is injured for want of.

When the *great* and *evident* infirmities are removed, those which are smaller become more perceptible; while, probably, many parts which, at first sight, required, even in the eye of a master in the art, to have labor and materials bestowed upon them, will, by the RADICAL CAUSE of disorder being removed, be found, in a short time, to be cured without farther expence.

106.  
 UNDER-  
 DRAINING.

The one is proceeding with CERTAINTY, the other with a degree of RISK, and, of course, with a degree of indecision and embarrassment, in the execution: beside the loss of money, by doing that which was not necessary; and the loss of time, by delaying the most essential part of the improvement.

Upon the whole, we may venture to say, that UNDERDRAINING, properly conducted, and in situations where the subsoil is partially too retentive, ranks among the first of rural improvements: it being a fact incontrovertible, that, in the productiveness of lands, more depends on the nature of the SUBSOIL, than on the intrinsic quality of the SURFACE MOLD.

### 107.

MARKETS.

NOVEMBER 8. SUTTON FAIR. About six hundred and fifty cattle, and three thousand sheep. The cattle chiefly half fat: five hundred of them, at least, barely fit for turneps: yet most of them were sold, as "fat."

This is the last autumn fair, of any magnitude, in the country.

In



In attending the fairs of this district, during the two last years, I have observed a spirit of **JOBING**, or buying and selling unnecessarily, among the farmers of this country, which I have not seen, in any other, and which has, more than once, become a subject of reflection.

If a Midland farmer go to a fair, he is ashamed to return without having done some "business:" he must either buy or sell, or he loses his credit as a marketman. Hence, probably, the quantity of business done, at the Midland fairs, compared with those of other districts; where one third, or perhaps half, the stock is frequently driven out, unsold: while, here, the whole fair may be said to be generally transferred.

There are cases, in which a **TRANSFER OF STOCK** from *farmer to farmer* is eligible: as from *breeder*, to *grazier*, or *dairyman*. But the spirit of dealing, by way of doing business, and a spirit of **SPECULATION**, or gambling, are the same. A good judge, like a good player, will profit by it: but those who have less judgement must, on a certainty, be losers.

107.  
JOBING.

This evil spirit, however, though prevalent among Midland farmers, does not possess the whole. The man who has, perhaps, made more money, by farming, than any other man in *this* neighbourhood, pursued a very different plan of management. He reared his own cows, dairied them, and, perhaps, fattened them, himself. His sheep the same: his chief dealings, in livestock, being with the *butcher*.

A mere GRAZIER must frequent fairs. But a GENERAL FARMER, who has crops and rearing stock to look after, can seldom leave home, without loss.

Beside this general passion for JOBING, among Midland farmers, there are many of them who make it a distinct branch of business. Not as DROVERS, who drive from district to district, but merely as DEALERS, within the district; purchasing of one farmer, and selling to another.

This is not only a useless, but a pernicious class of men: increasing the price of stock, at all times; and, in times of scarcity, monopolizing that, which ought to circulate, among farmers in general; thereby increasing the apparent scarcity, and of course the price.

During

During the late rising markets (in 1785 and 1786) sheep, which were on sale, were almost wholly in the hands of jobbers: many of whom got much money by their dealings. But whatever *they* got, was of course lost, either by the *breeder*, or the *grazier*, or operated as a tax on the *consumer*.

107,  
JOBING.

The breeder stands the best chance of profiting, by this class of men; inasmuch as they encrease the *number of buyers*: so that the graziers, or the consumers, lose, in a twofold way, by their interference.

The most natural mode, the simplest shortest way (practicable) of supplying the community, with what is termed animal food, is that of one man rearing and fattening his own stock, for the butcher. The next, that of one man rearing, another fattening, and a third slaughtering. In some few cases, an intermediate *grower* of stock may be useful; but this fourth man is generally unnecessary; and a farther intrusion (unless when a transfer from district to district is requisite) might be considered as a sort of forestalling, and those who practise it, as a species of vermin, preying on the profit of the grazier, or on the income of the consumer.

NOVEMBER

## 108.

LIMING.

NOVEMBER 14. This autumn, I have observed two instances of spreading LIME, upon the WHOLE FURROWS of leys, or stubbles, once plowed for wheat; harrowing in the lime and the wheat, together.

This practice, it seems, is not uncommon, but is not generally approved.

If, however, the soil be mellow, and dry enough to mix intimately with the lime, I do not see why it should not be superior management. The lime, in this case, becomes most effectually exposed to the air and moisture, and is lodged near the surface, to be washed down into the soil, by rains: hence, its effect becomes most immediate, this way.

However, in the instances here noticed, the soil lay in moist, glossy, whole plits: a state by no means adapted to the reception of lime; which, in this case, stuck to the surface.

Nevertheless, it is probable, that, duly timed, LIME, as a TOPDRESSING for WHEAT, may, in some cases, be highly eligible.

## 110.

NOVEMBER 25. An intelligent man, and one of the largest graziers in the Midland Counties, thinks the present SCARCITY of STOCK is principally owing to dairymen turning graziers\*.

SCARCITY  
of  
CATTLE.

Cows, he says, might, some years ago, have been picked up, plentifully, in the neighbourhood; now, there is not one to be bought.

INCLOSING COMMON PASTURES, he thinks, has been another cause of the present scarcity of young and lean cattle. While there were common pastures to rear young stock in, the farmers found it profitable to dairy: not so much for the cheese, as for the young stock which rose from it: but, since the common pastures have been converted into feeding pieces, they have found grazing  
answer

\* Another man, conversant in the subject, and one of the largest dairymen in the district, is of the same opinion: giving for reason, that grazing is the easier idler employment: and adding, that the northcountry breeders, who formerly sent numbers of barren cows into this district, now graze Scotch cattle, for the Manchester and Liverpool markets.

answer better than cheesemaking; more especially if they happen not to have a "dairily" wife or housekeeper.

### III.

#### AQUATIC MANURE.

1786. JANUARY 29. Last spring, by way of experiment, on the turnep fallow of No. 5. (see MIN. 87.) I dressed two lands with AQUATIC MANURE (raised some two or three years ago out of a fish pool, and turned up, about twelve months ago, into a heap to digest), the rest of the piece being manured with yard dung; the quantity of each about eight loads, an acre.

The two lands, dressed with the aquatic manure, obviously bear the better crop of turneps. The plants are not more numerous; but they are larger and cleaner-skinned; and, what is very striking, while the crop of the piece, in general, is full of charlock and chickweed (which have risen since the hoing), the two lands are, in a manner, entirely free from these weeds!

What *mines* of similar manure lie, unnoticed, within half the estates in the kingdom.

## I I 2.

FEBRUARY 13. Every FARMERY should have a LOBBY, between the yards and the fields; to serve as a double fence; and thereby to prevent stock from straying over, poaching, and injuring the farm.

FARM-YARDS.

I found the conveniency of a lobby in Surrey; and the want of one in Norfolk, and in this place; where I can foresee the use of that which I am now forming, with a SKREEN OF PLANTING;—embosoming the entire farmery, in such a manner, as to shelter it, effectually, from the north and east winds, to which it is, at present, bleakly exposed. See MIN. 25.

## I I 3.

FEBRUARY 25. It was the general opinion, in market conversation, that the present paroxysm of frost will be serviceable to the wheat crops; in checking those which were getting too forward.

CHECKING  
WHEAT.

This

113.  
CHECKING  
WHEAT.

This subject naturally led to the means of CHECKING FORWARD WHEAT, artificially, at this season of the year.

*Eating wheat with sheep* was unanimously condemned. Mr. — swears he will never eat another piece of wheat with sheep; having experienced its evil effect, more than once. But once, most particularly, he eat down a “strange rank piece of wheat:” the consequence was, the straw was weak, and the ears so small,—such “humble-bee ears”—it did not yield above “a peck a threave”!

It was likewise unanimously agreed, that wheat is very dangerous food for *sheep*; they being more liable to die, suddenly, on that, than on any other keep. Mr. *More* says bleeding them is a pretty certain preventive.

HARROWING WHEAT IN THE SPRING was also discussed. Several instances, highly advantageous, were mentioned. It was agreed, however, that it should be done when the soil is dry enough, to part freely from the tines of the harrows.



## 114.

MARCH 3. How uncertain, and how difficult to foresee, are the PRICES of farmers' PRODUCE.

PRICES  
of  
FARM  
PRODUCE.

At harvest, it was thought that barley would be at an "unknown price." Indeed, forty shillings to two guineas, a quarter, was then given, and fifty shillings talked of. Whereas, now, it is below thirty, for maltster's barley! and even a guinea is now mentioned!

Fat cattle, too, it was expected, and with good reason, would at Christmas, or soon after, have been sold for any money. But the fact turns out, that, notwithstanding the scarcity of keep, they are still as cheap, as they were several months ago.

## 115.

MARCH 3. Four or five days ago, a fall of snow took place, with a smart frosty wind, which still continues, and to which the TURNEPS, on the ridges of the lands, lie exposed; some

TURNEPS.

115.  
TURNEPS.

some of them evidently taking hurt; the rind of the roots changing to a livid color.

On examination, I find, those which are injured by the weather, are defective in their TAP ROOTS; some of which have evidently been *decayed*, previously to the frost, and others are now *frozen*; the sap in them being congealed into granules of ice; and the tap thereby rendered brittle, and easily broken off: while those which are yet healthy, rise with their taps; the sap of which remains in a liquid state; though the moisture in the soil, which surrounds them, is in a state of ice!

I am, therefore, going over the piece, with sledges; collecting the discolored roots only; which the cattle seem to eat, now, as freely as they do those which are yet perfect: but, whenever the frost may break, it is more than probable, that those which now wear symptoms of disease, will be the first to go to decay.

WINTER  
FATTING.

COLLECTING TURNEPS, in frosty weather, if proper tools be used, is by no means so severe an employment as theory may suggest. If men can stand out of doors, pulling them

up

up with a two-tined hook \* is as comfortable work, as they can well be employed on; and if they be thrown into the cart with prongs, this part of the work too, becomes agreeable exercise, without exposing the hands (as in the Norfolk practice) to any extraordinary degree of cold.

Finding that small turneps are liable to drop through, between the tines of a common dung fork, I have had one made with five tines, in the same form; but somewhat larger, than the ordinary three-tined fork; and it answers the purpose perfectly.

## 116.

MARCH 4. Horses still continue to die of the STAGGERS. Even the "Stafford medicine" (see MIN. 104.) now fails. Mr. — of — has lost seven or eight; and Mr. — of — nine of his *best* "waggon horses," and a "nag" for which he had refused forty guineas. What a loss to a farmer!

This disorder (differenced, from another species, by the name of *mad staggers*) seems

VOL. II.

R

to

\* I have seen, in Yorkshire, a small peck used, in this intention,

115.

WINTER  
FATTING.

STAGGERS  
in  
HORSES.

116.      to be a violent fever, attended with a delirium; and Dr. JAMES'S POWDER is, at least, a *probable* means of relief\*.

STAGGERS  
in  
HORSES.

## 117.

MARCH 7.      The circumstances attending the SALE OF BARLEY, this year, are such, perhaps, as no man can remember to have happened. See MIN. 114.

SALE  
of  
BARLEY.

At present, the maltsters, notwithstanding their stocks are understood to be low, buy little or none.

They may have two reasons for their conduct. Finding the farmers, whose pockets have been lowered by a losing year, eager to sell, they may be waiting for a fall in price. And the quality, even of the most highly samples, cannot, it seems, be relied on.

MALTING.

It is found, that even the little which was harvested, before the rains set in, does not "work kindly;" owing, as the opinion is, to its being "caught in the drought:"—to its maturation being checked, or left incomplete,

\* For a *probable* means of prevention, see GLOUCESTERSHIRE, Dist. COTSWOLD HILLS; etc. BEASTS OF LABOR.

plete, through a want of sufficient moisture. That which came away, in one crop, "and had some wet upon it," is said, by those who speak from experience, to work the best.

That which came up at different times, and was of course cut in different states of maturity, is found to work very badly: the different ripenings "coming," at different times. And as to the mow-burnt and the sprouted, they are of course unmaltable.

How much circumspection is required in the management of this crop! Something depends on the nature of the soil, much on its preparation, much on the season of sowing, and much, indeed, on the method of harvesting. Upon the whole, it may be deemed, of corn crops, the most difficult to be cultivated with certainty.

117.  
MALTING.

CULTURE  
of  
BARLEY.

## 118.

MARCH 9. The frost and snow still continue. Nevertheless, the STALL BULLOCKS are doing well upon turneps.

The weather being clear, they are got in, during the sunshine of the forenoon, and exposed,

R 2

posed,

FATTING  
CATTLE  
with  
TURNEPS.

118.  
FATTING  
CATTLE  
with  
TURNEPS.

posed, in the midday and afternoon sun, under the shed, which faces the south; and, when the day shuts in, are covered up with straw. The oxen thrive, and the turneps are eaten up clean.

But some Scotch bullocks, abroad in the FIELD, make great waste; and, though they look healthy, they do not improve.

From the practice of this season, I am still more fully convinced, that cattle at turneps cannot remain, with propriety, in the OPEN FIELD, in very *wet*, or very *severe* weather. (See NORFOLK.) In these seasons, a SHED, or a SHELTERED FOLD, appears to be requisite to common good management.

## 119.

CROXALL  
FAT COW.

MARCH 14. Yesterday, rode to Croxall, to see a celebrated cow, fatted to an extraordinary weight, by Mr. PRINCEP.

This cow is of Mr. P.'s own stock; a superior variety of the longhorned breed; and is, perhaps, the fattest, and the heaviest longhorned cow that has yet been fatted.

She

She is now coming six years old ; and was milked until June last ; until which time she had purposely been kept low, to induce her to breed ; but without effect. She was a “ roarer ” and a breaker of hedges. But, since she has been shut up to fat, she has been remarkably cadish and quiet.

With respect to FOOD, she has, no doubt, been indulged with every species, which a superior skill in grazing could suggest.

She has now been EIGHT MONTHS at prime keep ; and is to be killed tomorrow.

She is, in truth, a prodigy : fat, *upon*, beyond any thing I have seen. She *was* “ cracked on the back ” — cloven along the chine ; but the skin has fled from the vertebræ ; which are entirely grown over, and buried a considerable depth in fat ! except in one place ; where there is now a dish, large enough to hold a quart of liquor.

Her *twist* bulges out, as if it had received a bruise, and the part were ready to break !

Her *flank* *was* very good, to the touch ; but will, now, scarcely fill the hand : the fat is “ gone ; ” — is become so large, and stretched so tight, that the fingers can no longer grasp it.

119.

CROXALL  
FAT COW.

119.  
CROKALL  
FAT COW.

Her *shoulder* and her *kernel* are good; tho' not remarkably so. But her *nache*, her *hip*, her *rib*, and her *chine* are most extraordinary.

Her *foreend* long, but not remarkably fine.

Her *bosom* broad: *naturally*, I apprehend, a wide thick well carcassed cow; for one of this breed.

Her *flesh* mellow, and her *bone* extremely fine. Her fore leg is exactly the size of that of a Scotch bullock, which does not weigh half her weight.

Her dimensions I did not get, with any degree of accuracy.

She is laid at seventeen score, a quarter; or near a hundred stones, of fourteen pounds each.

*March* 18. I did not see this cow, after she was butchered; but am told, by an authority which cannot easily be erroneous, that she cut six inches of fat, on the chine; and weighed as follows. One of her hind quarters, eighteen score and fourteen pounds: the other, eighteen score twelve; and her fore quarters, eighteen score and one pound, each; that is, eighteen score seven pounds, round (beside nine stone of tallow): the four quarters weighing nearly one hundred and five stones, of fourteen pounds each.

MARCH



## 120.

MARCH 19. Last week, died GEORGE BARWELL; whose HONESTY, INDUSTRY, and GOODSENSE, were such as rarely center, in a farm laborer. LABORERS.

By dint of manual labor, he reared, to men and women, five children, and died worth a hundred pounds! a *fortune*, which he of course accumulated, in the wane of life, dying at the age of seventythree.

In evidence of his strict honesty,—he owed only sixpence, and he thought of it, in his moments of recollection, until the hour he died; entreating his children to remember to pay it. And, as an evidence of his care and industry (were any wanted), even in delirium, he talked about his work.

Proofs of his strong natural abilities occur in these Minutes. He thought more justly, and more clearly, than any unlettered man I have conversed with.

## 121.

GRAZING  
CATTLE.

MARCH 19. Yesterday, closed my PRACTICE in the MIDLAND COUNTIES, with the sale of some Scotch bullocks, purchased in November 1784, and kept at straw, during the ensuing winter, at ordinary grass through the summer, and at turneps, last winter.

Scotch cattle are not an article of grazing stock, in this district; nor is the practice of *finishing* grazing cattle prevalent here.

The useful information, that most aptly results from this incident of practice, is of a twofold nature: first, that Highland bullocks (when they can be procured at a moderate rate) are a profitable species of grazing stock, in this country; and, secondly, that, in a manufacturing district, where underfat meat is the readiest sale, and where that and well fed beef bear nearly the same price, it may frequently be good management to sell cattle, while they are yet fleshy, rather than keep them on, until they are fat.

Upon the whole, and under ordinary circumstances, the line of management of this species

species of grazing stock, here, appears to be this: purchase in autumn; give them rough grafs and straw, with some *turneps* in the spring; and freshen them up for market, with raygrafs or preserved pasture; selling them off, as fast as they become saleable: thus partaking of the best prices before the ordinary *grafs* beef of the country be ready,

121.

GRAZING  
CATTLE.

## 122.

HARBOROUGH, APRIL 27. To gain a more accurate idea of the outline of the district, whose area I have traversed, during the last two years, in almost every direction, I have, in leaving it, traced the banks of its surrounding rivers,—the ANKER, the TAME, the TRENT, and the SOAR;—by Tamworth, Elford, Walton, Burton, Repton, Milton, Stanton (lovely passage of country!), King's Newton, Donnington, Cavendish Bridge, Dishley, Loughborough, Leicester; and from thence across LEICESTERSHIRE; by Bilsdon, Hallaton, &c. to this place: a ride of eighty miles; and, considering its length, one of the richest in the island,

DISTRICT.

The

122.

SCARCITY  
of  
CATTLE.

The present SCARCITY OF CATTLE for grazing (in this district at least) appears to me no longer a mystery. Leicestershire, not long ago, was an open arable country; including a proportion of cows and rearing cattle: now, it is a continued sheet of green-sward. A district of grazing grounds\*.

MARKETS.

The FAIR OF MARKET HARBOROUGH. A horse show, closing with a considerable cattle fair. The general and loud complaint is a want of farm stock.

Lean cattle have got up twenty shillings, a head, within these few days.

IRISH  
CATTLE.

The supply of IRISH CATTLE has been kept back, by easterly winds: excepting some few that have been got over with difficulty; and these in a starved state: "but just able to walk"! Many of them, it seems, are driven a hundred miles or more to the coast, where, if the wind be contrary, they are detained, perhaps several days, with a very scanty allowance of food: "none on the voyage;" and but little, this season of scarcity (hay four or five pounds a ton), when they reach the English shore.

What

\* The graziers being supplied with *bread* from distant districts!

What a disgrace to this country! Last year, it was estimated, I remember, that the number of cattle imported was thirty six thousand! without which the grazing grounds of *this* country could not have been nearly stocked. And, this year, the graziers, under an apprehension that the Irish are about to lay restrictions on the exportation of their cattle, despair of stocking their grounds!

How disgraceful to this country, to be *dependent* on another, for a supply of one of its principal necessities of life; and to purchase it at the annual expence of some hundred thousand pounds, *ready money!* and this, too, while a very considerable share of its lands lie in a state of waste; and while a considerable share of the food of men and cattle, which its cultivated soils at present produce, is wasted on unprofitable animals.

122.  
IRISH  
CATTLE.

ENGLISH  
AGRICUL-  
TURE.

M I N U T E S  
O N  
W O O D L A N D S, L I V E H E D G E S,  
A N D  
P L A N T I N G  
I N T H E  
M I D L A N D C O U N T I E S,

123.

RAISING  
LIVE  
HEDGELS.

1784. MAY 1. Finished a NEW FENCE, on a plan which I have practised, in different departments of the island, and which, in situations where the substrata will admit of a ditch, and where stakes and edders abound, is preferable to any other, I have hitherto observed.

The DITCH is a perfectly equilateral triangle; each side or slope, as well as the width, at the top, being a quarter of a rod; namely, four feet one inch and half.

The

The BANK, on the fence side, is formed with the first three spits of mold; a BANK-LET, as a guard to the outer brink of the ditch, with the fourth spit, and the pointing; the last being raised with a narrow-pointed draining tool.

The HEDGEWOODS are transplanted *hawthorn*, with an *oakling* at every rod, laid in with the hawthorn plants.

The METHOD OF PLANTING. The first spit—the cultivated corn mold—a good loam, forms the bottom or foundation of the bank; over which the second spit, a brick earth, being spread evenly, the face was adjusted, and the top levelled; and a line being stretched, a foot from the angle of the mound \*, a narrow trench was opened behind it; by chopping the spade down to the first spit, and drawing back the loose mold. In this trench, the plants were set, from four to six inches apart, nearly upright, and their roots bedded in the finest of the mold, in the nursery manner;

\* It is observable, however, that this width, though favorable to the infant plants, is too great, where sheep are pastured, on the ditch side, the first or second year after planting. Even longwooled sheep, after they were shorn, leaped across the ditch; and, getting foothold on the platform, injured some of the plants,

123.

RAISING  
LIVE  
HEDGES.

123.  
RAISING  
LIVE  
HEDGES.

nier; planting them *in* the best of the sub-soil, *upon* the cultivated corn mold; and casting the third spit behind the line of plants.

The GUARD, *in front*, is the sharp ridge or banklet; abovementioned: formed on the opposite brink of the ditch, with the fourth spit and the pointing: *behind*, is a low, stiff, stake-and-edder hedge; set on a bank formed with the third spit.

The edders being beaten down with a beetle, and the stakes re-driven, to within a hand's breadth of the edders, the face of the hedge was trimmed, so as to prevent the spray from dripping upon the plants. The hedge is strong enough to bear a man's weight: *a stile from end to end*.

Lastly, the back of the bank was adjusted, with a sufficient slope, to stand firmly, and was sown with raygrass and white clover.

The whole EXPENCE of the sixtyseven statute rods, including labor, plants, and materials, has been 7*l.* 9*s.* 8*d.* Not two shillings and threepence, a rod: not fivepence, a yard.



## 124.

MAY 20. This morning, strolled into Warwickshire.

CULTURE  
of  
WOODLAND.

Mr. LAKING, of HALL END, whose landlord (living at a distance) has judiciously entrusted him with the care of his woodlands, obligingly showed me a YOUNG OAK WOOD, of about seven acres, which he recollects to have been planted with acorns.

He was, at the time of planting, a child. He is now near seventy. He thinks it is about sixtythree or four years ago.

The inclosure was in grass. A hole was opened, by a kind of scoop or gouge, run obliquely into the surface, so as to raise up a tongue of turf, under which the acorn was placed. The sward was not broken, neither by the spade, the plow, nor the hoe; nor does he believe that any kind of nursing, except keeping up the fences, was used.

PLANTING  
ACORNS.

In about thirty years, it was "coppied," that is, partially cut down, as underwood; leaving timber stands.

TRAINING  
WOODS.

It has since been coppiced twice; the last time about twelve years ago; when the tim-  
bers

124.  
TRAINING  
WOODS.

bers were thinned, in a manner that does Mr. L. great credit.

The weedlings were sold, chiefly, for rails, at a good price.

Mr. HILL, in whose farm this wood stands, does not recollect the exact produce of these seven acres: but another piece of somewhat more than four acres, planted about the same time, has, he says, already paid its owner upwards of 400*l.* or 100*l.* an acre: while the timberlings, which are still too thick, are some of them worth 20*s.* to 25*s.* a tree: from forty to fifty feet high, and from six to ten inches timber girt.

There is a strikingly exact proportion, between the size of the tops, and the thickness of the stems. How injudicious to suffer trees to crowd each other! Mr. L. seems fully convinced of this; and is meditating another thinning. His ideas are very just in this respect. He is equally aware of the mischiefs ensuing from the lashing of the tops, and of the utility arising from young plants standing sufficiently close, to draw each other up straight; as well as to rot off the lateral shoots of the stems.

The

The soil is a cold weak clay, worth about 7s. or 8s. an acre; the clay continuing a considerable depth. How judicious to plant such land with OAKS. The trees are clean and full of growth.

Mr. Laking also showed me a small plantation of his own; about twelve or fourteen years old. The ground was fallowed; sown with wheat; harrowed; and the acorns dibbled in, by women, soon after the wheat was sown. The plants have never been touched. They are, however, getting very unsizeable; beginning to be drawn up too slender; and, now, want weeding. They were never hoed, except partially, and Mr. L. seems to think that cleaning the land is not of great use. The subsoil is a bed of fine clay: the plants are clean and thriving.

LADY ROBERT BERTIE has a *field* of Oaks getting up, by the side of Shortwood. Mr. Hill says, he sowed the acorns, about sixteen or seventeen years ago: he also sowed some ash keys, at the same time; but few of the ashes have got up, and the oaks are too thin. The acorns and keys were sown broadcast, and harrowed in with wheat.

124.  
SITES  
of  
WOODLAND.

CULTURE  
of  
WOODLAND.

SOWING  
ACORNS.

124.  
CULTURE  
of  
WOODLAND.

Mr. L. says this field was sown with tree seeds, about fourteen years prior to the last sowing; but a rabbit warren then lying contiguous, the plants were all cut off.

It is in vain to attempt to propagate wood, in the neighbourhood of warrens; whether of rabbits, or hares.

## 126.

CHAFERS.

MAY 23. The myriads of CHAFERS (*Scarabæi melolonthæ*—brown beetles) are this year alarming.

For three or four evenings past, the air has been full of them: one continued buzzing; attended with a ringing noise, like that of a coming hail-storm. During the day, the trees, the oaks especially, are covered with these insects. Of Amington wood, the top and the outside trees are covered with them. They seem almost as numerous as the leaves. In the wood, there is a continual fall of their fœces, equal to, and much resembling, a moderate fall of rain. A gust of wind shakes down the animals themselves; which fall to the ground, in showers, like acorns in autumn.

tumn. The surface of the wood (about fifty acres) is almost stripped of its leaves.

126.

CHAFERS.

From conversation, I find this country, in which grass lands prevail, generally abounds with these insects; but never, perhaps, so much as this year. The whole came forth, to common observations, the same evening. The spring had been unusually cold;—warm weather set in suddenly; and, in a few days, the chafers made their appearance.

## 127.

MAY 27. Great quantities of CHARCOAL are still used, in the iron forges of this country. For although it has been discovered, that iron, for common uses, may be made with pit coal; yet, for particular purposes, where a toughness of texture is wanted, as for wire-drawing, &c. charcoal is found to be requisite.

MAKING  
CHARCOAL

In this country, there are sets of men, whose trade is the burning of charcoal. They cut and cord, in the winter, and burn, during the summer season.

127.  
MAKING  
CHARCOAL.

There is a set, of three, now at Statfold ; to whom I have closely attended. The minutæ of the process is this :

The site or "hearth" being determined upon, the turf is pared off, and the sods laid on one side. The wood, about ten cord, is then laid in a ring, somewhat wider than the intended hearth ; beginning, on the outer circumference of the ring, with the smallest of the round wood : laying the larger pieces of top wood, and the cloven roots or but ends, towards the hearth.

With these last, some of them nearly as large as bushel blocks, they begin to make their pile ; leaving a sort of chimney, in the middle (a vertical aperture from a foot to eighteen inches wide) ; and, round this core of blocks, set up the top wood (which has, previously, been cut, at the time of cording, in such a manner, that no forkedness, nor other awkward crookedness is left ; or, if not cut in this manner, or cut improperly, it is prepared by the colliers, themselves, previously to their laying it ready for setting) ; joining the pieces, or rather fitting them in, as close to each other as possible : placing the convex side of the logs outward ;  
forming

forming the pile in the shape of an inverted bowl, nearly semi-globular.

The pile being formed, it is *tiled* with sods ; which are *pointed*, to keep in the heat the better, by filling up the seams, with fine pulverized mold.

The chimney is now filled, with short pieces of dry wood : near the top a live coal is put ; over this one layer more of dry pieces ; and, upon these, a close cap of sod is placed ; nevertheless, this one coal, not larger than the fist, and excluded from the open air, is sufficient to set the pile on fire.

As the pieces in the chimney burn away, they are replaced with fresh ones : thus feeding the fire with fresh fuel.

Close-paled hurdles are placed, on the windward side of the heap, to prevent the fire from acting partially.

When the fire begins to show itself, at the outward skirts of the bottom of the pile, it is known that the coal is fully burnt (or rather that the wood sufficiently charred), which it will be, in a pile of ten cord, and in dry weather, in seven or eight days.

127.

MAKING  
CHARCOAL.

127.

MAKING  
CHARCOAL.

The fire, during the whole time, is carefully kept from breaking out, by throwing mold or ashes upon the weak parts ; so that, though the fire passes through every part of the wood, little or none of the matter of fire escapes.

It is observable, that, notwithstanding the intense heat, no part seems to be *consumed* ; not the bark only, but even the moss upon it, comes out as entire as when it went in ; the only apparent change is in its being rendered friable, and of a black color. Wood, that is charred, *shrinks* considerably, during the process of charring ; but there is no visible *derangements of parts*. One of the smaller pieces, which is not broken in the drawing, appears as *entire*, when it comes out, as when it went into the pile. The brittleness after charring, however, shows that the texture of the wood is altered, by the action of the fire.

As soon as the fire disappears, on the outside of the heap, the workmen begin to “ draw the coal” : an operation which is done, by running a peel, between the coal and the hearth ; raising up the coal, in such a manner, as to let the mold and ashes of the  
fods



sods fall through, between the pieces, upon the more inward parts still full of fire. If this makes its appearance, in any particular spot, a peel full of ashes is immediately thrown against it.

Having got sufficiently near to the fire, the coals, raised by the peel, are raked off, with long-toothed iron rakes: the teeth about a foot long; and standing about six inches apart: the handle and head of wood; except a plate of iron on the back; with which the small coal is gathered together. No sieve, nor any rake, with finer teeth than the above, is used. The coal, being light, is readily brought to the surface of the ashes and dirt; and, when there, is easily collected (though with a kind of slight) with the back of the rake.

The side, thus drawn, being rounded up, and secured with ashes, another, the coolest part, is drawn, in the same manner.

The drawing is an infernal business: the men work among fire and phlogiston enough to suffocate Satan himself.

Such pieces as still retain fire, after they are drawn, are quenched with water; which the workmen have in plenty standing by

127.

MAKING  
CHARCOAL.

them, in pails. If a large piece contain much fire (which is hid, chiefly, in the chinks of the large pieces), it is plunged, bodily, into the water. If the heap, itseif, prove too refractory, to be kept under, by the ashes alone, a sufficient quantity of water is thrown upon it to keep the fire under. Such large pieces, as are suspicious, are laid on one side; in order that those which take fire may be the more readily discovered.

A waggon attends, to take away the coal, as fast as it is drawn. For, if it take fire, or get wet, in the hands of the "burners," it is at their risque: and, while in the waggon, it is at the risque of the waggoner, Every particle *burnt*, is so much wasted.

For farther remarks on this process, see MIN. 151.

128,

NATURAL  
WOODLAND.

JUNE 10. It is striking to see the number of YOUNG OAK PLANTS, now springing up, in the grass grounds of this neighbourhood. Some grounds are scattered thick enough for a crop of timber: frequently two, three, or four in a square yard!

On

On examination, the acorns, invariably, are found to be partially buried in the soil; and their upper surfaces overgrown with moss and roots of grass; so that no part of them is seen; but, on pressing the finger against the root of the seedling plant, the acorn is readily found, in that situation.

The acorns still appear, as perfect, as they could be, the day they were dropt: notwithstanding some of the seedling plants are already six inches high, and their roots not less than a foot long!

From the manner in which the acorns now hang to the plants (by two tough ligaments growing out of the two lobes of the acorn), the roots appear to have struck first, and the stem to have, afterward, shot up from it. The roots are now (the former part of June) the size of wheat straws. The stems somewhat thicker than the stalks of raygrass; with a tuft of leaves on the top of each.

How these acorns became, so universally, and so regularly, scattered over the surface, and by what means they were thus partially buried in the soil, seems unaccountable.

128.

NATURAL  
WOODLAND.

Query,

128.  
NATURAL  
WOODLAND.

Query, have they been dropt, by rooks or woodpigeons, and trodden into the ground by cattle? Or do the rooks intentionally hide them, in this manner, and afterward forget them? or deposit them, instinctively, to propagate this their favorite food!

CULTURE  
of  
WOODLAND.

Let this be as it may, the circumstance under notice proves, that oaks may be propagated on sward, at a small expence.

*Perhaps*, eat the ground bare; sow the acorns, broadcast, when the surface is moist; and roll them in, with a light roller. Or place them, by hand, at regular distances, and tread them in.

The seedling plants, under notice, are healthy, and vigorous, in a superior degree.

## 129.

CHAFERS.

JUNE 13. (See MIN. 126.) About ten days ago, the chafers were *finishing* the foliage of Statfold wood! The under boughs (which they had left 'till the last) were then covered with them. I counted near fifty on one small branchy twig, no thicker than the finger!

Yesterday,

Yesterday, I observed near Breedon, in this district, a wood *partially* eaten to the bare twigs: most of the trees wearing their winter appearance! while some few are scarcely touched! And the same partiality is, I find, more or less observable everywhere.

This is an interesting fact. The *age* of the tree does *not*, evidently, influence their choice. Statfold wood (one hundred and fifty years old) and Shuttington coppice (a young wood) are equally injured.

This insect appears to be one of the greatest enemies the oak has in this country. Query, are not hard winters, are not long and *late* frosts, friendly to this insect; by keeping the chrysalis locked up from devourers, until late in the spring; when warm weather, setting in suddenly, as it did this year (see vol. i. p. 114.), the entire brood escape.

If hard winters be favorable to the chafer, it is highly probable that the narrow rings of the oak, observed by LINNEUS to correspond with the hard winters of 1578, 1687, and 1709\*, were *not* occasioned by the

129.

CHAFERS.

ENEMIES  
of  
THE OAK.GROWTH  
of  
THE OAK.

\* See Dr. PULTNEY's General View of the Writings of LINNEUS, page 35.

129.  
GROWTH  
of  
THE OAK.

the SEVERITY of those winters ; but by the abundance of INSECTS, to which it may be said they *gave birth*.

Indeed, it is not easy to conceive, how the severity of winter, simply considered, could have any influence or effect of that nature. Few men can remember so severe a winter, in this country, as the last ; yet no man perhaps ever knew vegetation so rapid, or so vigorous, as it has been, and still continues, this spring. The abundant flow of sap in the oak, more particularly, was obvious to common observation : the oldest bark peelers remember not a similar instance. To use the strong expression of an experienced woodward, on this circumstance, "one might have washed one's hands in it."

### 130.

GROWTH  
of  
THE OAK.

JULY 25. This summer, the oak puts on an unusual appearance. The spring shoot having been taken off (entirely from most individuals—see the last Minute) by the chaffer, the Midsummer shoot (or more accurately speaking, a fresh shoot) has supplied its place ;

place ; the trees, now, appearing in the color and softness of May.

The leaves, however, as yet, are small, thin, and faint ; unable, probably, to draw up any considerable supply of sap : and even supposing them to acquire, before autumn, their natural size and texture, the loss of time, and the extraordinary check the sap may have received, during the defoliated state of the trees, will probably prevent them, this year, from forming their ordinary increase of wood : a circumstance which may, hereafter, be easily proved by examination.

130.

GROWTH  
of  
THE OAK.

131.

JULY 25. A striking instance, of the utility of trimming off the side shoots of hedges, occurs on this farm.

One of the hedges of No. 4. (a young-grown hedge, having been plashed some four or five years ago) I have lately pruned, on both sides, so as to reduce it to about four feet thick : the greatest thickness to which hedges, in general, can with propriety be suffered to spread.

TRAINING  
HEDGES.

Another

131.  
TRAINING  
HEDGES.

Another hedge of the same inclosure (an oldgrown hedge, of perhaps twenty years' growth from the last plashing) occupies, on a medium, a slip of ground, of twelve feet in width: one bundle of boughs stretches out more than ten feet from the stem; and hangs so low that neither plow can work, nor even a sheep graze, beneath it.

The difference between twelve and four is eight: so that there is a slip of *entirely waste ground*, eight feet wide, and nearly fifty rods in length: of course, by the improper management of this hedge, there are more than twenty square perches of land laid waste: which half rood of land might, by a few hours well timed labor, have remained productive.

If a neat farmer, in this or almost any other district, had a pitplace or hollow way upon his farm, containing half this quantity of land, he would work at it, for weeks, to make it culturable.

The firstmentioned hedge took a man two days, to reduce it; but, in that case, there was a border of briars and brambles, several feet wide, which was to be cleared away, before he could work at the hedge: a bor-  
der



der which not only occasioned a waste of land, without any counter benefit; but was of course unfriendly, and in a degree dangerous, to sheep: whereas, now, stock may graze, with safety, up to the stems of the hedge: and the plow and the fithe have equal freedom.

The objection held out against the practice of pruning hedges, is a loss of wood.

If hedges be pruned, not on the *sides*, only, but, on the *top*, keeping them fence-height, this objection certainly has its weight, and, where wood for dead hedges is wanted, is an actual loss. But, when it is set up against the practice of striking off licentious side shoots, only, leaving the top, or more properly the *hedge*, to run up, it has little or no foundation. For the main shoots—the valuable part of the hedge—or, as has been said, the hedge itself—rises in the middle; and is rather invigorated, than injured, by checking the growth of the sides; giving the hedge plants an upward tendency; and turning the current of sap, which would have been spent on the side branches, into a more useful channel; thereby converting it to the most valuable parts of hedging materials—stakes and shooting wood. In

131.

TRAINING  
HEDGES.

131.

TRAINING  
HEDGES.

In six or seven years, the main shoots of the hedge under notice, will be fit for these purposes; and may, then, be taken off, fence-height; leaving, free of cost, a live fence, which, in the course of ten years more, will, under similar management, be again in a similar state.

This mode of treatment, however, must not be too often repeated. In a course of years, the entire hedge will require to be cut down to the stubs: and a fresh range of stems to be raised. But, by the mode of treatment, here recommended, the stems require to be renewed *less often*, than they do under ordinary management. For, by giving the weaker stems perpetual air and daylight, on the sides, and by giving them perfect freedom, above, once in nine or ten years, they are enabled to struggle, *the longer*, with their more powerful neighbours.

Hence, upon the whole, it appears, evidently, that taking off the side shoots of hedges is highly beneficial to the tenant; as giving him, at least without loss, the use of his land; and still more highly to the estate; by prolonging the duration of the fence. See MIN. 161.

JANUARY

## 132.

1785. JANUARY 24. The evil effects of WATER, STANDING AGAINST LIVE HEDGES, are obvious, in No. 18.; as well as in other instances, which I have lately observed.

TRAINING  
HEDGES.

In the instance, more particularly under notice, it is evident, that wherever the water *stood* in the ditch (which is now scoured), there the quick is stunted and mossy (and the same effect is observable in the other instances); while, in the intermediate parts, where there has been a *current* of water, (this ditch acting, in wet seasons, as a shore to some lands which lie above it), the hedge is remarkably full of growth.

May we from hence conclude, that hedges, like grass lands, are benefited by RUNNING WATER, and injured by STANDING WATER?

This being as it may, it is evident, enough, that standing water, whether it lodge, *high in the ditch*, so as to reach the region of the

132. feeding fibres, or, on the *back of the hedge*, is prejudicial\*.

PLANTING  
HEDGES.

Hence the impropriety of *planting the hedge on the upper side of the ditch*; especially across ridges and furrows; as, in this case, the water, dammed in the furrows by the bank made across them, has no other means of escape, than that of oozing through the bank: thus becoming productive of double mischief. See NORFOLK, MIN. 45.

133.

GROWTH  
of  
THE ASH.

FEBRUARY 26. Counted the rings of a found, full-grown ASH, measuring twenty-one inches in diameter.

The

\* I have observed, in more than one instance, a striking good effect, on NEWLY PLANTED HEDGES, from water lodging at the *bottom of the ditch*; by affording, especially in a dry summer, a seasonable supply of moisture to the young plants, without incommoding their roots. This, however, is no argument in favor of suffering the ditches of older hedges to be warped up, and filled with water to the brim; as is too frequently the case, in every district.

The number of rings—ninety. Of the first ten years, as well as of the last ten, the growth has been slow. In the intermediate years, the different thickneses of the rings, in different years, are striking.

What is the cause of this disparity? Which description of years are *wood* years, and which not? An interesting research.

133.  
GROWTH  
of  
THE ASH.

### 134.

MARCH 1. Yesterday, took down three thriving ELMs.

GROWTH  
of  
THE ELM.

The number of rings—twentynine, beside the inner bark: thirty years old: an age which is corroborated by living evidence\*.

Two of them measure, at the butt, more than two feet diameter; and, at four feet high, more than eighteen inches.

What a produce! These two trees,—as large, but not larger, on a par, than eight more left standing,—measure fortyfour feet, timber measure; including the bark: about

PRODUCE  
of  
ELMS.

T 2

forty

\* In another instance, in which the time of planting is ascertainable by written evidence; the number of rings corresponds exactly with the number of years growths.

134 PRODUCE of ELMS.	forty feet of saleable timber; worth a shilling		
	a foot — — —	2	0 0
	16 fencing posts and rails, at 4 <i>d.</i>	0	5 4
	9 feet of cord wood, at 10 <i>s.</i>	0	11 3
	40 spray faggots — — —	0	3 4
			<hr/>
		£.	3 0 0

These trees stand not quite eight yards from each other: consequently, each may be said to occupy two rods or square perches of land; and their produce, an acre, a year, may be easily calculated.

From the almost uniform size of the rings, these elms appear to have been still in full growth; and might, perhaps, have continued 10, ten or twenty years longer; provided the distance between them would have admitted air and headroom. But their tops already interfered, and their roots, in all probability, had reached each other: it is therefore unlikely that they should long have continued to make a similar progress; and a doubt, perhaps, whether they would have long paid for LANDROOM. The soil is a rich loam, on brick earth. The situation low, and screened on the north.

## 135.

MARCH 5. Counted the rings of a common POPLAR. The number is fifty. The diameter, at the butt, two feet three inches; at ten feet high, twentyfour inches.

GROWTH  
of the  
POPLAR.

The last ten years, it has grown very slowly: its increase, in that time, being not more than three inches diameter; or one and a half inch in the width of the rings. It had therefore grown ten inches and a half, in the first forty years: or a quarter of an inch, each year.

This tree is beginning to rot, at the heart. In the lower part of the stem, about an inch and a half in diameter is entirely decayed. It has therefore stood too long: though, to appearance, it was a healthy thriving tree. Even supposing it to have fallen perfectly sound, the increase for the last ten years has been inadequate to its encumbrance, and the interest of its value at forty years old; at which age it would have paid well for planting and landroom. The soil is a rich loam: the situation moist.

## 136.

SALE  
of  
TIMBER.

MARCH 18. Rode to Atherston, to an auction of one hundred and sixtythree OAK TREES, now standing in MEREVALE WOOD.

They were put up to sale, under these conditions. The whole to be taken down, this season: ten percent of the purchase money to be paid, within three days after sale, and security given, for the remainder; the first moiety to be paid, in full, at Lady-day 1786, and the remaining moiety, at Michaelmas following: the ground to be finally cleared, before Michaelmas 1787: the road to be repaired, by the seller: not to advance less than ten pounds, each bidding; and, if no one offer an advance, within *five minutes* after the last bidding, the last bidder to be the purchaser.

They were put up at three o'clock, at 500/. and sold, a little before four, at the extraordinary sum of 1200/.!

This lot of trees makes part of a wood, which caps a bold strongly featured promontory, and contains ten times that number of trees: some of them as valuable, and others  
still



still more valuable, than those which were fold, today.

136.

They are, beyond comparifon, the tallest oaks I have feen. Some of them are faid to meafure feventy feet, in the ftem! I ef- timated feveral at fixty.

GROWTH  
of  
THE OAK.

One of the largeft trees, in the lot fold today, girts, at five feet high, ten feet ; and its ftem I efimated at forty feet. If it girts only eight feet, at twenty feet high, it con- tains four tons of timber ; which, at three pounds a ton, the current price for ordinary timber, is twelve pounds. But to ftand againft thefe large trees, there are others which have not twenty feet of timber each, and a few that are as “ hollow as churns.”

The very large trees now ftand from two to three rods afunder ; but muft, in their youthful ftate, have ftood in the grove man- ner ; their ftems being ftaight and clean as Weymouth pines.

The SOIL a fhallow loam : the SUBSTRA- TUM, rock.

## 137.

RISE  
of  
S A P.

APRIL 16. Conversing with two experienced woodmen, ON THE RISE OF THE SAP OF OAK, they were clearly of opinion, founded on many years experience in felling timber, that the sap of *old* trees rises, much earlier, than that of *young* ones.

In pruning and setting up an old oak, with a view to ornament, two days ago, the sap had evidently reached the uppermost twigs: though the grosberry is now only foliating, and the fallow has not yet blowed.

Mr. —, a considerable timber dealer, says the bark of the trees, in Merevale Wood, would now run; and the woodmen corroborate this, in saying, that they generally begin a fortnight sooner in that Wood (the oldest in the neighbourhood) than in any other.

This early rise of sap, in old trees, may be owing to the vessels being comparatively large and rigid; the bark being less elastic, not embracing the wood so closely, as that of *growing* trees, which will even burst.

burst the bark, to gain that freedom of circulation, which, perhaps, in the end, is injurious to old trees.

137.  
RISE  
of  
SAP.

### 138.

APRIL 16. On Monday last, was sold, by auction, seven hundred and fifty OAK TREES, standing on the stem, in WEEFORD PARK.

SALE  
of  
TIMBER.

The conditions of sale were—to advance five pounds at each bidding, two bidders to make a sale. The buyer to pay down immediately five percent, and give security for the remainder: one half of which is to be paid, at Michaelmas next, the other half, at Midsummer 1786. The ground to be cleared by Christmas next; with, however, liberty to let the timber remain on an adjoining common, for any further time. To have the usual privilege of making sawpits, cutting turf for charcoal, and, in this case, of cutting “kidbands:” a dangerous privilege; except, as in this instance, where there is much coppice wood to go over.

These trees having been previously valued, for the seller, at 610l. were put up at 600l.

confe-

138.  
SALE  
of  
TIMBER.

consequently could not be sold under the estimate. They fetched 65*l*.

It is observable, that these trees being "small butted" and large topped, that is, the tops being large in proportion to the stems, and the BARK being *young*, and of a good quality, it sold for near *one third* of the whole purchase; whereas the bark of the "long butted," small topped trees of Merevale, did not sell for more than *one tenth* of the timber. But, in this case, the trees were *old*, and the bark, of course, foul, and of an inferior quality.

139.

SALE  
of  
TIMBER.

APRIL 31. Yesterday came on the sale, by auction, of the OAK TIMBER of STATFOLD.

STATFOLD wood, though not extensive, has long been an ornament to this country; and its timber has always been considered as being of a valuable quality.

Its extent is under twenty acres; its timber consisting chiefly of oak and ash:—the oaks many of them good trees;—worth five six or seven pounds, a tree.

It is observable, that the best oaks stand on the south and southwest quarters; the north side being principally ash. See vol. i. p. 67. and MIN. 166.

How deceitful are the appearances of woods! This Wood appears to the eye, at a distance, as well as on a nearer view, to be a *large oak wood*. Yet, at present, the eighteen or twenty acres contain only four hundred and fiftytwo trees, large and small: not more than twenty to twentyfive trees, an acre; the whole being not more than adequate to the building of one fourth of a seventyfour gun ship! \*

This Wood, so far as can be judged from the number of its years growths, is about one hundred and fifty years old: the trees, in general, wear the appearance of being full grown,—some few of them verging towards decay: the whole, as a crop, being fully ripe, and fit to be harvested.

The conditions of sale were these:

1. Two bidders to make a sale.
2. No advance less than five pounds, to be considered as a bidding.

3. No

\* See PLANTING and RURAL ORNAMENT: Division WOODLANDS; Introductory Remarks.

139.

SALE  
of,  
TIMBER.

139.  
SALE  
of  
TIMBER.

3. No person advancing five pounds, within *five minutes*, after the last bidding, the last bidder to be the buyer.

4. The purchaser to pay down ten percent of the purchase money, and give immediate security, if required, for the remainder; or the lot, for want of such deposit or security, to be put up, again, to sale: one half of the remaining purchase money to be paid on or before the 25th December next, and the other moiety on or before 29th September, 1786.

5. The coal wood to be burnt in the wood, &c.; the purchaser having liberty of cutting turf, also of making sawpits, in these places. The ground to be entirely cleared, before Christmas 1786.

There having been, a few years ago, a deliberate valuation made of these trees, the several lots were, in common prudence, put up at near their estimated value; it having been previously declared, that no bidder should be employed on the part of the seller; but that the sale should be real, free, and determinate; a declaration, which, when bidders are sufficiently numerous, and unconnected

ected with each other, is, perhaps generally, sound policy, in the seller.

In this instance, the biddings were rapid and spirited, almost beyond example.

The four hundred and forty trees fetched upwards of three hundred pounds *more* than their estimated value. So that grounding the calculation on the late estimate, and allowing for an increased growth of timber, they sold at the rate of three guineas to three pounds ten shillings a ton, of forty feet of timber.

The BARK of this timber was estimated at about *one seventh* of what the timber sold for. See MIN. 138.

The timbermen of this country, as well as the tanners, seem well acquainted with the QUALITIES of BARK; which varies much in value. The "rough" "heavy" (that is, thick) bark of the *stems* of *old* timber is esteemed of a bad quality. On the contrary; the "fleshy," "light" (that is, thin) bark of *youthful* growing stems, and of well grown *tops*, is deemed of a good quality. Bark, however, may be too light, too thin, too young, so as to shrink too much in drying.

But

139.  
SALE  
of  
TIMBER.

QUALITY  
of  
BARK.

139.  
PRICE  
of  
BARK.

But the PRICE OF BARK varies more, in respect to *situation*, than intrinsic *quality*. At TAMWORTH, it is, now, worth forty shillings, a ton. At ATHERSTON, only nine miles distant, it will not fetch more than thirty shillings, or a guinea and a half, a ton. A large parcel was sold lately, in WARWICKSHIRE, at twentyfive; and in SHROPSHIRE it may, now, be bought for twenty shillings, a ton: differences which doubtless arise, in the different proportions, between the quantity of leather tanned, and the quantity of timber fallen, in the several situations: the CARRIAGE OF BARK bearing a considerable proportion to its original value.

140.

TIME  
of  
FELLING  
TIMBER.

APRIL 21. The purchasers of the MEREVALE TIMBER began to fell, yesterday: although the grosberry has barely foliated, and the hawthorn but just beginning to open. And it is the opinion of experienced timbermen, that some of the trees in Statfold Wood (about fifty years younger) would likewise run.

Query.



Query, is this early rise of sap owing to the specific nature of the trees of this district? or to the nature of the soil or climature? or are woodmen, in other districts, ignorant as to the circumstance of the bark of *old* trees running, *so much* earlier, than that of *younger* wood?

140.

RISE  
of  
SAP.

It is observable, that young trees, and even the young wood of old trees, retain the leaves, longer, than the older branches of aged trees: the sap, having, *perhaps*, a less free circulation, neither rises nor falls, so rapidly, as it does in old wood; in which the ducts are become large, and in which the "flesh" of the bark may have lost, in great part, its elasticity.

## 141.

APRIL 21. The "LAG" is a common blemish of timber trees, in this country: a defect which I do not remember to have met with in any other; unless it be included, elsewhere, in that of SHAKEY. It is a cleft, or rift, reaching sometimes from the top to the bottom of the stem, and, perhaps, to near its center.

THE LAG  
in  
TIMBER.

This

141.  
THE LAG  
in  
TIMBER.

This defect is believed to be caused, by frost. No other ground, however, is produced for this opinion, than the evidence of an old man, who lives (or lived) in the neighbourhood of SUTTON PARK (in which the "lag" is very prevalent \*), and who says that, "in the hard frost," he has, in the night, heard the trees burst, with reports as loud as those of guns! and that, on examination, he has found cracks in them, large enough to thrust in his hand.

If this be a fact, it is an interesting one. It is, at least, probable; and is, indeed, the only rational account that, perhaps, can be given of this too well ascertained effect †.

142.

R I S E  
of  
S A P.

APRIL 28. Two of the purchasers of the STATFOLD OAKS began felling, today.

The tops run perfectly well; but the lower parts of the stems move with difficulty.

This

\* Different woods varying much as to this disease.

† I publish this Minute to bring forward a fact in Natural History, which otherwise, perhaps, might not have come before the public. The circumstance accounting for it was related to me, by Mr. SHEASSY of Tamworth.

This may seem a paradox. Yet the fact is so notorious that an old barkpeeler will have it, the sap enters at the top.

The buds are just beginning to *swell*: the small twigs are full of sap: and no wonder they are so; for the buds not being yet *opened*, the sap has yet no *vent*, and there is, of course, a *surcharge*. This SURCHARGE necessarily takes place at the EXTREMITIES of the BOUGHS; which might be termed the *bottom* of the CONTAINING VESSEL; while the roots and the stem might be said to act the part of a tunnel, *down* which the sap, collected by the fibrils, is poured\*.

142.

RISE

of

S A P.

## 143.

MAY 1. This morning, spent some time, in STATFOLD WOOD.

In one set of workmen, there are nine FELLERS to seven PEELERS! and, in another, three fellers to four or five peelers. But "stocking"—see vol. i. p. 69.—requires a greater proportion of fellers than axefelling, in the more usual way.

METHOD  
of  
FELLING  
TIMBER.

VOL. II.

U

The

\* The circumstance of the side shoots of the stem forming before the top of the tree, accords with this theory.

143.  
METHOD  
of  
FELLING  
TIMBER.

The minutæ of STOCKING are these: the horizontal roots having been bared with a mattock, are cut through with falling axes (see as above);—and one end of a rope having been previously, or while the surface roots were cutting, fixed judiciously to a bough in the head of the tree, and the other end to the bottom of a neighbouring tree, in a proper direction, the tap and other downward roots (if not very large) are broken off, by means of this purchase; tearing out the crown of the root entire.

Much judgment and circumspection are requisite in letting down large spreading trees. Two of those already fallen are much injured, by rents below the crowns, and a third is cleft halfway down the stem, by injudicious management.

The mischief is sometimes done, by a spreading bough, catching a standing tree; but, more frequently, by a heavy arm falling, *uppermost*, and dashing to one side, when the tree takes the ground. The worst rent (of a valuable tree) was caused by two boughs, standing forkwise; one of them dashing to one side, the other to the opposite side of the stem, while a third took the ground.

The

The preventive is to cut off the dangerous boughs, while the tree is standing: an expedient which has a doubly good effect; as it not only guards against the splitting, but inclines the tree to fall, with greater certainty, toward the desired point.

A log of wood, judiciously placed at the foot of the falling tree, assists in giving it a proper bias. And wedges, driven in behind, have a similar effect.

It is very observable, that the largest trees, of this wood, have the smallest tap roots: their horizontal roots being numerous, and lying up to the surface; while the stunted inferior trees have tap or downward roots, lying deep in the ground; with few horizontal ones.

In this instance, the TOPSOIL is good, with a meagre, gravelly, yellow loam, for the SUBSOIL.

These stunted trees are an evidence that, in situations where the subsoil is of an inferior quality, oaks, though raised from the acorn in the place where they are intended to grow up, should be TAPPED. See NORFOLK, MIN. 36.

143.  
METHOD  
of  
FELLING  
TIMBER.

PLANTING.

143.  
TRAINING  
TIMBER.

One of the largest trees, in this wood, is much depreciated, by having its stately stem fouled and rendered coarse, by rotten and small boughs, sticking out of it, from top to bottom. Its purchaser allows it would have been worth more, by two guineas, had the stem been clean. One hour's work, or half that labor, bestowed upon it, a hundred and twenty years ago, would have given this desirable quality.

What a mistaken idea, that timber trees should not be touched with a PRUNING INSTRUMENT! It is injurious, no doubt, to take off principal boughs, after the tree is full grown, or even in the latter stages of its growth; but to suffer the stem, while young, to remain foul with dead stumps, and small branches, is unpardonable.

144.

AGE  
of  
FELLING  
TIMBER.

MAY 14. The falling of the MEREVALE TIMBER (see MIN. 136.) was finished, yesterday. Scarcely one tree, in ten, fell with a perfectly sound butt! Many of them are hollow at the center, a considerable way up; and

and the entire stems are, of course, tainted! How injudicious, to suffer timber to stand thus to waste!

The length of this timber is extraordinary. A large-girthing tree measures sixty feet to the first bough; with a continuation of upright stem, near ten feet more!

Though these trees seemed to stand well aboveground, they have, or have had, very strong downward roots; though the substratum be rock. But the fissures of this were probably their best support.

Counted the rings of one of these trees, about three feet diameter, at the butt, and two, at the girthing place; and ran over those of another tree. As nearly as could be distinguished, TWO HUNDRED RINGS.

It is observable, that, in several of these trees, a core, of about ten years growth, has shrunk, and separated from the more outward rings. Have they been transplanted from a richer soil, or a more genial situation, when of that growth?

144.

GROWTH  
of  
THE OAK.

AGE  
of  
THE OAK.

## 146.

PRACTICE  
in  
PLANTING.

MAY 25. Began TAKING UP and PLANTING (in a small skreen plantation) the 8th of *April*: having been kept back, until that time, by the untowardness of the weather.

REMOVED THE PLANTS, from the nursery ground to the plantation, about a quarter of a mile distant, upon a SLEDGE, boarded at the bottom, and furnished with sideboards: an implement most useful in this intention.

In PLANTING, filled in such part of the mold, as was requisite to raise the given plant to a proper height; and, to endeavour to counteract the dryness of the season, threw a pail of water, upon the mold thus returned, into each hole; stirring up the earth and water; and setting the plant upon this prepared bed: then filled in dry mold; working it among the roots, with the HAND\*; at the same time, moving the plant gently,  
by

\* The SPADE is a dangerous tool to be used, as it too frequently is, *within* the pit, after the plant is set in.



by giving its top a circuitous motion, to let in the mold, more compleatly, among the fibers.

The roots being thus bedded, and wholly covered with mold, it was pressed down pretty hard, with the foot, and another pail of water poured round the *outside* of the pit; covering up the wetted surface, with the remainder of the mold; rounding it gently to the stem; and leaving a ring, corresponding with the outer margin of the pit, to catch the rain, or to receive, if requisite, the future waterings.

*April 11.* The sun continuing clear, and the wind parching, I did not venture to expose the roots of the plants to the air; but employed the workmen in PREPARING THE PITS; by returning part of the mold, so as to raise the bottoms high enough, on a par, to set the plants upon; and throwing A PAIL OF WATER, into each.

*April 12.* The day being cloudy, I went on with planting, in the prepared holes.

On breaking the glassy surface, left by the water upon the top of the mold, I found it in a desirable state: mellow and moist, without being glutinous (as I had feared from

146.  
PRACTICE  
in  
PLANTING.

the appearance of the surface it would have been), or at all adhesive ; it having acquired, by the water passing through it, no degree of tenacity.

Rounded the surface of the mold—the bottom of the pit ;—and, on this little swell or hillock, set the plant (the roots naked) ; covered the roots, with prepared mold, from the next hole ; and this, with dry mold ; pouring water round the outside ; filling up the pit with dry mold ; and leaving a ring as before.

*April 13.* By way of improving upon this management, I filled the unplanted holes, almost full to the top, and gave each another pail of water ; in order to get a sufficiency of prepared mold, to bed the roots in ; as well as to moisten, more effectually, the sides of the pits, and thereby give a general coolness and moisture to the entire region of the roots.

*April 23.* FINISHED PLANTING,—during a continuance of dry air and sunshine, accompanied with a cold, piercing, brisk, north wind. Nevertheless, some pines, moved in this air, are now as healthy and vigorous, as the rest of the plantation.

The

The PROCESS of the LATTER PLANTING was nearly the same, as the first: the holes were previously filled, threefourths full, and watered, sufficiently, to give moist mold enough to set the plants on, and enough to bed their roots in — TIRE OVER TIRE; spreading the roots and fibers, nearly horizontally; somewhat dipping.

This, for NAKED ROOTS, appears to be as much as can be accomplished. When BALLS OF EARTH can be transferred from the nursery to the plantation (as was the case with many of those transplanted), moistened mold to set them on is only wanted: then filling in dry earth, and finally treading and watering.

A strong evidence, in favor of WATERING THE PITS, BEFORE PLANTING, appeared in digging fresh holes, two or three feet from the outside of those which had previously been planted in; the soil being moist, and in good order for working, even at this distance, quite up to the surface! And reflecting on this incident, it strikes me, that, provided the holes be filled in, high enough, to receive the plants, and sufficiently watered, it may not be necessary to bed the roots in wet mold. Dry mold works better in among  
the

146.

PRACTICE  
in  
PLANTING.GEN. OBS.  
on  
PREPARING  
THE PITS.

146.

GEN. OBS.

ON

PREPARING  
THE PITS.

the fibers; and if the plant be set immediately upon wet soil, it is very evident, from this and other instances of a similar kind, that the moisture will quickly rise above the region of the roots; even to the very surface; as, on examination, it has evidently done, in every planted hole.

In desperate cases, it may be necessary to apply paste, immediately to the fibers; but, perhaps, well rooted plants, which have not been too long out of the ground, may not, though naked of mold, require it.

The practice of WATERING THE MOLD BEFORE PLANTING, in the manner I have done this season, is perhaps new. I have never met with the idea, either in theory or practice: a circumstance the more remarkable, as it seems to set the dryness of the season, the dread of planters, at defiance.

The principal difference, to the planter, between a dry and a moist season, is evidently this. In the latter, the soil of the plantation is sufficiently cool, and moist, for the purposes of vegetation: not partially moist, above; nor in a state of mud, about the roots (as it is in the ordinary method of watering holes); but uniformly moist: not only in the region  
of

of the roots, but below them : the humidity, there lodged, being drawn up, leisurely, through the soil, by the action of the atmosphere upon the surface ; furnishing the roots, in its ascent, with a uniform and *natural* supply of COOLNESS and MOISTURE ; both of which, perhaps, are requisite to a full supply of sap.

On the contrary, in a dry season, this requisite degree of coolness and moisture of soil is wanted ; and it appears to be an evident duty of the planter, to supply the deficiency ; which, in most cases, he may, at an inconsiderable expence,—comparatively with the advantage of planting, with a moral certainty of success.

In theory, at least, it is good ; and the result, at present, of this year's practice, is a strong evidence of the theory being well founded. Such strength of vegetation, from fresh planted trees, I do not remember to have observed. The shoots of the WEYMOUTH PINES and the BALM OF GILEAD FIRS are extraordinary ; and the OAKS, although they are badly rooted, having stood some years too long in the nursery, since their being transplanted, and although they were  
exposed

146.

GEN. OBS.  
on  
PREPARING  
THE PITS.

146.

GEN. OBS.  
ON  
PREPARING  
THE PITS.

exposed to the air and brought eight or nine miles with naked roots, are now making strong shoots. The LARCHES thrive the worst: but they were moved at a critical time; just as they had begun to break out into *leaf*; and were, in that state, brought three miles, with roots naked of mold.

TRAINING. Some considerable share of success, in transplanting, evidently depends on judicious PRUNING: not only before, but AFTER PLANTING.

GEN. OBS.  
ON  
PRUNING  
AFTER  
PLANTING.

In Norfolk, I observed, that hedges cut when they were in full sap—the buds swelling and nearly ready to burst out into leaf—made stronger shoots from the stools, than those cut while the sap was down (see NORFOLK, MIN. 34.). Young hedge plants, too, I have observed, never succeed better, than when they are planted in a similar state.

I account for this interesting fact (for such I believe it is) in this way. If the body of a plant be removed, before the approach of spring, the atmosphere, whose action, indubitably, gives motion to the sap of trees\*,  
has

\* The practice of introducing part of a vine into a hothouse, leaving the rest in the common air, is itself a proof.

has only the stumps of the stools to act upon. But, if the entire plant be permitted to remain upon the roots, the influence of the atmosphere, which, according to Dr. HALES, and most probably, is in proportion to the surface exposed to it, is infinitely greater, than in the former case. The entire root is set to work; every fibril is brought into action; and the sapvessels are, of course, distended. But before any part of the sap is exhausted, the top is severed, and the whole force of the roots, already full of the nurturing fluid, is spent on the protrusion of young shoots from the stools.

By a parity of reasoning, if, on TRANSPLANTING a *deciduous tree*, the whole of the branches and twigs be left untouched, until the roots are brought into action, and the vessels of the body of the plant be distended, and filled with sap; and if, in this critical state of the plant, two thirds, for instance, of the leafbearing wood be removed, the entire force of the roots, with the sap already raised for the use of the whole plant, will, in this case, be expended on one third of it.

Another idea (likewise new I believe) has occurred to me. In pruning plants for transplanting,

146.

GEN. OBS.  
on  
PRUNING  
after  
PLANTING.

146.

GEN OBS.  
on  
 PRUNING  
after  
 PLANTING.

planting, it is customary to take off the branches, close to the stem; a practice, which, in setting up stationed trees, is always proper; but which, applied to removed plants, either at the time or soon after planting, appears to be erroneous. For, let the success of a removed plant be what it may, its vigor being greatly checked, through the loss of its feeding fibers, its exertions, immediately after removal, are of course less forcible, than they are a few years afterward; when a fresh set of feeding fibers being formed, the plant thereby gains possession of the soil, and a degree of establishment in its new situation.

The first year after removal, plants, in general and in a common season, have barely nourishment enough to preserve life, and none for the cicatrization of wounds; which, if made at the time of removal, have one year, at least, to lie open. On the contrary, if at the time of removal, the side branches be only shortened, to check their growth, and relieve the plant, not taken off, close, so as to wound the stem, they become instrumental in strengthening the lower part of the stem; which, in a few years, from its increased vigor,



gor, and encreased proportion of size, is enabled to heal the wound left by the removal of the stump, perhaps, the first year.

Under this idea, a principal part of the OAKS were pruned, by taking off the smallest twigs and decayed stumps, only, close to the stem; leaving the larger branches, with which these aukward plants abound, some inches long, according to their respective situations on the stem; leaving the lowermost, though close to the ground, longest, and shortening them, conically, up to the leader; carefully removing every leading shoot and end bud; except the apex of the main leader.

The PINE TRIBE I invariably lightened of the *extremities* of their *lower boughs*; which, on most of the plants, were singularly abundant; especially on the SPRUCE FIRS; some of which were nearly in a globular form: it was difficult, or impossible, to come near enough the roots, to take them up properly, without shortening the lower boughs; upon which the nourishment of the plants having been expended, their upward progress had been slow.

146.

GEN. OBS.  
on  
PRUNING  
after  
PLANTING.

PRUNING  
the  
PINE TRIBE.

I was

146.

PRUNING  
the  
PINE TRIBE.

I was cautious, however, not to take them off, too near the stem; lest they might, by bleeding too much, weaken the plants. But the experience of this year has shewn me, that I might have been less cautious, with greater propriety. The WEYMOUTH PINES, which bled the most, make remarkably fine shoots, and this, though they were moved without earth to their roots, and notwithstanding some of them were badly rooted.

The branches of the LARCHES I have kept shortening, from time to time, as necessity seemed to require, until some of them have not a twig left on their stems, six inches in length: yet every PRUNING had obviously its good effect.

To the credit of WATERING THE HOLES, BEFORE, and PRUNING THE PLANTS, AFTER PLANTING, there is not, yet, a dead plant.

JUNE

## 148.

JUNE 6. What a difficult season the last has been, for planting. At —, —, &c. &c.\* how sickly the appearance of fresh plantations. The PINE TRIBE, especially the WEYMOUTHs, are "as red as foxes." How much is due to the watering of the mold. In plantation A, there is not yet a colored plant. †

MISCAR-  
RIAGES  
in  
PLANTING.

## 149.

JUNE 6. There are not, I apprehend, less than a thousand acres of oak timber, now standing, in NEEDWOOD FOREST. A quantity of which few other forests of the kingdom can at present boast.

QUANTITY  
of  
OAK TIMB.

SWILCAR OAK, the father of this forest, girts, at five feet high, twentyone feet. The

SIZES  
of  
OAKS.

VOL. II.

X

lower

\* See note page 82.

† April 1786. The plantations of —, considerably extensive, were cut off, almost entirely. The ground was replanted, last autumn; and, through the severity of the winter, many of the plants are now cut off, a second time!

149.  
SIZES  
of  
OAKS.

lower stem, ten feet clear. The whole height, about sixtyfive: the extent of arm, fortyfive feet.

In "BAGOT PARK" are some noble oaks: many of them hastening down the stage of decay! There are several trees which are, or have been, worth twenty pounds a tree.

I measured one, which, *I understand*, goes by the name of SIR WALTER'S WALKING STAFF, and which girts, at six feet high, sixteen feet. The lower stem, nearly clear of boughs, I estimated at thirtyfive feet; an upper one, at fifteen; and the entire height, at seventyfive feet.

Supposing this tree girts twelve feet, in the girting place of the entire stem, it contains four hundred and fifty feet of timber; which at four pounds a load, is fortyfive pounds: the outside value of this tree, for ordinary uses. For particular purposes, it may be worth FIFTY POUNDS. It is said to have been estimated at SIXTY POUNDS.

AGE  
of  
THE OAK.

There has been, lately, a fall of timber in these woods; including some large trees. Counted the rings of one which is found at the butt. The number, as nearly as I could ascertain it, TWO HUNDRED. But the last  
forty

forty or fifty years growths are so thin, I could not count them with *certainty*; though with sufficient accuracy to ground the following calculations.

The girt of this tree, in the girting place, is nine feet, the diameter of which is somewhat more than thirtyfour inches.

The estimated GROWTH, in this part, is *thirty* inches diameter, during the FIRST HUNDRED AND FIFTY YEARS, and *four* inches (two inches thick) in the LAST FIFTY YEARS.

The length of the stem is twentytwo feet. The CONTENTS, of the whole, 110 feet of timber. The contents, of the first 150 years growths, 85 feet; leaving 25 feet for the growth of the last 50 years.

Therefore, although the encrease of *diameter* has been comparatively small, during the last fifty years, the encrease of *timber* has been nearly as great, as in the first stages.

But supposing this tree had been taken down, at one hundred and fifty years old, it would, at two shillings a foot, have produced eight pounds ten shillings: the interest of which would have amounted, in the course of fifty years, to more than twenty pounds;

149.  
AGE  
of  
THE OAK.

GROWTH  
of  
THE OAK.

PRODUCE  
of  
THE OAK.

149.  
PRODUCE  
of  
THE OAK.

AGE  
of  
FELLING  
TIMBER.

beside the use of the land, during that time. Whereas the tree, at that rate, is now worth only eleven pounds.

*December 1789.* These calculations, and inferences, are not intended to excite a spirit of felling timber, prematurely; a spirit which is already too prevalent; but to endeavour to ascertain the PROPER AGE OF FELLING; it being an incontrovertible fact, that, in point of utility, public and private, the crime of suffering timber to stand, too long, is infinitely greater, than that of cutting it down, before it has attained its full growth.

In the latter case, there is no *waste*; the interest of money, and the succeeding shoots, or the use of the land, stand against the loss of growth of timber. But, in the former, the principal, interest, aftershoot, and use of the land are all thrown away: so that the community, as well as the proprietor, are losers by the management. In the one case, cutting part before it be fit, may save other trees which are more fully grown; but, in the other, the whole is lost.

There are men who say that "truth ought not to be spoken at all times:" while others assert, and I apprehend with more truth on their

their

their side, that "facts are always valuable." For although a few men may make a bad use of them; men, in general, will apply them to a better purpose.

With respect to SHIP TIMBER, the only article by which the community can probably suffer in a premature fall of timber, it is of much too great importance, in this island, to be left to the caprice of sentiment, and the secretion of facts!

It avails not to nurse up SEAMEN, unless there shall be hereafter, *on a certainty*, SHIPS to employ them. If the STATE OF THE NAVY be a fit subject of enquiry, surely the STATE OF SHIP TIMBER is of still more radical importance.

But leaving the PRESERVATION OF SHIP TIMBER to those whom it most immediately concerns, we will proceed to consider TIMBER TREES, as a species of PRIVATE PROPERTY.

It does not follow, that, because it is wrong to suffer timber to stand to waste, it is right to take it down, before it be sufficiently grown, for the purpose of SHIP BUILDING. It is not *overgrown*, but stout *growing* timber, which is fit for that purpose.

149.  
AGE  
of  
FELLING  
TIMBER.

BOARD  
of  
RURAL  
AFFAIRS.

AGE  
of  
FELLING  
TIMBER.

149.  
AGE  
of  
FELLING  
TIMBER.

Timber is seldom cut down, prematurely, but by the necessitous; or by those who have only temporary possession of their respective estates. And what *argument* can prevail, with this class of proprietors?

Another class (and I trust by much the largest) is composed of those, who, considering their timber, merely, as a profitable part of their several estates, take it down, whenever it becomes FULL GROWN, and a FAIR OPPORTUNITY offers.

A third class of proprietors of timber consists of those, who, through false pride, false fear, or false economy, suffer their timber to stand, till it be OVERGROWN\*: and if I have any other motive for publishing the foregoing Minutes, on the ages of timber trees, than that of recording facts, it is the desire of placing, in its proper light, the *improvident* management of this class of proprietors; and, at the same time, to endeavour to form just ideas of a subject, which has not, heretofore, been brought before the public; but which is preeminently entitled to a public discussion.

This

\* I speak solely of TIMBER, in RECLUSE SITUATIONS: NOT of ORNAMENTAL TREES, nor even of small PLOTS of WOODLAND, in PICTURABLE SITUATIONS.



This subject having been rendered, in a considerable degree, familiar to me, by many years observation and practice, I will here set down what appears to me the PROPER AGES OF FELLING the four following species of timber :

POPLAR, from thirty to fifty years old.

ELM, from fifty to a hundred.

ASH, from fifty to a hundred.

OAK, from one hundred to two hundred.

Very much depends on SITUATION ;—on the SOIL and SUBSOIL,—in which trees are rooted. On dry absorbent soils, the oak and the elm, at least, are observed to go off, much sooner, than in cooler more retentive situations\*.

In MEREVALE WOOD,—a dry loam with a rocky subsoil,—we find the OAK going fast to decay, at two hundred years old. In BAGOT'S PARK, a *cooler* situation, it is found, but unprofitable, at that age. In STATFOLD WOOD, perhaps a still *cooler* spot, it is found, profitable, and wearing every appearance of being in a fit state to be taken down, at the

X 4

age

\* For observations on the ELM, see GLOUCESTERSHIRE, sect. HEDGEROW TIMBER.

149.  
AGE  
of  
FELLING  
TIMBER.

age of a hundred and fifty years. See further remarks on this subject, in MIN. 166. See also MIN. 133, 134, 135, and 144.

## 150.

OAK  
INSECT.

JUNE. The OAK (as well as the apple tree) has, this year, suffered, in some situations, nearly as much from an insect, which is bred in the leaves, as it did last year, by the chafer.

*Young* woods, in every part of the district, are, now, as brown as they were, in winter. But *old* woods have mostly escaped; and even in young woods, a tree is, here and there, partially left.

The trees now swarm with the flies, (of the order HEMIPTERA) just released from the chrysalis state. The size nearly that of the common horse fly, but somewhat longer: two orange-colored, semicrustaceous wings, above, with a pair of transparent ones, resembling those of the house fly, beneath them: a common insect\*.

JUNE

\* But, neglecting to preserve a specimen of it, I have not been able to identify its species.

## 151.

JUNE 26. I lately sold a parcel of cord-wood, to a woolcomber, who employed a poor old man, to burn it for him, on the spot, at eightpence a quarter, and *board!* which, however, did not cost him much. The poor devil had sometimes bread, and sometimes cheese, and sometimes neither, with seldom any thing but water to drink.

HUMAN  
WANTS!

His *lodging* cost him nothing. He built himself a hut, with slabs and sods: a cone, seven feet wide, at the base, on the inside; and four feet high, in the center: placed on the northside of the hearth, with an opening toward it and the south. The floor divided by a long log; one side littered with straw, for a lodging room; the other furnished with a loose log, as a sitting room. A faithful bitch was his guard: locks and bolts of course unnecessary.

How few are the "necessaries of life!" the real wants of mankind! When did they, or where do they now, live, in a lower state of "simplicity" than this?

The

151.  
CHARRING  
WOOD.

The METHOD OF "BURNING" was similar to that described in MIN. 127.

The roots and blocks are placed, in the center; the large round wood, next; covering with the smallest and cleanest of the sticks; filling every chink, as close as possible; placing the convex side upward; forming the heap into an exact semi-globe, with a chimney at the pole; at which the pile is fired with the driest smallest pieces; being previously tiled, or scaled, with sods inverted; with which even the top of the chimney, and every other part, is solicitously covered; and the covering as assiduously repaired, as occasion renders necessary; that as little as possible of the inflammable matter may escape.

The center undergoes the action of the fire, first; the outides or skirts of the base, the last; the fire expanding itself, leisurely, to its circumference: a declaration, this, that the whole is "burnt".

If it do not burn freely, holes are made, round the base, and in the lower part of the pile with a stakelike pole, to let in air. If the wind blow strong, the fire is carefully defended from it, by moveable screens, placed on the windward side of the pile.

The

The quantity of ASHES, arising from a charcoal hearth, is considerable. There has been already four cart loads taken up, from two small hearths, and a load or two more remain.

“CHARCOAL ASHES” are in good esteem, here, as a manure; particularly for turneps, and for fining grass land. They arise, principally, from the fods used in covering; but, in part, from the bits of coal which break off, in raking it out of the ashes.

Query, are the ashes of the fods improved, as a manure, by having been in immediate contact with the inflammable principle, in a state of agitation?

151.  
MANURE.

## 152.

JULY 1. Weeding the young shoots from the stools of one of the hedges, cut down last spring.

WEEDING  
HEDGES.

In a part where *thistles, nettles, meadowsweet, bairough, charlock, &c.* were numerous and strong, so as to have outgrown the shoots, they are drawn up weak, and have received much injury. But, where the shoots are vigorous,

152.

WEEDING  
HEDGES.

gorous, and the weeds few, the injury yet received is little.

Hence, young hedges, if very weedy, should be weeded twice: if not, this perhaps, is the best time.

Great care, I find, is requisite, in weeding young hedge shoots. They are exceedingly brittle; and a little roughness of handling is liable to break them off at the stub. They ought not to be pulled aside; nor to be weeded, over-hand. The weeds should be drawn out at the bottom, by putting the hand, or the fingers, in neatly between the stubs.

Moved the thorns (placed as a guard) out of the ditch, with a fork; trimmed the face of the hedgling, with a pruning hook; also cutting, with the same useful instrument, some of the strongest weeds, in the vacant places: drew out the rest, by hand; went over the face again, with the hook; and returned the thorns into the ditch.

Four acres (one hundred and twentyeight yards) took an old man and a boy, with some little assistance, half a day. Moving the thorns was nearly half the labor. One man, expert with the hook, would have done the whole, in a day. The cost about fourpence

an acre, or eight yards for a penny. The appearance is worth the money, and the use, ten times the cost. Yet, perhaps, not one fallen hedge in a thousand, throughout the Island, is weeded.

By way of experiment,—LACERATED the vacant places of the BANK, at the time of cutting this hedge; which, through age or improper treatment, has become thin of stools; they being, in some places, three or four feet from each other. This was done, by running the point of a peck, repeatedly, along the face of the bank, in the line of the stubs; leaving an open gash, or drill, three or four inches deep, between stub and stub, in two or three different places; finally drawing the point of the tool, leisurely, along the bottom of the channel: pulling out the ends of the fibers, broken in making it, to the surface; in order to receive the benefit of the air, sun, and moisture the drill may catch; and, by that means, encourage the roots, with which almost all old banks are furnished, to throw out suckers into the vacant places.

The season has been very much against the success of the experiment; and, on examin-

152.

WEEDING  
HEDGES.RENEWING  
OLD  
HEDGES.

ing

152.  
RENEWING  
OLD  
HEDGES.

ing the drills, today, I can find only one sucker. This one, however, is agreeably to the true intention; springing from an exposed fiber. The sucker a blackthorn, six or eight inches high. See MIN. 159.\*

### 153.

JULY 4. (See MIN. 146.) Notwithstanding the season, for young plantations, has been such as has rarely perhaps occurred, I have not, literally speaking, yet a dead plant!

PRACTICE  
in  
PLANTING.

One of the OAKS, I find, has made a shoot of fifteen inches! and several of them have shot eight or ten inches; with leaves as numerous, and as large, as those of stationary trees.

The progress of the PINE tribe is not less remarkable. The WEYMOUTH PINES, in general, have shot from six to twelve or fourteen inches; and the BALM OF GILEAD FIRS,  
full

\* To fill up these vacancies, with still greater certainty, I sowed, the ensuing autumn, HAWKS and HOLLYBERRIES in these drills, which were then extended from end to end of the hedge.



full as much. Some of them have made longer shoots, this year of removal, than they did last year, undisturbed, in a rich garden mold.

153.  
PRACTICE  
in  
PLANTING.

## 154.

JULY 16. The DECREASE OF TIMBER, in this country, has been great, within memory. Old Barwell remembers “ a great deal of rare timber taken down, and a many woods stocked up.”

QUANTITY  
of  
TIMBER.

Some years past, he says, people were aware of a growing want; and some monied men bought up timber, on speculation. But they all sunk money, by the adventure. For the same apprehension induced others to bring a supply of FOREIGN TIMBER into the country—“ and this foreign deal knocked down the price lower than it was before.”

Indeed, it is demonstrable, that while an unlimited supply of foreign timber can be had, as it may at present, the price of BUILDING TIMBER can never get above a certain height; and a real want cannot, of course, be experienced. For, while that circumstance

154.  
 QUANTITY  
 of  
 TIMBER.

stance lasts, if there were not a tree left standing upon the island, the price and plentifulness of BUILDING TIMBER would be nearly the same, as it is at present.

But, with respect to SHIP TIMBER, the case is very different. Timber of equal value with our own cannot, perhaps, be purchased, at any price. Beside, the moment we become dependent on a FOREIGN SUPPLY of SHIP TIMBER, that moment the Island becomes dependent, on any power, who may obtain the dominion of the sea. For, this obtained, that power may dictate to the British nation the quantity of shipping they shall thenceforward maintain;—or any thing else, that superior power may be pleased to dictate.

POLITICAL  
 ECONOMY.

An ISLAND without shipping is a castle without walls; and a CERTAIN SUPPLY OF SHIPS can be had, in PERPETUITY, through an INTERNAL SUPPLY OF SHIP TIMBER, alone.

How much, then, it behoves this nation to render, by every human precaution, an internal supply CERTAIN, and PERPETUAL.

## 155.

AUGUST 3. See MIN. 123. The hedge-wood having overcome the YOUNG OAK PLANTS, I have given them headroom,—by putting in a pruning hook, edge-uppermost, between each oakling and the adjoining plant of hawthorn, and striking it perpendicularly upward, on either side, close to the stem of the quick; taking off all the lateral branches that encroach upon the oak: consequently, leaving this a clear niche, six or eight inches wide, to rise in.

TRAINING  
HEDGEROW  
TIMBER.

Thus guarded on the right and left, and hemmed in, behind, by the bank and hedge, the plants have no opportunity of throwing out lateral branches, except in front; and they being, there, struck off, whenever the face of the hedge is trimmed, the oaklings thus situated, must, of necessity, acquire an upright tendency.

Putting the fifty or sixty plants, into this desirable situation, barely afforded half an hour's rational amusement.

How little is the labor of training hedgerow timber. It is the setting about it, in which the principal difficulty lies.

## 156.

CULTURE  
of  
WOODLAND.

AUGUST 28. (See MIN. 124). Made a wider circuit in North Warwickshire. Still the woods appear to be *made*; and, probably, in a similar way to those of Hall End. Some of them are not more than forty or fifty years old.

ESTABLISH D  
PRACTICES.

Soils will ever find, in process of time, their proper produce. And it is no wonder that the North of Warwickshire should abound with wood, or that the District of the Station should be, in a manner, destitute of this species of PRODUCE. *That* is a cold soil, ungenial to AGRICULTURE, but productive of wood; especially the OAK; and has probably been found, for ages past, to pay best in WOODLAND: *This*, on the contrary, a warmer better soil, which, in the experience of ages, has been found to pay best in CORN and GRASS.

Making, or unmaking, a piece of woodland is no light matter; and, probably, is seldom set about without due consideration of the effect.

Farther,

Farther, it is probable, that the present woods of Kent, and other counties, are not the remains of ancient forests, or other extensive woodlands; but have, heretofore, been *cultivated*.

It has been shown, above, that it is now, or has lately been, the practice of North Warwickshire to raise woods, by sowing and planting acorns; and it is highly probable, that a similar practice has formerly prevailed, in other parts of the Island. How common, in Yorkshire, and in other places, to see middleaged growing woods, without a break, or an old decayed tree in them: the whole wood appearing nearly of the same growth; yet no trace of a stub, or stool of fallen timber. These woods are not, probably, the productions of chance; but have been assisted by the hand of cultivation: either by sowing or planting acorns; or by training the fortuitous seedlings of roughets, or worn out woods.

The soil of Statfold Wood, one hundred and fifty years old, lies in high, wide, ARABLE RIDGES; and I have observed other woods, in which CULTIVATION is equally demonstrable.

156.

CULTURE  
of  
WOODLAND.

## 157.

REMARKS  
on  
HIGH  
RIDGES.

SEPTEMBER 3. A dispute arose, today, in the conversation of professional men, on whether laying up soil, in HIGH RIDGES, does, or does not, produce an encrease of *land*.

Mr. ——— was clearly of opinion that it does. His argument, however, was chiefly founded on an encrease of *surface*.

Others were of a different opinion; arguing, that the plants of corn (the produce in question) have no more *headroom*, growing on the hypotenuse, than they would have, if growing on the base of the ridge.

Mr. ———, however, to maintain his argument, advanced,—that, admitting the plants, themselves, had no more headroom, their roots had, severally, more *soil* to feed in: a new, though when known, an evident idea. There is not only an encrease of surface, but, indubitably, an encrease of CULTIVATED MOLD.

It has ever struck me, that the produce of GRASS LAND, especially in a state of PASTURAGE, is encreased, by high ridges: but it never occurred to me, before, that

CORN

CORN CROPS were, in any way, benefited by them.

Reflecting, however, on this interesting topic, I am led to believe, that, supposing the soil to be *wholly occupied*, they are benefited in a twofold way: the ROOTS have an encrease of PASTURAGE, and the EARS an encrease of AIR. The SURFACE OF THE EARS is encreased, exactly, in proportion to the SURFACE OF THE SOIL\*. And the SIDES OF HILLS are circumstanced, in this respect, similarly, to those of artificial ridges.

These reflections lead to a practical idea, in PLANTING;—not only STEEP HANGS; but more gentle SLOPES, that are either unculturable, or are cultivated with difficulty.

The quantity of SOIL, and the quantity of CANOPY †, correspond with the hypote-

Y 3

nuse,

\* I do not mean to recommend the practice of laying land up into high ridges; but to bring forward facts which may not be generally seen. And it is a fact, as evident as those stated, that the soils of high ridges are seldom, if ever, *wholly occupied*. See GLOCESTERSHIRE. ART. LAYING UP RIDGES.

† See PLANT. and RURAL. ORN. ART. METHOD OF TRAINING GROVES.

157.

REMARKS  
on  
HIGH  
RIDGES.

SITES  
of  
PLANTING.

157.

SITES  
of  
PLANTING.

nuse, or slope, not with the level or base of the hill.

The STEMS of trees, as of corn, may be said to become crouded, in such a situation, compared with those of trees, planted at the same superficial distance, on level ground ; but, while the ROOTS have equal SOIL-ROOM, and the TOPS equal room to throw out BRANCHES and form a FOLIAGE, it matters not, I apprehend, whether the stems happen to rise, at ten, twenty, or thirty feet, from each other. The STEMS, it is true, have a natural propensity to rise perpendicularly to the horizon ; but the ROOTS and BRANCHES have no such tendency. The head of a tree inclines to the air and light ; and its roots strike in every direction, in search of food.

Thus, suppose a slope to be of such a degree of steepness, that the hypotenuse is twice the length of the base, it is evident, that the plants, growing on this slope, would have exactly double the quantity of soil and headroom, the same plants would have (supposing the slope cleared away and the hill to be made perpendicular) growing on the base ; and exactly the same quantity of soil  
and



and headroom, the same plants would have, growing on a plain of equal extent to the slope, or twice the extent of the base.

Hence, for the purpose of growing **TIMBER**, the **SIDES OF HILLS** appear to be equally valuable as **PLAIN SURFACES**; provided the **SOILS** and **SUBSOILS** be equal.

157]  
SITES  
of  
PLANTING.

## 158.

SEPTEMBER 4. The purchaser of the **MEREVALE TREES** is said to have sold one of them—a rough coarse stick—for twenty-five pounds: for the shaft of a windmill: whereas, for ordinary uses, this tree was not, perhaps, worth half the money.

CONVERT-  
ING  
TIMBER.

How much depends on a mature judgement, in the **CONVERSION OF TIMBER**! A novice, finding this stick fit, neither for *cleft ware*, nor for *boards*, might have sawn it up into *building scantling*, and have sold it for one third of its value as a *millshaft*.

The length, size, and value of this timber show how eligible and profitable it is, to propagate **WOOD**, upon **ROCKY HEIGHTS**;

SITES  
of  
PLANTING.

158.  
SITES  
of  
PLANTING.

more especially, perhaps, upon broken, open rock, as the Merevale Hill appears to be; for the air having a free circulation, through the fissures of the rock, the roots are encouraged to strike deep; and, at the greatest depth, may find, especially, perhaps, ON THE SIDE OF A HILL, the requisite supply of air. See the last MINUTE.

159.

ROOT  
of the  
HAWTHORN

SEPTEMBER 15. In this neighbourhood, in the face of a gravel pit, which has been worked too near a young hedge (ten or twelve years old) there is a striking instance of the *roots* of the HAWTHORN; when exposed to the air, taking upon them the office of *branches*; putting forth shoots and leaves; instead of fibers and fibrils.

I took a specimen of a downward root, which, though I broke it off a foot below the crown, and again at the bottom of the pit, where it was still as thick as a straw, measures five feet in length (the subsoil in this case being not a clean gravel, but a loose gravelly rubble) and is furnished alternately,

as it happened to be exposed, with *twigs* and *fibers*.

Hence LACERATING THE BANKS OF OLD HEDGES promises much advantage. See MIN. 152.

159.

RENEWING  
HEDGES.

## 160.

OCTOBER 3. The HEDGES on the South and East sides of No. 1. are fourteen feet high, and fifteen to twenty feet wide.

HIGH  
HEDGES.

On half the headland, and half the side-land, lying under these hedges, the barley is yet as green as grass, without any prospect, now, of its ripening: and, on the other halves of these lands, as well as some considerable way into the area of the field, the barley, which has been cut, as corn, is in a manner spoiled, for want of sun and air.

Had these hedges been only four or five, instead of twelve or fourteen, feet high, the whole would have been nearly in the same state as the area of the field. The loss, on this crop only, through the FOLLY OF HIGH FENCES TO ARABLE FIELDS, amounts to several pounds.

OCTOBER

## 161.

GEN. MAN.  
 of  
 HEDGES.

OCTOBER 22. The barley being still in the field (see last Minute) and the leaves of the hawthorn beginning to fall, cut down the hedge to the south; the greater nuisance.

From written as well as parole evidence, these hedges are fiftytwo or three years old.

It is equally certain, that they were plashed about thirty years ago (the first time of cutting) and that they have not since been touched! Cut only once, and then partially, in fifty years!

The consequence is, the LIVE STOOLS, now, are many of them three feet asunder; and, in some places, a cart might pass freely between them: one of the vacancies is nine feet wide! and this notwithstanding a better SOIL, for the maintenance of the HAWTHORN, does not exist: a rich hazel loam. The treelike stems are as straight as pines, and, notwithstanding their age, are still perfectly clean; though some of them are twelve or fourteen inches in diameter; yet they still wear the appearance of luxuriance.

Even

Even some of the plashers had swelled to a size equal to that of the leg, before they died; and there are numbers of *smothered stems*, as thick as the arm; most of *these*, it is observable, having plashers upon them.

Had this hedge been cut **THREE TIMES**, instead of **ONCE**, in the last **THIRTY YEARS**, most of these smothered plants would have been alive, and the number of live stools trebly what they are now.

Had this hedge been kept **FENCEHEIGHT**, during the last **FORTY YEARS**, a still greater number of stems would, now, have been living; the state of the fence infinitely preferable, to what it is at present: and the produce of marketable grain, on each side of it, twice perhaps what it has been, during the last fifteen or twenty years,

I am equally clear in my opinion, that, had this hedge been kept, and were it to have been continued, one hundred and fifty years longer, in that state (refreshed from time to time, perhaps, by felling to the stub) it would, at **TWO HUNDRED** years old, have been a *younger* hedge, than it is, now, under the treatment it has received, at **FIFTY**: when, in fact, it is no longer a *live fence*; nor ever  
can

161.

GEN. MAN.  
of  
HEDGES.

161. can be made such, without raising fresh stems  
 GEN. MAN. in the vacancies.  
 of  
 HEDGES.

There appears to be a general rule, in the pinfallow practice, and on the productive lands of this district, with respect to live hedges;—cut the hedge whenever the turf is broken up.

## 162.

ORIGIN  
 of  
 CROOKED  
 HEDGES.

OCTOBER 22. The foregoing enquiries led on to a subject, which, like that of *high ridges* (see MIN. 21.), has been held out, as a proof of the folly of past generations.

It has long appeared to me evident, that the lands, which we find divided by CROOKED HEDGES, have been inclosed from the FOREST STATE, without having been previously in a state of COMMON FIELD. But why the fences should wind in the serpentine manner, in which we frequently see them, never appeared to me obvious: indeed, I have hitherto considered this circumstance, as others have done, to proceed from a want of method, or a want of attention, in our forefathers.

My

My rustic oracle, however, explained, in this, as in the other case, (see as above) the *motive* of their conduct: "they followed the live stuff!" a most *probable* idea.

The first inclosers *cleared up to the thickets*; traced the *line of impenetrable underwood*; whether it happened to run in a *straight* or a *crooked* direction: by this means gaining, without cost, or at a small expence of making good the interspaces, a fence, to prevent their stock from straying.

Those who followed (or they themselves in making other inclosures) cleared up to this first line of fence; for the double purpose of getting all the land they could, and a fence free of cost. The first fences were of course kept up (for their own convenience), and have, in much probability, been ever since kept up, by the first inclosers. And hence, probably, the ORIGIN OF PROPERTY IN FENCES, and the land they occupy.

Thus, without the trouble or expence of ARTIFICIAL FENCES, living or dead, the lands became divided, in the most *simple* and *natural* way.

162.  
ORIGIN  
of  
CROOKED  
HEDGES.

162.

THE RISE  
of  
PROVINCIAL  
REGISTERS.

SHAME ON LEARNING and SCIENCE, to let an ILLITERATE RUSTIC outdo them, in penetration and common sense!

How many interesting, and no doubt valuable ideas, die, not with farmers only, but with their workmen! and how evidently eligible to arrest them, and, at least, *prolong* their existence.

163.

SALE  
of  
TIMBER.

DECEMBER 15. (See MIN. 139.) Yesterday, came on the sale of the ASH and ELM, with some POPLARS, scattered over different parts of this estate.

POPLAR.

The circumstance most noticeable, respecting this sale, is the extraordinary price at which the POPLAR sold: fetching twelve to fifteen pence a foot.

The ordinary use to which POPLAR is here put, is that of FLOORING BOARDS. But the trees sold, yesterday, were purchased for "PACKING STUFF," for the hardware manufactories; poplar being in the first estimation, for packing cases: a strong inducement for planting it, in this inland manufacturing country.



## 164.

1786. FEB. 15, VEGETABLES, in their nature, are liable to inconveniencies, with respect to moisture. They cannot, like the animal creation, repair to the brook, and moisten their aliment, at will. Their viscerae are wet or dry, according to the season, and the situations in which they are placed.

SITE  
of  
PLANTATIONS.

Hence, it becomes the especial care of the rural economist, to place them in situations, suitable to their respective natures.

Some SPRUCE FIRS, which are naturally the inhabitants of MOUNTAINS, but which have been injudiciously planted in a COLD WET SOIL, in a low swampy situation, furnish an instance in point.

VEGETABLE  
ECONOMY.

Last year, which was *very dry*, they made long vigorous shoots, and were of a dark green healthy color. This, a *wet* season, they are become yellow and sickly; some of their heads are beginning to flag: not more, perhaps, through the WETNESS OF THE SEASON, than thro an UNNATURAL LUXURIANCE OF HABIT, which requires an extraordinary

164.  
VEGETABLE  
ECONOMY.

dinary supply of nutritive aliment. On removing these plants, for transplanting, the holes fill with water.

Had they been placed in a situation, of a temperature suited to their natural constitution, no season, either excessively wet or excessively dry, would have deranged their habit; so as to render them liable to the attack of a contrary season\*.

## 165.

CONVERT-  
ING  
TIMBER

MARCH 9. The OAK TIMBER of Statfold (see MIN. 139.) has been CONVERTED, chiefly, into the following articles.

“BUILDING STUFF:” some of it carried away in the piece: some cut up, on the ground.

“NAVIGATION STUFF:” all converted on the ground; and carried as far, and some of it farther, than Birmingham; eighteen or twenty miles.

“MILLWRIGHT STUFF:” the crooked trees, most especially.

“COOPER’S

\* The natural faculty, which plants have, of imbibing moisture from the atmosphere, does not set aside this conclusion.

“COOPER’S STUFF;” as *staves* and *heads*,  
of different sizes:

SPOKES. The “strongest,” cleanest, best  
of the timber, particularly the straight clean  
butts of the hedgerow trees, were cleft into  
this species of ware. For hind wheels, two  
feet ten inches, for fore wheels, two feet  
four, long; about four inches wide; and  
two and a half inches thick: all clear heart;  
without the least sap adhering to it. If  
through necessity, or accident, a cleft prove  
too thin for a spoke, it is shaped into such  
cooper’s ware as it will make; or into “heart  
laths.”

LATHS: both *heart*, and *sap*: the sap of  
cleft wood being mostly, I believe, converted  
into this ware.

LOCKSTOCKS. The *squarings* of the butts,  
and the lengths too short for cooper’s ware,  
are cleft and moulded into lockstocks: thus  
turning to a valuable account, that which,  
in most places, becomes, for want of the  
thought or for want of a market, an article  
of fuel. The prices, from a penny to four-  
pence or fivepence each; according to the  
size. The purchasers, the locksmiths of  
Wolverhampton, Birmingham, &c.

165.

CONVERT-  
ING  
TIMBER.

165.  
CONVERT-  
ING  
TIMBER.

BARNFLOOR PLANK: two, to two and a half inches thick.

FLOORING BOARDS: lined out, inch and quarter.

“COFFINSIDES:” half inch.

“STUMPS AND RAILS:” posts, five and a half to six and a half feet long: rails, eight to ten feet. The price, high: fourpence to sixpence each.

“COALWOOD:” all sold to the “iron masters.”

“KIDDS:” sixteen to eighteen pence, a score. Sold chiefly to the farmers and cottagers of the neighbourhood. The price low; coals being cheap.

The only circumstance which has struck me, as being noticeable, in the manual labor of converting, is that of most of the cross cuts being made by single men; with what are here termed “frigbob saws:” even cuts of two feet diameter were made, with these saws; which, I understand, have been in use, in this district, about thirty years\*.

MARCH

\* TWO-HANDED SAWS. These instruments are generally made, by cutting an old pit saw into two, or by cutting

## 166.

MARCH 9. (See MIN. 163.) The ELM fell better than was expected. The hedge-row elms—some of them very large—two and a half to three feet diameter—fold at an inferior price; under an idea that they were tainted.

THE AGE  
of  
THE ELM.

By the number of rings, these large elms appear to be about ONE HUNDRED AND TEN years old.

Therefore, in a well foiled cool situation, elms may stand, safely, until they be a hundred years old (see MIN. 149.). But some of these being, evidently, overgrown, I am

Z 2

clearly

cutting off one end of an old crosscut saw: but they are also made, *new*, at or about Birmingham. The dimensions of one of *these* are as follow: four feet three inches long: eight inches wide, at the handle end: five inches, at the point. The handle is a pin, about a foot long; fixed in the eyes of two rods, riveted to the side of the saw, and equally projecting from its end, four or five inches; the upper end of the handle standing up, a few inches, above the back of the saw.

One man, *standing above his work*, will do nearly as much, with one of these tools, as two men usually do, with a common crosscut saw.

166.

clearly of opinion, that they can seldom remain on their roots, with profit, after they are that age.

THE AGE  
of  
THE ASH.

The ASH, too, has proved beyond expectation; especially the lower parts of the stems. Several trees whose tops were pierced by woodpeckers, and are, there, really tainted, are nevertheless found at the root!

The timber, however, of most of them, is complained of as being "short:" and taking them, altogether, they are much overgrown.

The number of rings, of one of the wood ashes, eighteen inches in diameter, is, very distinctly, ONE HUNDRED AND TWELVE.

Therefore, these ashes, situated, as they were, on a cool retentive subsoil, were *full* grown; and many of them no doubt overgrown, at one hundred years old. It is not solidity, but toughness, which is wanted in ASH TIMBER; and toughness belongs solely to youthful growing trees. Hence, from this instance of experience, it is probable, that ash, for the uses of HUSBANDRY, can seldom stand, with propriety, a HUNDRED YEARS.

Another

Another observable circumstance, incident to this wood, is the disparity in the AGES of the OAK and the ASH. The oak (see MIN. 139.) one hundred and fifty; the ash one hundred and twelve.

Hence, it is more than probable, that the idea of the ash being raised with the oak, as a shelter, or nursery, on the north sides of woods (see vol. i. p. 67.) is ill founded.

In the wood under notice, which has evidently been *cultivated*—the land lying in wide, high, ARABLE RIDGES—the ash has, in much probability, been *planted in the vacancies of the young oak wood*: and these vacancies, it is reasonable to suppose, were largest, and most numerous, on the side most exposed to the severity of winter. And the same circumstances may have taken place, in other woods.

Be this as it may, the idea of FILLING UP THE VACANCIES OF AN OAK WOOD, WITH ASHES, is self-evidently good. Their upward growth is more rapid, than that of the oak; and their superiority of value consists in a straightness and length of stem. The ashes of Statfold Wood are, in general, from forty to fifty feet in the stem,

166.

FELLING  
TIMBER.

These trees, therefore, FELL, of course, without much injury; there being few large spreading heavy arms, to rend them in the fall (see page 290.): nevertheless, a forked tree, thirty feet stem, and two and twenty inches diameter, was split, from the fork to the root, in falling! the largest heaviest arm falling uppermost. A further evidence of the caution requisite in taking down timber trees.

TRAINING  
TIMBER.

It is likewise worthy of notice, that the rent of this tree discloses a STUMP,—four or five inches diameter, and about the same length,—which appears to have been cut off, when the tree was about ten inches diameter; and had been, of course, buried by the succeeding growths; the stem now appearing, on the outside, to be clean; the stump being drawn out, from under the outer growths.

This, among a thousand other instances, shows the propriety of PRUNING TIMBER TREES, and of cutting the boughs *close to the stem* \*.

This stump is situated about halfway up the present stem. Had not the bough, which gave

\* See NORFOLK. ALSO PLANTING, &c.



gave birth to it, been taken off, the clear stem would have been only half the length it now is. Had it been taken off when it was the size of a walking cane, and, then, close to the stem, its power of injury would have been entirely removed.

How absurd the idea, that timber trees should not be touched with the pruning tool! and doubly absurd when extended to the ash.

166.

TRAINING  
TIMBER.

## 167.

APRIL 17. This morning, went to see the MIDDLETON OAK, on the estate of LADY MIDDLETON, in Warwickshire.

SIZE  
of  
THE OAK.

It measures, at three feet high, twenty feet in circumference; at five feet, seventeen feet: the height of the lower stem, twenty-five feet; with an upper one about fifteen feet; the whole height about sixtyfive feet. The extent of arm (nearly equal on every side) forty to fortyfive feet.

Its top is going to decay; but its stem wears every appearance of being sound; and is deemed to be so, by the timber merchants

167.  
 SIZE  
 of  
 THE OAK.

of the district: one of whom *bade*, a few years ago, FIFTY POUNDS for this tree.

Admitting the mean circumference of the lower stem (from the ground up to the first boughs) to be sixteen feet, this alone contains ten ton of timber; which, at four pounds (a low valuation for timber of this size) amounts to forty pounds: and the upper stem and the topwood cannot be worth less than ten, perhaps twenty, pounds more.

The Middleton oak, viewing it in the joint lights of ORNAMENT and USE, exceeds every other oak I have yet observed\*.

168.

PRACTICE  
 in  
 PLANTING.

LONDON 1790, MARCH 23. My own practice in PLANTING and RURAL ORNAMENT, during the autumn of 1785, and the spring of 1786, I set down in a distinct series of memoranda; from which I now select, for publication, the more USEFUL part of the

\* The soil in which it stands is a rich deep loam; the SUBSOIL a fertile red clay, provincially "marl;" a large "marl pit" being near it.

the information they contain ; reserving what relates more especially to ORNAMENT (together with other MINUTES on the same subject), until a more suitable opportunity may offer \*.

1785. *November 4.* ACORNS are not to be had this autumn. I have sent out different parties, and have offered even five shillings a bushel for collecting them ; but have not been able to collect the desired quantity.

ACORNS, as other fruits, appear to be liable to blights. The north sides of trees, in general, have this year missed ; while, on the south sides, some trees are full of fruit.

There were several trees, on this estate, loaded on their south side ; and from these, alone, I made certain of a supply. But before they were ripe enough to part from their husks, either by agitating, or even beating the trees, they were picked off by ROOKS ; which, through the general scarcity, were collected upon them, in numbers ; and, so voracious are they of this fruit, I found that nothing, but a constant guard, under each tree,

\* These MINUTES were published, in 1796, in the second edition of PLANTING, &c.

168.

PRACTICE  
in  
PLANTING.REMARKS  
on  
ACORNS.

168. tree, could have saved the crop from their pillage.

November 17. Began AUTUMNAL PLANTING.

DOUBLE  
DIGGING  
PLANTA-  
TIONS.

The SOIL, in this case, a somewhat light sandy loam, in sward, was DOUBLE DUG, eighteen inches deep; burying the sward under the bottom spit. The price of digging was fifteen pence a rood, of sixty-four square yards; about seven pence a statute perch; or four guineas and a half an acre.

Part of the subsoil, in this case, being of a gravelly nature, it was obliged to be loosened with a mattock. But in general, the top and bottom soils worked equally well; and, *for whole ground*, four guineas and a half, an acre, may be considered, on a par of soils, as a moderate price, for DOUBLE DIGGING, eighteen inches deep.

Supposing plants to be put in, a quarter of a rod apart, the cost of DOUBLE DIGGING, even at five pounds an acre, does not amount to a halfpenny a plant. And DIGGING HOLES, only, is worth, in whole ground, even for low plants, a principal part of the cost. How absurd, then, to  
risque

risque the life and prosperity of plants, to save so inconsiderable an expence ! A HOLE, in retentive soils, becomes, in a wet season, a mere water pit : whereas DOUBLEDUG GROUND, beside being equal to a bed of MADE EARTH, in absorbing and retaining a due degree of moisture, is a universal drain to carry off, from the immediate region of the roots, that which is superfluous. The plants (in ordinary cases), planting, fencing, and nursing, may be laid at ten times the extra cost of double digging ; yet upon this the success or miscarriage of the plantation may be said to depend : and to omit it appears, to me, unpardonable management.

*November 21.* Even tall plants may be set out, with a degree of safety, without STAKING ; provided they be judiciously pruned, and be firmly, and not too superficially, planted.

Some ELM SUCKERS, twelve or fourteen feet high, and in a manner rootless, which I saved out of a hedge, lately removed, and planted in a nursery ground, to give them an opportunity of furnishing themselves with roots, retain their upright posture ; notwithstanding

168.

DOUBLE  
DIGGING  
PLANTATIONS.STAKING  
PLANTS.

168.  
STAKING  
PLANTS.

withstanding a heavy gale of wind, with rain, took place, presently after they were planted.

. In whole ground, as that of ORCHARDS, it is necessary that the plants should stand level with the cultivated soil, or somewhat above it ; and STAKING, in that case, becomes requisite.

DEPTH  
of  
PLANTING.

Different species of plants may require to be set in, at different DEPTHS : as the ASH and ELM, for instance, ought perhaps to be planted shallower than the OAK : but, from the experience I have hitherto had, I am of opinion, that any species of *tree* plants, from four to eight feet high, may be set, with safety, *upon the subverted topsoil* of double-dug ground.

PLANTING  
in  
FROST.

*November 22.* Yesterday, a sharp FROST, and a bleak wind, gave a check to planting. Last night, another smart frost ;—but the day clear, and the sun warm : though the air is evidently frosty. Nevertheless, I have ventured to continue planting, IN FRESH-DUG HOLES ; and, from today's experience, I am of opinion, that plants may be safely REMOVED, in weather MODERATELY FROSTY ; provided the sun break out to

mellow

mellow the air ; and provided the crust of frozen mold be laid on one side of the hole, and thus kept away from the roots. I cannot, at least, perceive any *reason* why planting, under these circumstances, should be ineligible.

*November 24.* IN MOVING SPRUCE FIRS, about a quarter of a mile, they were carried, by tens, upon a LARGE SLEDGE, drawn by two horses. The plants were six or seven feet high, with balls of earth to them, each as much as two men could well lift.

To have carried these plants, singly, between two *men*, would have been an endless labor : and to have put them into *carts*, would have burst the balls of mold : beside, an ordinary cart would not have contained more than five or six, at once ; and the labor of loading and unloading would have been tenfold that of lifting them, in and out of this most useful, though unfashionable, implement.

*November 28.* TURNING-IN plantation A. to prepare it for acorns ; and forming a winding path through it, a yard in width ; by merely paring off the outsides ; and throwing the parings into the hollows, before turning  
in :

168.

PLANTING  
in  
FROST.CARRIAGE  
of  
PLANTS.PLANTATION  
PATHS.

168.  
PLANTATION  
PATHS.

in : leaving the pathway round in the middle, to keep it dry enough for use, in wet weather.

A man would form a furlong a day, in this manner ; and a path of this kind is all that is wanted, in a *useful* plantation, at least.

PLANTING  
ACORNS.

*November 29.* PLANTING ACORNS, in the interspaces of plantation A. : at present a mixture of FOREST TREES and ORNAMENTAL SHRUBS. Dibbled in three, triangularwise, and six inches asunder, in the center of each interspace ; also two at the foot of each oakling : in order that the entire ground may, hereafter, be wholly occupied by TIMBER TREES ; to which the ORNAMENTALS, beside gratifying the eye in the first instance, are considered as NURSES.

*November 30.* PLANTING ACORNS (on ground prepared by a crop of potatoes) in rows, a quarter of a rod asunder, and six inches apart in the rows ; dibbling them in, alternately, on either side a line, stretched tightly on the surface,—in this case nearly flat,—with blunt-pointed dibbles ; suffering some mold to fall down, to the bottoms of the holes, to prevent water from lodging  
about



about the acorns ; burying them two inches beneath the surface ; and covering them with the feet, in the gardener's manner.

Each square rod, planted in this way, takes one hundred and thirtytwo acorns ; and a corn pint, of middle sized acorns, contains, I find, about that number. A pint, a rod, is equal to two statute bushels and a half, an acre.

The expence of planting acorns, in this way, is about five shillings an acre.

*November 30.* Finished AUTUMNAL PLANTING.

The GENERAL MANAGEMENT, this autumn, has been similar to that of last spring (see MIN. 146.), except that the WATERING of the holes has been omitted ; as being, at this season, unnecessary ; and except, that the plants, to elude the power of the winter's winds, were PRUNED before planting.

The plants, in this case, being small, (mostly under four feet) the HOLES have been made, by merely chopping a ring round the stake, and shovelling out the loose mold of the upper spit ; then rounding up a hillock of mold, upon the buried turf, to set the plant on.

In

168.

PLANTING  
ACORNS.

PRACTICE  
in  
PLANTING.

168.  
PRACTICE  
in  
PLANTING.

In PLANTING, the roots, as before, have been BEDDED, TIRE OVER TIRE, with the HAND; and, the uppermost tire being covered with mold, the whole were pressed down, gently, with the HAND; and, some more mold being added, trodden hard, with the FOOT; observing, in this instance, throughout the operation of planting, to INCLINE the HEADS of the plants toward the SOUTHWEST; the site of this plantation being fully exposed to that aspect.

PREPARING  
POSTS  
and  
RAILS.

December 1. Preparing POSTS and RAILS for plantation fences.

The practice of this country is well entitled to notice.

The posts are MORTICED with an inch and half auger, and a small HATCHET; with which the wood between the holes is *chopped out!*

In POINTING the rails, they are set upon a block, and held, in a leaning posture, by what is called a "horse," letting the upper part fall into the forked end of a strong pole, seven or eight feet long,—raised, at that end, by two legs, about six feet long; the piece projecting fourteen or fifteen inches above the part, when the legs are entered:—the  
other

other end resting on the ground. The legs are put in spreading, and nearly at right angle to the principal piece; which may be of any size or form, so that it be of due length, and have a fork, natural or artificial, at the lighter end.

*February 17.* Today, I examined the PINES and FIRS, which were PRUNED, last spring, by taking off the *ends* of their lower *boughs*. See MIN. 146.

Of the WEYMOUTH PINES, I see, the stumps, left some two or three inches long, above the uppermost pair of wings, are dead: the *twigs*, of this species, having no *leaves*.

Of the SPRUCE FIRS, those terminating twigs are alive; the leaves, with which this species is furnished, are, however, sickly and thin, toward the ends of the twigs.

But those of the BALMOFGILEAD FIRS are fully furnished with leaves, to the very rosin, which still varnishes the ends of some of the stumps.

With respect to the *wings*, or side branchlets, of the boughs, immediately below these projecting stumps, I can perceive no injury, whatever, done to *any* of them.

168.

PREPARING  
POSTS  
and  
RAILS.

PRUNING  
the  
PINE TRIBE.

168.  
PRUNING  
the  
PINE TRIBE.

How unlikely, then, that the plants, at large, should have suffered, from a few drops of sap, oozing out of the ends of boughs, which, themselves, have received no injury. Had these boughs been left unlopped, the extra quantity of sap expended by them would, probably, have been tenfold what has been exhausted, by *bleeding*: a frightful *word*.

Something, however, may depend on the SEASON, in which the operation is performed. DECIDUOUS plants have their BLEEDING SEASON; and EVERGREENS may have their's. It appears evidently, however, in this instance of practice, that the PINE TRIBE may, *in winter*, be PRUNED with safety.

SEASON  
of  
PLANTING.

*February 23.* How uncertain is the business of planting, in EARLY SPRING: and how hazardous to fetch plants from a distance; even of a few miles; and even in the finest FEBRUARY; which, let it be ever so flattering, is too early, to expose a quantity of naked roots to a journey; even of six or seven miles.

Plants, which are upon the spot, may be removed, any open day in winter, with a degree of certainty; and, perhaps, under ordinary

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nary circumstances, in no month; with greater propriety, than in FEBRUARY: provided the soil be found, and dry enough to work.

If, however, the situation be wet, and the subsoil cold; MARCH, in my opinion, is a more eligible month, for planting.

What is most to be feared, in planting late in the spring, is a want of moisture, to set the roots to work, in the first instance. But this, by a previous watering, may be had on a certainty.

It is highly probable, that plants never succeed better, than when they begin to *draw*, as soon as they are planted. Roots remaining in a mangled state, lopped, gashed, and bruised, as they generally are, and always must be more or less, a month, or, after autumnal planting; five or six months, exposed to wet and frost, in a state of lifeless inactivity; are, probably, liable to more injury than those which remain, in their natural state; until the harshness of winter is past, and until they can, immediately on being transplanted, set themselves to work, heal up their wounds, and form fresh fibrils.

The bad success which has hitherto attended AUTUMNAL PLANTING, upon this

168.  
SEASON  
of  
PLANTING.

estate (chiefly a moist retentive soil), and the great success which last year resulted from planting in APRIL, strongly corroborate this suggestion.

In a light soil, and over an absorbent sub-soil, early, or even autumnal, planting may be eligible.

NATURAL  
HABITS  
of  
PLANTS.

February 28. Tuesday. The severity of the weather continues. From Sunday evening, until today, at noon, there has been an incessant FALL OF SNOW, with a northeast wind. The snow is drifted, in many places, breasthigh: a part of the swamp plantation, (see MIN. 164.)—lying under the wind, is nearly buried; and, where the snow is less drifted, the branches of the firs are loaded with it.

The FIRS, whether *spruce* or *silver*, spread out their branches, flat, as if for the purpose of forming a lodgement for SNOW: and even the twigs are leafy: not a flake can escape: a board held out, could not catch the flakes more effectually. Some of the branches are loaded four inches thick with snow; yet not one, which I have examined, is broken: though some of the lower ones are bent to the ground.

The

The PINES, whether *Scotch* or *Weymouth*, have fared better. Indeed the WEYMOUTHs, whose tassels are naturally pendant, and whose twigs are leafless, have not, being shook by the wind, a particle of snow upon them, in any situation. But the tassels of the SCOTCH, being larger, more open, and less pendant, have many of them retained the snow; some of the slender twigs, thus loaded, being bent down, and appear twisted by the wind; but the branches, at large, preserve their natural ascension.

The LARCHES, being, at this season, naked of leaves, are perfectly free from snow.

*March 12.* Two days ago, the wind got round to the southwest; and, yesterday, the THAW was confirmed; the snow, today, wasting fast.

The FIRS, which were buried under the drifted snow, have now a singular appearance. As the snow sinks, it bears down the branches buried among it. Several of the upper tires of the SPRUCES are bent down, almost close to the stem, nearly reaching the ground: yet not one of them is broken! They are so perfectly tough and elastic, that, when they are released from the snow,

168.

NATURAL  
HABITS  
of  
PLANTS.

they spring up, immediately, to nearly their natural height. How wonderful are the COUNTERACTIONS OF NATURE!

In farther illustration of this natural principle, it is observable, that some SCOTCH FIRS, whose branches are less liable, in their nature, to be borne down by snow, but which, in this instance, being forced down by the settling of the drift,—are many of them broken, and those which are not, droop, unable to regain their wonted elevation.

TAKING UP  
PLANTS.

*March 21.* How much depends on the operation of TAKING UP! yet how few NURSERYMEN can be relied on, in the performance of it!

Some LARCHES, which, having stood too long in the nursery, had got full of wood, I desired might be taken up, with all the root that could possibly be preserved. But, through ignorance, idleness, or inattention, the roots, in taking up, have been chopped off, a few inches from the stems, with scarcely a fiber left upon them. The stems six or eight feet high, and loaded with branches, but with roots not more than six or eight inches long!

The



The value of plants may be said to depend on the TAKING UP: these sixty plants, for instance, were, *as they stood*, worth twenty shillings; but, *after they were taken up*, they were not worth the carriage.

When a quantity of plants are wanted, it is but common prudence, to send an experienced person, to attend to the TAKING UP; or to make it part of the agreement, to pay for none, but what shall be taken up in a workmanlike manner. A mere nurseryman has an interest in spoiling them.

Not the supply of sap only, but the stability of the plant in the soil, depends on the ROOTS; whose length should be proportioned, as it generally may be, to the height of the plant: and, for plants of four to eight feet high, the LENGTH OF ROOT ought not to be less, than ONE FOURTH OF THE HEIGHT.

DISTANCE OF PLANTS. In cases where plants are requisite to be *purchased*, the expense of planting rests, principally, on the NUMBER OF PLANTS; and this on the DISTANCE at which they are planted.

Thus, an acre of ground, planted at every rod, requires one hundred and sixty plants: at every half rod, six hundred and forty; at

A a 4

every

168.

TAKING UP  
PLANTS.

PROPER  
DISTANCE  
of  
PLANTS.

168.

PROPER  
DISTANCE  
of  
PLANTS.

every quarter of a rod, two thousand five hundred and sixty.

In a timbertree plantation, the advantages of setting the plants, in close order, are those of withstanding, with greater fortitude, the severity of seasons, and of assisting to give each other an upward tendency, in the first stage of their growth: the disadvantages, those of encreasing the number of plants;—of crowding the plantation, so as to prevent the use of the plow, in the first instance;—and, if not timely reduced in number, of robbing each other, afterward, of their requisite nourishment; as well as of drawing each other up, tall and weak: a circumstance, this, infinitely more prejudicial to their future prosperity, than that of spreading too much, in the first stage of their growth.

Nevertheless, I am of opinion, that low slender plants,—plants under a quarter of a rod high,—cannot be set out, with propriety, at more than a quarter of a rod asunder: unless some other expedient, than a close arrangement of LIVING PLANTS, could be hit upon, to give them shelter, and

an upward tendency, in the first stages of growth.

In a LARGE UNDERTAKING, where planting goes on, in continuance, from year to year, nothing is lost by planting closely; each YOUNG PLANTATION being a NURSERY GROUND, out of which the supernumerary plants may be removed, as occasion may require.

But, in the more ORDINARY BUSINESS OF PLANTING, where a particular plantation, or suite of plantations, being made, the business of planting is finished, these supernumerary plants are too frequently suffered to do irreparable injury to the plantation; by crowding, after the first stage of growth, and forcing up, too rapidly, those which ought to form the grove, in its more advanced state.

These reflections aptly lead to the expedient, of giving the required shelter and upright tendency, in the first stages, by DEAD PLANTS; as the sprayey tops of coppice wood, or the topwood of such trees as form thickly furnished branches.

By this expedient, three fourths of the expence of plants (supposing the cost and putting

168.

PROPER  
DISTANCE  
of  
PLANTS.

TRAINING  
with  
DEAD  
PLANTS.

168.  
 TRAINING  
 with  
 DEAD  
 PLANTS.

putting in of the dead plants to be no more than the carriage and expence of planting live ones) would be saved. Thus, if instead of planting living plants, at every quarter of a rod, they were put in at every half rod only, and estimating the cost of fourfoot plants at fifteen shillings a hundred, the saving, through this expedient, would be upwards of fourteen pounds an acre : namely, four pounds sixteen shillings, instead of nineteen pounds four shillings.

And, beside this great saving, in the original expence, two other advantages would arise, from such a practice : the DEAD PLANTS might be readily removed, (and again replaced) to admit the plow (or the spade with greater freedom) into the intervals ; and the regularly progressive decay, of such plants, would be a more *natural*, and less *dangerous* way, of relieving the standards, than the abrupt removal of live ones \*.

PRACTICE  
 IN  
 PLANTING.

GENERAL MANAGEMENT. This spring, the ground being sufficiently moist, the holes have not been watered.

The METHOD of PLANTING has been similar to that of last spring. The NAKED-

ROOTED

\* This, however, by way of intimation.

ROOTED PLANTS have been set upon HILLOCKS of mold, formed in the bottoms of the pits to receive them: spreading the roots and fibers wide on every side, in the BIRDSFOOT manner, and disposing them TIRE OVER TIRE, as nature had disposed them in the nursery, and as their stability, now, and their prosperity, hereafter, require.

WORKMEN, This spring, the plants have been put in, chiefly, by a set of four: a tutored planter and his helper, going before, to bed the roots, with two followers, to fill in, and tread firmly, the remainder of the mold: loading the roots, and leaving the surface globular, and as firm as a floor; the soil, in this case, being somewhat light.

This set, when fully in their work, put in about twenty tall plants, an hour: or one plant in three minutes: the EXPENCE of PLANTING such fullsized plants (six to ten feet high) deliberately, and firmly, being little more than half a crown, a hundred: and *burying* them, in the usual manner, would have cost eighteenpence or two shillings.

Whether

168.

PRACTICE  
in  
PLANTING.

168.      Whether in PLANTING or in TAKING  
PRACTICE UP, the workmen's directions have been, to  
in proceed with DELIBERATION: a minute  
PLANTING. more or less, in either of these operations,  
being incomparable with the difference be-  
tween MISCARRIAGE and SUCCESS.

LIST

L I S T

OF

R A T E S

IN THE

D I S T R I C T

OF THE

M I D L A N D S T A T I O N .

E S T A T E S .

PURCHASE value of land. See v.i. p.16.

Rental value of land.—i. 17.

Rental value of tithes.—i. 18.

BUILDINGS\*.

Bricks at the kiln, 16s. a thousand.

Laying bricks, 4s. a thousand; digging  
the foundation included.

Bricklayers

\* For the price of timber, see WOODLANDS, in this list.

Bricklayers day wages, 22 *d.*

Carpenters day wages, 22 *d.*

Thatchers day wages—the ordinary wages of the season.

### HEDGES.

Transplanted hawthorn, 7*s.* a thousand.

Stakes, in the wood, 6*d.* to 7*d.* a score.

Edders,———, 9*d.* a bundle of sixty, or threepence a score.

Planting a new hedge,—see MIN: 123.

Stocking a live hedge, 3*s.* an acre, and the roots.

Felling a fullgrown hedge to the stub, 9*d.* an acre \*.

Cutting hedges, fenceheight, 10*d.* to 14*d.* an acre.

Laying or plashing a hedge, and scouring the ditch, ½*d.* “a side”—or 1*d.* a yard.

Making a stake and edder hedge—very stout—18*d.* an acre.

Rough stake hedge, without edders, 1*s.* an acre.

Morticing posts (two holes) 1*s.* a score.

Pointing rails, 5*d.* a score, See ii. p. 352.

Putting

\* AN ACRE, in *this* neighbourhood, is 32 yards.



Putting down posts and rails, 22*d.* an acre.

Hedge carpenters dayswork, 21*d.*

### WOODLANDS.

Stocking and butting middle-sized timber trees, 18*d.* a tree.

Butting such trees, 4*d.* a tree.

Peeling bark, 10*s.* to 10*s.* 6*d.* a ton.

Binding faggots, laborers finding bands, 5*d.* a score.

—————, employer finding bands, 4*d.* a score.

Cutting posts and rails out of topwood, 1*s.* a score.

Cutting stakes out of ditto, 1*d.* a score.

Sawing oak, 3*s.* 3*d.* a hundred feet.

———— ash, 3*s.* —————

———— elm, 3*s.* —————

———— poplar, 2*s.* 6*d.* —

“Cleaving” laths, 4*d.* a bundle of five score.

Cutting and setting up cordwood, 2*s.* a cord.

Oak in the rough, 18*d.* to 2*s.* a foot\*.

Elm

\* Price of BARK. See MIN. 139.

## LIST OF RATES:

- Elm in the rough, 9*d.* to 1*s.* a foot.  
 Ash ————— 9*d.* to 1*s.* ————  
 Poplar ————— 8*d.* to 14*d.* ————\*  
 Oak inch board, 3*d.* a square foot.  
 Elm ————— 1½*d.* ————  
 Ash ————— 1½*d.* ————  
 Poplar ————— 1½*d.* ————  
 Ash axletrees, 3*s.* to 3*s.* 6*d.* each.  
 ——— fellies, six inches, 12*s.* a trine of  
 thirteen.  
 ——— ——— narrow, 8*s.* a trine ———  
 Elm naves, 4*s.* a pair.  
 Oak spokes, 13*s.* a trine of twentyfive.  
 Post or rails, in the wood, 4*d.* to 6*d.* each.  
 Ash laths, 1*s.* a bundle of five score.  
 Spray faggots, 8*s.* to 10*s.* a hundred of six  
 score.  
 Rough roots, 2*s.* or 3*s.* a load †!  
 Dimensions of cordwood, see v. i. p. 71.  
 Price of coalwood, 10*s.* to 12*s.* a cord.  
 Re-cording wood, 6*d.* a cord.  
 Burning charcoal, 1*d.* a bushel.  
 A load of charcoal, 12 bags of 12 indeter-  
 minate bushels each.

## PLANTING

\* See MIN. 163.

† Coals cheap.

## PLANTING.

Double digging sward, 18 inches deep,  
15*d.* a rood of 64 square yards, see ii. 346.

Digging holes, two feet diameter, and two  
feet deep, in doubledug ground, 1*d.* each.

Cost of planting, see ii. 363.

Acorns in a common year, 1*s.* a bushel.

Planting acorns, 5*s.* an acre, ii. 351.

## WORKMEN.

## YEARLY WAGES.

Waggoner, 8 to 10 guineas\*.

Maid, 3 to 5 guineas.

Youth, 4 to 5 guineas.

Lad, 2 to 3 guineas.

## DAY WAGES.

Winter (1 Nov. to 1 Mar.) 1*s.* a day †.

Spring (1st March to hay time), 14*d.* a day.

Haytime,—18*d.* a day.

Harvest,—2*s.* a day ‡.

Autumn (harvest to 1st Nov.), 14*d.* a day.

VOL. II.

B b

Women,

\* Gave a waggoner, the *summer half year*, 6 guineas;  
the *winter half*, 4 guineas.

† With small BEER, in this and every other case.

‡ Gave in a late harvest, 18*d.* a day.

## LIST OF RATES.

Women, in autumn and spring, *6d.* and beer.

——, in haytime, *9d.* and beer.

Boy, *4d.* to *6d.* in autumn and winter.

## HOUSE EXPENCES.

Beer—for the quantity drank, see ii. 44.

Malting barley, *5d.* a bushel.

Grinding wheat, *5d.* a bushel.

Coals, at the pit, about *5s.* a ton.

## IMPLEMENTS.

Waggon, about 20 guineas.

Double plow—woodwork, *25s.* Ironwork,  
*40s.*

Single plow—                     *10s. 6d.*                       
*18s.* to *20s.*

Wheelwrights' wages, *22d.* to *2s.* a day.

Leatherwork of the harness of one horse,  
*35s.* to *40s.* ! See i. 100.

Waggon ropes, *5d.* to *6d.* a pound.

Cartgrease, ready mixed, *3d.* a lb.

Spade, *3s. 6d.*

## BLACKSMITHS WORK.

Common ironwork, *4d.* a lb.

Working over old iron, *2d.* a lb.

Wheel tire, *27s.* a cwt.

Tire

Tire nails, 4*d.* a lb.

Shares and draft irons, 5*d.* a lb.

Strong chains, 5*d.* a lb.

Traces and backbands, 6*d.* a lb.

Laying a share, 1*s.*

Laying a coulter, 7*d.*

Sharping a share or coulter, 1*d.*

Shoe, 5*d.*

Remove, 1½*d.*

### SOIL PROCESS.

Underdraining. See MIN. 106:

Plowing with a double plow, five horses,  
man and boy, 13*s.* a day:

———— with a single plow, three horses,  
man and boy, 7*s.* 6*d.* a day.

### MANURE.

Dung, at Tamworth, 10*s.* 6*d.* a waggon  
load.

Lime, at the kiln, 8*s.* to 10*s.* a chaldron:

Piling and mixing compost, 1*d.* a cubical  
yard.

Turning and watering lime, 4*d.* a load of  
six quarters.

Turning and watering dung, 1½*d.* a cart  
load.

## LIST OF RATES.

Spreading dung out of hillock, 1*d.* a load,

————— out of carriages, see ii. 34.

• Wheeling mud or mold, with one wheeler to two fillers, 1½*d.* a cubical yard.

————— with one wheeler to one filler, 2*d.* a yard.

————— with two wheelers to one filler, 3*d.* a yard.

## SEED PROCESS.

“ Turfing ” oats, about 6*d.* an acre, i. 159.

Cross-furrowing, deep and wide, and chopping and raking the mold smooth, on either side of the trench, 5*d.* an acre.

## VEGETATING PROCESS.

Hoing turneps, twice, 8*s.* with ale.

—————, once, 5*s.*

—————, by the day, 2*s.* 6*d.*

Handweeding turneps cost about 2*d.* an acre.

## HARVESTING.

Reaping wheat, by the threave, 4*d.* to 6*d.*

————— oats, —————, 3*d.*

————— wheat, by the acre, 6*s.* to 8*s.*

Mowing and sheaving oats, 5*s.* an acre.

Mowing

Mowing barley into swath, 18*d.* an acre.

————— oats —————, 16*d.* an acre.

Taking up potatoes, 1*d.* to 2*d.* a bushel.

Gave in lieu of harvest supper, 1*s.* a man,  
and 6*d.* a boy,

### FARM YARD,

Thrashing wheat, and binding the straw,  
4*d.* to 5*d.* a bushel (of 9 gallons).

————— barley, 16*d.* to 18*d.* a quarter.

————— oats, 8*d.* to 10*d.* —————

Winnowing days paid for extra.

Cutting oats in straw, &c. 18*d.* a day and  
board (for 40 bushels), or 1*d.* a bushel  
(rounded up). N. B. Cut very fine.

Strawyard keep of cows, 1*s.* a week.

————— young cattle, 9*d.* —————

Thrasher, extra, for foddering in the yard,  
1*s.* a week (Sunday included),

### GRASS LAND.

Cutting surface drains. See MIN. 32.

Expence of underdraining. See MIN. 106.

————— spreading drain mold. See MIN. 64.

Mowing meadow grass, 21*d.* an acre.

————— "feeds," 18*d.* an acre.

## LIST OF RATES.

Sweeping off the weeds of pasture grounds with the fith, — by the acre, 3d. to 6d. — by the day, before haytime, 18d.

## AGISTMENT.

*Mayday to Michaelmas.*

Grown horses, 60s. to 70s.

Twoyearolds, 45s. to 50s.

Yearlings, 35s. to 40s.

Fatting cows, 35s.

Twoyearold heifers, 25s.

Yearlings, 15s.

Mare and foal, in summer, 3s. a week.

Young horses, after Michaelmas, 16d. to 18d. a week.

Cows, at prime lattermath, 2s. a week.

Field sheep, from Michaelmas to Lady-day, at ordinary keep, 2s. better keep, 2s. 6d. to 3s.

Pasture sheep, in summer, at prime keep, 3d. a head, a week.

MARKETS.



## MARKETS.

Road team, (waggon 5 horses man and boy), 14s. a day!

Waggoner's "spending money," 6d. to 1s. a journey!

Turnpikes, 4d. each horse, in narrow-wheeled carriages.

"Chapmanry" on a load of corn, 1s.

Standard bushel (of Tamworth) "thirty six quarts:"—nine gallons.

Bag of wheat, 3 bushels,

———— barley, 4 ———

———— oats, 4½ ———

Weight of a bag of wheat, 10 score to 10 score and 16 lb.

Quarter of oats, at Tamworth, 9 bushels.

————, at Ashby, 8 ———.

————, at Burton, 9 ———.

Score of oats, at Lichfield, 22 ———.

Load of oats, at Lichfield, 4 score, or 88 bushels.

————, at Tamworth, 10 quarter, or 90 bushels.

Load of barley, at Tamworth, 10 quarter, or 80 bushels.

## LIST OF RATES.

Load of wheat, at Tamworth, 20 bags, or  
60 bushels.

## PRODUCE.

See the close of each Article,

AGRE

AGRICULTURAL  
PROVINCIALISMS

OF THE

DISTRICT

OF THE

MIDLAND STATION.

---

A.

**ACRE**; a species of long measure, consisting of 32 yards; four **ROODS**.

**AIGLES**; icicles.

B.

**BATCH**; a grist; a quantity of corn sent to mill; hence **BATCH BAG**.

**BATTIN**; a truss of straw.

**BEACE**;—the plural of *beast*; cattle: not peculiar to this district: having a plural termination, which might well be received into the established language, for words ending in *st*.

**BEGGAR'S NEEDLE**; *scandix pecten-veneris*—shepherd's needle.

To

TO BELT; to shear the buttocks and tails of sheep.

BENTS; seedstems of the blade grasses.

BOAR THISTLE; *carduus lanceolatus*; spear thistle.

BOOSINGS; the stalls of cattle.

BOOSING STAKE; the post to which stall cattle are fastened.

BOWLERS; a species of round pebble, common to the soils of this district.

BRAB; a spike nail.

BREEDING INANDIN; see i. 250.

BRUSH; stubble; as a wheat brush, &c.

BUCKET; a common bow-handled pail.

BULE; the bow handle of a pail.

BUSHEL; two STRIKES, or bushels.

BUTT; the lower stem of a timber tree; as well as the root end.

BUTTY; partner; as fellow servant, or laborer.

BYSLINS; (the y long) the first milk of a cow, newly calven.

C.

CADLOCK, ROUGH; *sinapis arvensis*; wild mustard.

CADLOCK, SMOOTH; *brassica napus*; wild rape.

CAMP; a hoard of potatoes, turneps, &c.

CANKERED; mildewed, blighted, as wheat, or other grain. See MIN. 74.

CANSH; a small pile of faggots, &c. To "canst them up" is to form such a pile.

CAPS; hoodsheaves of corn SHUCKS.

CHAPMANRY; that which is abated, or given again, by the seller, on receiving money of the buyer.

- To CLAM; to hunger or starve, as cattle.
- CLAMMED, or WELLY CLAMMED; half starved, for want of sufficient pasture, or fodder.
- CLEAS; the claws of cattle and sheep.
- CLEFT; timber fit to be cloven, into coopers' ware, spokes, laths, &c.
- CLEVVY; a species of draft iron of a plow.
- CLUSTERS; crouds or clumps of turneps, &c.
- COAL SMUT; a fossil, or an efflorescence, found on the surface, over seams of coal!
- COCK; a species of draft iron of a plow.
- COCKHEADS; *centaurea nigra*; common knobweed.
- COLTS; yearling horses.
- COMINS; commonage.
- COPPY; coppice.
- To COPPY; to cut down, for underwood.
- CORD; a certain quantity of wood. See i. p. 71.
- CORDWOOD; topwood, roots, &c. cut and set up in CORDS.
- CORNED; furnished with grain.
- COTTER; an iron key to a bolt.
- CRACKED; cloven, as a sheep, on the back, or rump.
- CRATCH; a hay rack.
- CROWFLOWER; the *ranunculus* tribe; crowfoot.
- CULLINGS; refuse; outcasts.
- CUSHION-RUMPED; having two extraordinary bundles of fat upon the rump.
- GUTMEAT; fodder—generally oats in straw—cut into short lengths, as *chuf*.

## D.

DAGLOCKS; locks of wool, cut off the buttocks and tails of sheep. See i. 403.

DAIRIER; dairyman.

DEA NETTLE; *galeopsis tetrahit*; wild hemp.

DIGGING; a spit in depth. See MIN. 106.

To DITCH; to stick to; as the clamminess of mow-burnt hay sticks to the cutting knife.

DOGFENNEL; *anibensis costula*, &c. maithe weed, corn camomile, &c.

DONKEY; dampish; dank.

DRINK; ale.

DYCHE; ditch.

## E.

EASINS; eaves.

ELDER; the udder of a cow.

ENTAILS; ends of lands. MIN. 75.

EYEABLE; slightly; pleasing to the eye: spoken of stock, &c.

## F.

FAT; fat cattle and sheep.

To FEED; to grow fat; also to fat; as grazing stock.

FEEDERS; fattening cattle.

FEEDING PIECE; grazing ground.

PEG; rough dead grass.

To FETTLE; to adjust; to put in order.

FIN;

- FIN; *anonis arvensis*; restharrow.  
 FINCH-BACKED; white on the back; as cattle.  
 FITCHET; or FIDGET; a polecat.  
 FLÉWS; phlemes, for bleeding cattle, &c.  
 To FLOAT; to overflow, or water; as grassland: also  
 to pare off the surface of sward.  
 To FLOAT UPWARD. See MIN. 27.  
 FOOT TRENCHES; superficial drains, about a foot  
 wide.  
 FOREHAND RENT: See i. p. 20.  
 FOREIGNERS; strangers.  
 FORE FLANK; a point of sheep. See v. i. p. 355.

## G.

- GALLS; vacant or bald places in a crop.  
 GALLY; scattered with GALLS.  
 GARNER; a bin; in a mill, or a granary.  
 GAUN; a gallon measure; also a small tub.  
 GEERING; the ladders and side rails of a waggon.  
 A GIFTY DAY; a boon day; as a dayswork given,  
 by neighbour to neighbour.  
 GLUT; a large wooden wedge.  
 GOLDS; *chrysanthemum segetum*;—corn marigolds.  
 GOOSE TANSEY; *potentilla anserina*; silverweed.  
 GORSE or GOSS; furze, whin.  
 GOUTY; diseased, and swelled, by subterraneous  
 water; as boggy tumours, at the bottom, or on the  
 side of a hill.  
 GREEN SAUCE; *rumex acetosa*; sorrel.  
 GRUDGINGS; pollard; fine bran.  
 GUTTER; trench, or grip.

## H.

To HACKLE; diminutive of *to hack*; as to "hackle turneps:" to pull them up with a little twopronged *hack*. (See PROV. of YORK.)

HAIROUGH; *galium aparine*; cleavers.

HARD IRON; *ranunculus arvensis*; corn crowfoot.

HAT; heated; as hay or corn.

HEARTH; the floor on which wood is charred.

HEARTSPURN; tap root. See TOES.

HEN GORSE; *anonis arvensis*. See FIN.

HEN-SCRATLINGS; streaming clouds; mares tails  
Surrey; filly-tails Yorkshire.

To HIKE; to strike with the horn; to *dejs*; to *hipe*.

HILLOCKY; full of anthills.

HOG. See LAMBHOG.

HOODS; the covering sheates of shucks: *hoodsheaves*.

HOOP; a species of cheese-vat. See i. 319.

HONEYSUCKLE CLOVER; *trifolium repens*; white  
trefoil.

HOSE; the vagina, or *scabb*, of corn.

HUBS; naves of wheels.

## I.

INANDIN; from the same line of parentage. See  
v. i. p. 250.

JOINT GRASS; *galium verum*; yellow bedstraw.

## K.

KERNEL; a bundle of fat, before the shoulder, of  
cattle: the *soife*.



To KIBBLE ; to crush ; to grind imperfectly.

KIDS ; faggots.

## L.

LAG ; a defect of timber. See MIN. 141.

LAKES ; pools or puddles of water, standing in roads, or on land, after rain.

LAMBHOGS ; yearling sheep, before SHEARDAY.

LAP-LOVE ; *convolvulus arvensis* ; corn convolvulus ; also *polygonum convolv.* climbing buckweed.

LAY ; pasturage for the summer ; joist ; agiltment.

To LAY ; to *plash*, as an hedge.

LAYLANDS ; grass ridges, in common fields : arable lands, which have been suffered to lay down to grass ; —hence, LAY, as above ; and hence, probably, *ley* and *leigb*.

LIVING ; a tenement, or farm. The common field townships were divided into a certain number of “livings.”

LOCUSTS ; *scharabai melolonthæ* ; chafers ; brown beetles.

LOW ; a hill ! hence the names of various hills ; and hence the

LOW COUNTRY ; the hills of Staffordshire, &c. the *Morelands*.

## M.

MAUPLE ; maple.

MAW-SKIN ; the stomach of a calf ; used in cheese-making ; *vell*, &c. &c.

MEADOWS ; the dips or bottoms of vallies, in a state of perennial herbage.

MEATY ;

## PROVINCIALISMS.

MEATY; fleshy, but not fat; spoken of grazing stock,

MUCK; dung, compost.

## N.

NAG; a saddle horse; opposed to cart horse.

NATHE; nave of a wheel.

## P.

PAD; path.

PASH of rain; a heavy fall of rain.

PASSER, or nailpasser; a gimblet; or piercer.

PEAKRELS; men of the Peak of Derbyshire.

PENNYWEED; *rhinanthus crista-galli*; rattle.

PINFALLOW; winter fallow. See i. 191.

PINGLE; a small croft; (PIGHTLE. NORF.)

To PIKE; to glean.

To PILE; to break off the awns of thrashed barley.

PILING IRON; a tool used in "PILING BARLEY," and, sometimes, in breaking off the tails of oats.

POOTHERY (the oo short); close, muggy, sultry; spoken of the weather.

## Q.

QUART of butter; three pounds.

QUEECE; *Columba palumbus*; the wood pigeon.

RAMGETTER;

## R.

RAMGETTER; see i. 385.

RAUNPIKED; --- provincial of *raven-picked*; stag-headed, as an old overgrown oak; having the stumps of boughs standing out of its top.

RAW; wet and cold, as the soil in some seasons; unfit to receive the seed.

To REAR; to rise up before the plow, as the furrows sometimes do in plowing; generally owing to a bad plow, or a bad plowman.

ROARER; a restless cow, &c. See M. 119.

ROOD; a measure of eight yards in length; or sixty-four square yards; somewhat more than two square rods or perches.

ROPE; the preterite of to *reap*; spoken of corn.

RUCK; a rough bundle, or heap, of any thing.

RUNNING BULL of a harrow; see i. 109.

To RUN OUT; to grow or *sprout*, as corn in harvest; also to *scour*, as cattle.

## S.

SARVER; a corn scuttle.

SCORE; twenty pounds: used in speaking of the weight of cattle or swine.

SCRAWLY; thin and ravelled, as corn.

SEEDS; young grasses; ---land newly laid to grass.

SEEDNESS; seed time.

SETS; plants of potatoes, &c.

SHADE; a shed; as "a cow shade."

To SHADE; to shed, as corn.

SHAREGRASS; *carix hirta*; a species of sedge.

SHARHOG; (that is, a *share* or *shorn* HOG) a yearling sheep, after SHEARDAY: see LAMBHOG.

To SHEAVE; to bind corn.

SHEARDAY; the shearing day of sheep, *sheep-shearing*.

SHUCK; twelve sheaves of corn, set up in the field:  
*shock: flock.*

SLASHER; a *plaster* or *pleach* of a "laid" hedge.

SLUDGE; mire.

SLIDE; a sledge.

SLIT; a crack or cleft in the breast of fat cattle.

SMOTHER FLY; the bean aphid: see M. 61.

SOCK; the drainage of a farm yard: hence SOCKPIT,  
the receptacle of such drainage.

SOUGH; (pron. SUFF;) a covered drain of any size.

SPADE-BIT; the quantity of soil raised, by one effort of the spade: perhaps the etymon of *spit*.

SPADE-BONE; the shoulder bone; the blade bone; perhaps the shoulder bone of a horse, or an ox, was the *spade* of our ancestors.

SPINNEY; a clump, or small plantation, or grove.

SPANNER; a wrench; a nut screw driver.

SPINAGE, WILD; *chenopodium*; goosefoot.

SPRIT; sprouted, as corn in the field.

SPOKEN CHAIN; an appendage of a waggon, peculiar to this district: a long strong chain, to be fixed to the spoke of the wheel, when the team is "stalled" or set fast in a slough.

SPURN; a main root of a tree; as HEARTSPURN.

To SQUEAN; to fret, as the hog.

STALE, handle of every kind; as fork-stale, plow-stale: hence probably the corruption *plow's tail*.

To

To be **STALLED**; to be fet fast in a slough, or bad road.

**STATUTE**; a hiring day of farm servants.

To **STOCK**; to *grub*: see i. 69.

**STODGED**; filled to the stretch; as a cow's udder with milk.

To **STOMBLE**; to trample, or poach, as wet soil.

To **STOOL**; to ramify as corn; to *stock*, to *tiller*.

**STRAW-CUTTER**; a cutter of straw, &c. into *chaf*.

**STRIKE**; bushel; the common term. See **BUSHEL**.

**STRICKLESS**; that with which a bushel, &c. is stricken.

**STUMP**; post; as "gate stump"---"stumps and rails."

**SWAUF**; cart coom.

## T.

**TANKARD** turnep; the pudding, or *longrooted* turnep.

**THACK**, &c.; thatch, &c.

**THAVE**; a young ewe.

**THONE**; somewhat damp and cold; not thoroughly dry.

**THOROUGH**; an interfurrow, between two ridges.

**THREAVE**; twentyfour sheaves.

**THROO**; a slip or width of corn, which a set of reapers, &c. drive before them, at once; whether it consist of one or more lands, or ridges.

**TOES**; or *side-spurns*; the spreading roots of trees.

See **HEARTSPURN**.

TONKEY; a modern provincialism: a word lately introduced, I believe; and appears to be at present of uncertain meaning; ---shortlegged and deep carcased; resembling the Chinese breed of swine.

TRINE; of *fellies* thirteen; of *spokes* twentyfive.

TRY; a corn skreen.

To TRY; to skreen.

TUNNING DISH; the common name of a *tunnel*; which is perhaps the diminutive of *tunning dish*.

TUPMAN; a breeder of, or dealer in

TUPS, or rams.

TURF; sward---grafsland. See ii. 214. &c.

To TURF; to adjust the surface of sown sward.  
See i. 159.

TURN; year, or time.

TURNeping; collecting turneps.

TWITCH, common; *triticum repens*; couchgrafs.

———— black; *festuca duriuscula*; hard fescue.

———— running; *agrostis alba*; creeping bent.

## W.

WAGGONER; an upper man servant; *carter*.

WALL; the stem of a rick is called the walls.

WALLSPRING; a cold, wet, springy, or spewy part of land.

WASTRELS; outcasts; as wastrel bricks, &c.

WAYGOING Crop; see i. N. 19.

WEDDERGETTER; see i. 385.

WHIT-TAWER; a collarmaker; the common name.

WILLOWEED;

WILLOWEED; *polygonum pennsylvanicum*, &c.; persicaria; smartweed.

WIND; (the *i* long) a winch, or wince.

## Y.

YARD WOOD; see i. 71.

YELLOWWS; *genista tinctoria*; dyers' broom.

END OF THE SECOND VOLUME.

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# I N D E X

TO THE

## TWO VOLUMES.

### A

**A**CCIDENTAL Varieties,  
an Instance of, in Cattle,  
i. 272.  
Acids, their Fallacy, as Tests,  
i. 156.  
Acorns, Methods of Planting,  
ii. 255.  
-----, Instances of Sowing,  
ii. 257.  
-----, Remarks on, ii. 345.  
-----, Practice in Planting,  
ii. 350.  
-----, the Number and Quan-  
tity req. for an Acre, ii. 351.  
Aftergrafts, Article of, i. 241.  
----- of Clover, its Mode  
of Expenditure, i. 216.  
-----, General Remarks  
on, ii. 121.  
Age of a fullgrown Ash, ii. 274.  
--- of the Ash, further in-  
stanced, ii. 340.  
--- of a growing Elm, ii. 275.  
--- of the Elm, further in-  
stanced, ii. 339.  
--- of Felling four Species of  
Timber set down, ii. 310.  
--- of Merevale Wood, ii. 292.  
--- of Felling Oak Timber  
calculated, ii. 307.  
--- of Felling Oak Timber,  
General Remarks on, ii. 308.  
--- of the Oaks of Bagot Park,  
ii. 306.

Age of an overgrown Poplar,  
ii. 277.  
--- of Statfold Wood, ii. 283.  
Agriculture, Division of, i. 80.  
-----; its Progress in-  
stanced, ii. 62.  
Alum, as a Corrector of Milk,  
for Cheese, i. 323.  
Analysis of Breedon Limestone,  
i. 150.  
----- of Marls, i. 152.  
Aphis of the Turnep, de-  
scribed, ii. 118.  
-----, Fur-  
ther Remarks on, ii. 168.  
Appearance of the Country, i. 9.  
Aquatic Manure, on Growing,  
ii. 91.  
-----, Experiment  
with, ii. 236.  
Arguments, their bad Effect,  
i. 360.  
Artificial Grasses, i. 213.  
Ash, on the Growth of, ii. 274.  
---, the proper Age of Felling  
set down, ii. 310.  
---, Age of, further instanced,  
ii. 340.  
---, on Planting, in the Inter-  
spaces of Oaks, ii. 340.  
Ashby Stallion Snow, ii. 75.  
Ashes of Charcoal Hearths, va-  
lue of, as Manure, ii. 315.

## B.

- BAGOT Park, Timber of, ii. 306.
- Bakewell, Mr. his Success in Irrigation, i. 234.
- , his Rank as a Breeder, i. 244.
- , his Breed of Cattle, i. 269.
- , his superior Breed of Swine, i. 328.
- , his Claim as a Breeder of Sheep, i. 338.
- , his Disciples enumerated, i. 342.
- Balladingers, Rem. on, ii. 19.
- Bardon Hill, Views from, i. 11.
- Bark, Tools used in peeling, i. 70.
- , Article of, i. 72.
- ; on its Proportion to Timber, ii. 282.
- , on the Qualities of, ii. 285.
- , on the Prices of, ii. 286.
- Barley, Section of, i. 189.
- , Experiment with, on Clover Ley, ii. 13.
- , on plowing in, ii. 81.
- , Instance of Shameful Man. in Harvesting, ii. 159.
- Culture, Prac. in, ii. 188.
- miscarries after Turneps, ii. 195.
- ripened, by Frost, ii. 196.
- , Practical Remarks on Harvesting, ii. 211.
- ; extraordinary Circumstances attending its Sale, ii. 242.
- most difficult to cultivate, ii. 243.
- Barn of the District, i. 28.
- Floors, i. 29.
- , Method of laying, with Bricks, ii. 23.
- Barn Management, i. 177.
- Barometer in Useem, i. 110.
- , Instance of its great Utility, i. 128.
- , General Remarks on its Utility, i. 130.
- Barrow Lime, i. N. 27.
- Barwell, George, his Rationale of High Ridges, ii. 42.
- , his Rationale of Crooked Hedges, ii. 332.
- , his hard Fare, ii. 197.
- , his Death and Character, ii. 247.
- Battle of Bosworth Field, a Remark on, ii. N. 205.
- Beans, Culture of, i. 195.
- , in the Common Field Husbandry, ii. 206.
- Beasts of Labor, Sect. of, i. 99.
- of Draft, long horned Oxen considered as, i. 282.
- Beauty of Form considered, i. 247.
- , of the New Leicestershire Sheep, i. 346.
- Beer, Rem. on the extravagant Practice, respecting, ii. 44.
- Beetle of the Turnep described, ii. 117.
- , Experiments with, ii. 160.
- Belton Fair, ii. 1.
- Berbery, its Effects on Wheat, ii. 11.
- Beverage of Workmen, Remarks on, ii. 44.
- Black Couch, its Mischiefs, as a Corn Weed, ii. 114.
- Blight of Wheat, Remarks on, ii. 127.
- , Further Remarks on, ii. 141.
- Board of Agriculture recommended, i. 89.
- Botanical Excursions, the proper Season of, ii. 108.
- Botany

# I N D E X.

Botany of Agriculture, Practice in, ii. 97.  
 Bosworth Field, a Remark on the Battle of, ii. N. 205.  
 Breed; how much depends upon it, ii. 25.  
 Breeding in and in defined, i. 250.  
 ----- Cattle, Art. of, i. 283.  
 ----- Sheep, Art. of, i. 371.  
 Breeds of Sheep requisite, in this Island, i. 369.  
 Breedon Lime, Art. of, i. 149.  
 -----, Further Account of, ii. 2.  
 -----, Experiment with, ii. 209.  
 -----, Farther Remarks on, ii. 215.  
 Buildings, Section of, i. 25.  
 ----- Timber, not dependent on an internal Supply, ii. 39.  
 Bull Shakespear described, i. 272.  
 Bulls, Article of, i. 283.  
 -----, Age of Leaping, i. 299.  
 Burning Dead Grass, ii. 77.  
 Butter, Article of, i. 316.

## C.

CABBAGES, Sect. of, i. 209.  
 Calcareous Water, its Effect, ii. 78.  
 Calendar of Husbandry, the first Idea of, ii. 46.  
 -----, from Oct. 1784 to Oct. 1785, ii. 199.  
 Calf Balls, Method of Making, i. 315.  
 Calves, Rearing, i. 297.  
 -----, Fattening, i. 314.  
 Camping Potatoes, Method of, i. 201.  
 Catalogue of Hedgeweeds, i. 56.  
 ----- of Cornweeds, i. 161.  
 ----- of Grassland Plants, ii. 99.

Cattle, Section of, i. 265.  
 -----, Breeding, i. 283.  
 -----, Rearing, i. 297.  
 -----, Fattening, i. 299.  
 -----, Belton Fair, ii. 1.  
 -----, at Fazely Fair, ii. 22.  
 -----, Grazing, Loss by, ii. 92.  
 -----, Remarks on the present Scarcity of, ii. 235.  
 -----, at Turneps, Remarks on, ii. 243.  
 -----; Further Remarks on their Scarcity, ii. 250.  
 -----, Irish, Rem. on, ii. 250.  
 ----- Pens, i. 306.  
 ----- Shed of the District, i. 30.  
 ----- Sheds, on Guarding, ii. 58.  
 Causeways, Rem. on, i. N. 45.  
 Cements of the District, i. 26.  
 Chaf box described, i. 178.  
 Chafcutting, Article of, i. 177.  
 Chafers, in Myriads, ii. 258.  
 -----, Further Remarks on, ii. 266.  
 Change of Seed, Opinions respecting, ii. 193.  
 Charcoal, Method of Making, ii. 259. and 314.  
 ----- Ashes, their Value as Manure, ii. 315.  
 Charring Polls, the Method of, ii. 60.  
 ----- Wood, Remarks on, ii. 259. and ii. 314.  
 Charnwood Forest, as a Feature of the District, i. 11.  
 Cheese, Article of, i. 317.  
 -----, the proper Soil and Herbage for, ii. 109.  
 Chronological Register of Husbandry, ii. 199.  
 Cistern for Cattle, i. 32.  
 Clay, Remarks on, as a Manure, i. 154.  
 Climature of the District of the Station, i. 6.

Clever,

# I N D E X.

- Clover, Article of, i. 213.  
 -----, on eating in the Spring, before mowing, i. N. 216.  
 ----- affected by Horfes, ii. 27.  
 ----- Lattermath, i. 216.  
 ----- Ley; its Eligibility as a Matrix for Barley, ii. 13.  
 -----, on sowing with Wheat, ii. 80.  
 Collegiate Seminaries of Agriculture proposed, i. 93.  
 Color of Cattle, Remarks on, i. N. 281.  
 Coloring Cheese, i. 323.  
 Common Cow Pasture, an Instance of, ii. N. 204.  
 ----- fields, Remarks on inclosing, ii. 37.  
 ----- Husbandry, a Sketch of, ii. 204.  
 ----- ineligible, at this Time, ii. 208.  
 Compost Heap cropped with Turneps, ii. 198.  
 Conditions of Letting Rams, i. 381.  
 ----- of Sales of Timber, ii. 278, 281, and 283.  
 Conversation of professional Men, Remarks on, ii. 36.  
 Converting Topwood, i. 70.  
 ----- Timber; much Judgment required, ii. 327.  
 -----, an Instance of detailed, ii. 336.  
 Coppice Wood, Art. of, i. 73.  
 Cord, Statute, its Dimensions, i. N. 71.  
 Cores of Horns an Article of Manure, i. N. 147.  
 Corn Weeds, Cat. of, i. 161.  
 Correcting Milk, for Cheese, i. 323.  
 Couch; its Nature, ii. 29.  
 -----, the Method of Destroying, ii. 32.  
 Couchy Fescue, its Mischief, as a Corn Weed, ii. 114.  
 Couchy Fescue, its Hardiness; ii. 115.  
 ----- Soft Grass, a Weed in arable Land, ii. 140.  
 Course of Husbandry, Article of, i. 135.  
 ----- of Practice of the Midland District, ii. 38.  
 ----- in the Field Husbandry, ii. 205.  
 Covenants in Use, i. 19.  
 Cows, Breeding, i. 286.  
 -----, Dairy, i. 288.  
 Cow, Fat, of Croxall, ii. 244.  
 ----- Shed of the District, i. 30.  
 Creeping Crowfoot, affected by Cows, ii. 170.  
 Crooked Hedges, on the Origin of, ii. 332.  
 Croxall fat Cow, ii. 244.  
 Culling Ewes, their Age, and Treatment, i. 395.  
 Card, Management of, i. 324.  
 Cultivated Herbage, Section of, i. 213.  
 Culture of Turneps, Directions on, ii. 179.  
 -----, Practice in, ii. 172.  
 ----- Barley, ii. 183.  
 ----- Woodland, Instances of, ii. 255.  
 -----, Further Remarks on, ii. 322.  
 Curled Tops, Remarks on the Disease of, i. 198.  
 Custom, its Power instanced, ii. N. 63.  
 Cutmeat, Materials of, i. 102.  
 -----, Article of, i. 177.

## D.

- DAGGING and Daglocks, i. 402.  
 Dairy Cows, i. 288.  
 ----- Management, Section of, i. 314.

# I N D E X.

Dead Plants, their probable Use, ii. 361.  
 Description of the Bull Shakespear, i. 272.  
 — of the long-horned Breed of Cattle, i. 277.  
 — of a Trentwater Cow, i. 291.  
 — of the Dishley Sheep, i. 344.  
 — of Mr. Princep's fat Cow, ii. 244.  
 Dishley Sheep, their comparative Merit, i. 346.  
 Distance of Plants considered, ii. 359.  
 District, Midland, a Sketch of, i. 3.  
 — of the Station described, i. 6.  
 Docks, on collecting, after the Plow, i. N. 161.  
 —, on seeding them to Death! ii. N. 103.  
 Double Digging Plantations, the Expence of, calculated, ii. 346.  
 — Plow, its Origin, &c. i. 104.  
 Draining, Article of, i. 139.  
 — Grass Grounds, i. 223.  
 —, Surface, Instance of Practice in, ii. 63.  
 —, Under, Practice in, ii. 219.  
 Drinking Cistern, i. 32.  
 — Pools, on Scouring, ii. 128.  
 Drought of 1785, i. 120.  
 Drying off Cows, a remarkable Instance of, i. 294.  
 Dry Summer of 1785, i. 120.  
 Dung, Article of, i. 147.  
 —, Application of, i. 186.  
 —, on spreading out of Carts, ii. 20.  
 —, Spreading, Further Remarks on, ii. 34.

Dung injured by Drought, ii. 85:  
 —, Practice in Watering, ii. 87.  
 —, Further Practice in Watering, ii. 112.  
 — Pits, their Utility, ii. 51.

## E.

ECONOMY of Livestock, Remarks on, ii. 233.  
 Element of Practice;—plain and obvious Improvements are the first Objects of Attention, ii. 68.  
 —; endeavor to gain two Ends at one Expence, ii. 89.  
 —; unite the Interests of the Laborer with that of his Employer, ii. 90.  
 —, in the Management of Workpeople, ii. 147.  
 —, in Underdraining, ii. 229.  
 Elm, on the Growth of, ii. 275.  
 —, on the great Produce of, ii. 275.  
 —, the proper Age of Felling set down, ii. 310.  
 —, Further on the Age of, ii. 339.  
 Established Practices, the Improvement of, ii. N. 63.  
 Establishments of Agriculture, proposed, i. 89.  
 Estates, Section of, i. 13.  
 —, Management of, i. 15.  
 Ewes, Article of, i. 390.  
 — and Lambs, Management of, i. 401.  
 Experiment with Dung, on Fallow, ii. 33.  
 — with the Turnep Beetle, ii. 160.

Expe-

I N D E X.

Experiment with the Turnep  
Tenthredo, ii. 107.  
— with Breendon Lime,  
ii. 209.  
— with Aquatic Ma-  
nure, ii. 236.  
— in lacerating Hedge  
Banks, ii. 317.  
— on pruning the Pine  
Tribe, Result of, ii. 353.  
Experimenting; an Instance of  
its Use, ii. 186.  
Extent of the District, i. 6.  
Extraparochial Places, a Cau-  
tion respecting, ii. 68.

F.

FACE of the Country, i. 9.  
Fair of Belton, ii. 1.  
— of Fazeley, ii. 21.  
— of Tamwerth, ii. 24.  
— of Fazeley, 1783, ii. 208.  
— of Sutton, ii. 230.  
— of Harborough, ii. 250.  
Fallowing, Article of, i. 145.  
—, Practice in, ii. 28.  
— renders a foul Soil  
fertile, ii. N. 34.  
Fallows meliorated by a dry  
Summer, i. 125.  
— of the Common Fields,  
ii. 205.  
Farm Buildings, Sect. of, i. 25.  
Farmers, Section of, i. 82.  
Farmeries, Article of, i. 28.  
Farmery, an Improvement of,  
ii. 49.  
Farming, Instance of Hazard  
in, ii. 92.  
— precarious, ii. 131.  
—; a further Remark on  
its Uncertainty, ii. 185.  
Farm Laborers, on the hard  
Fare of, ii. 197.  
Farms, Section of, i. 80.  
—, Management of, i. 153.

Farms, Public, proposed, i. 89.  
— should not be far from  
the Residence of Laborers,  
ii. 210.  
Farmyard, Old, of this District,  
i. 32.  
— Management, Sec-  
tion of, i. 177.  
— of Statfold, ii. 49.  
— should have a Lobby,  
ii. 237.  
Farriers, a good Custom of,  
i. N. 101.  
Fat, or Fattening Quality, i. 248.  
Fattening Cattle, Art. of, i. 299.  
— Calves, Art. of, i. 314.  
— Swine, i. 329.  
— Quality of Sheep exam-  
ined, i. 353.  
— Sheep, Art. of, i. 396.  
— Lambs, on Herbage,  
i. 401.  
— Cattle, with Turneps,  
Remarks on, ii. 243.  
Fazeley Fair 1784, ii. 21.  
— 1785, ii. 208.  
Felling Timber, on the Season  
of, ii. 286.  
—, Method of,  
ii. 289.  
—, Further Cau-  
tion in, ii. 342.  
Fences, Section of, i. 50.  
Field Husbandry, a Sketch of,  
ii. 204.  
Firs, Experiment on pruning,  
ii.  
—, the Result of pruning,  
ii. 353.  
—, their Nat. Habits, ii. 356.  
Flesh, the Term defined, i. 248.  
— of Cattle and Sheep exam-  
ined, i. 349.  
Floating upwards, ii. 53.  
— downward, ii. 57.  
Fly of Sheep, a Prevention of,  
i. 403.  
Folding

Folding requires Shortwooled Sheep, i. 367.

—— not in Use here, i. 400.

Forehand Rents, i. 20.

Form of a Lease, i. 20.

Fowler, Mr. his Breed of Cattle, i. 270.

Frigbob Saw desc. ii. N. 338.

Frost, its Effect in ripening Corn, ii. 196.

——, its Effect on Turneps, ii. 239.

G.

GATES, General Remarks on Hanging, ii. 71.

——, farther Remarks on Hanging, ii. 94.

Geese clarify Drinking Pools, ii. 140.

Generalizing Ideas, the Danger of, i. 46.

General Rules, their Danger, in Practice, ii. 83.

Gleaning, General Remarks on, ii. 148.

Grains, as an Article of Fattening, i. N. 300.

Grass, Dead, on burning, ii. 77.

—— Land, Section of, i. 218.

——, on dressing, with Drain Mold, ii. 127. & 137.

Grazing Cattle, Art. of, i. 299.

——, in a Wet Season, Instances of, i. N. 307.

—— Sheep, Art. of, i. 396.

——, Remarks on, when Stock are dear, ii. 1.

——, on the uncertainty of, ii. 92.

——, great Loss by, further proved, ii. 208.

——, Scotch Bullocks, Practice in, ii. 248.

Gresley, Sir T. his Breed of Cattle, i. N. 258.

H.

HANDWEEDING Turneps, the Cost of, ii. 26.

Hanging Gates, General Remarks on, ii. 71.

——, Further Remarks on, ii. 94.

Harrow, Article of, i. 108.

Harvesting, Section of, i. 165.

—— Wheat, General Remarks on, ii. 13.

—— Oats, Remarks on, ii. 155.

—— Barley, Instances of Shameful Managem. ii. 159.

——, General Directions on, ii. 211.

Hawthorn, on the Nature of the Roots of, ii. 328.

Haying, Article of, i. 238.

Hay Harvest; a remarkable one, ii. 185.

Haymaking, in a dry Season, Practical Remarks on, ii. 110.

Hazard of Farming, Instance of, ii. 131.

Heathy Mountains require active Sheep, i. 367.

Hedge Banks, Experiment on lacerating, ii. 317.

——, further on lacerating, ii. 329.

Hedge Oaklings, on Training, ii. 321.

Hedgerow Timber, Section of, i. 63.

Hedges, Section of, i. 50.

——, Practical Remarks on Cutting, ii. 65.

——, Prac. in Raising, ii. 252.

——, Prac. in Train. ii. 269.

——, General Remarks on Training, ii. 272.

——, the Effects of Water on, ii. 273.

Hedges,

# I N D E X.

- Hedges; a Practical Remark on Planting, ii. 274.  
 ———, Practice in Weeding, fallen Ones, ii. 315.  
 ——— to renew, by lacerating the Banks, ii. 317.  
 ———, General Remarks on their Management, ii. 330.  
 ———; on the Origin of crooked Ones, ii. 332.  
 ———, the Folly of high Ones instanced, ii. 329.  
 Hedgeweeds, List of, i. 56.  
 Heifers, Age of bringing in, i. 299.  
 Herbage, Cultivated, i. 213.  
 ———, Natural, i. 218.  
 ———, proper for Cheese, i. 318.  
 ———, farther Rem. on, for Cheese, ii. 110.  
 High Ridges, the Rise of, ii. 42.  
 ———, Rem. on, ii. 324.  
 Hip Bones, Rem. on, i. N. 279.  
 Hiring Places of Servants, Remarks on, ii. N. 18.  
 Hogsty, a good Plan of, i. 330.  
 ——— requires Rubbing Posts, ii. 6.  
 Hoing Turneps, Rem. on, ii. 8.  
 ——— the Clusters of Turneps, ii. 148.  
 ——— Turneps, its evident Use, ii. 175.  
 ———, Direction on, ii. 176.  
 Holly as a Hedgewood, Remarks on, i. N. 52.  
 Horns, Cores of, an Article of Manure, i. N. 147.  
 ———, the Inconvenience of long Ones, i. N. 278.  
 Horse Paths, Rem. on, i. 45.  
 Horses, working, i. 99.  
 ———, Section of, i. 256.  
 ———, Breeding, i. 260.  
 ——— partial to Clover, ii. 27.  
 ——— require Water, in a very dry Season, ii. 113.  
 Horses hazardous Stock, ii. 138.  
 ——— lost, by the Staggers, ii. 138.  
 ———, further Observations on the Staggers, ii. 217.  
 ———; further Loss by the Staggers, ii. 241.  
 Hours of Work, at Harvest, i. 166.  
 Hucksters, a Regulation respecting, i. 180.  
 Human Necessities, how few! ii. 313.  
 Husbandry an endless Labyrinth, ii. 39.  
 ——— uncertain, as a Business, ii. 131.  
 ———; farther Remarks on its Uncertainty as an Employment, ii. 239.  
 Hygrometers, Rem. on, i. 114.

## I.

- IMPLEMENTS, Section of, i. 102.  
 ———, Repository of proposed, i. 92.  
 ———, Manufactory of proposed, i. 92.  
 Improvement, its Means, with Respect to Livestock, i. 249.  
 ———, of Sheep, Suggestions on, i. 339.  
 ———, its Principle with Respect to Livestock, i. 246.  
 ——— of the Midland Practice proposed, ii. 41.  
 ——— of a Farm Yard, ii. 49.  
 ———, a principal Object of, ii. N. 63.  
 ———, the plain Road of, pointed out, ii. 68.  
 ———, in Sowing Barley shown, ii. 81.  
 Improvements,



# I N D E X.

Improvements, Remark on In-  
 troducing, i. 86.  
 Inclosing Common Fields, Re-  
 marks on, ii. 37.  
 Intercourse of Districts, In-  
 stance of, i. 333.  
 Invention; how dark is its  
 Path! ii. 97.  
 Jobbing, General Remarks on,  
 ii. 231.  
 Irish Cattle, Rem. on, ii. 250.

## K.

**KIBBLING** Beans, i. 101.

## L.

**LABORERS**, Section of, i. 97.  
 ———, at Harvest, i. 165.  
 ——— Cultivating Po-  
 tatoes in Partnership with  
 their Masters, ii. 126.  
 ——— Planting Potatoes,  
 in waste Corners, ii. 84.  
 ———, on the hard Fare  
 of, ii. 197.  
 ———; a Remark on their  
 relative Residence, ii. 210.  
**Lacerating Hedge Banks**, Ex-  
 periment in, ii. 317.  
 ———, Re-  
 mark on, ii. 329.  
**Lag in Timber**, Rem. on, ii. 287.  
**Lambs**, their Treatm. i. 393.  
 ——— Fattening on Herbage,  
 i. 401.  
 ———, on drawing from the  
 Ewes, as their Milk fails,  
 i. N. 402.  
**Landed Estates**, Div. of, i. 13.  
**Landlords**; the good Effect of  
 their Liberality, i. 141.  
**Larch**; its Safety in Snow,  
 ii. 357.

Lease, Form of, i. 20.  
 ———, an admirable Clause of,  
 i. N. 21.  
**Leases**, Remark on, ii. 47.  
**Lectures in Agriculture** pro-  
 posed, i. 93.  
**Letting Male Stock**; its Ori-  
 gin, i. 253.  
 ———; its Effect,  
 i. 255.  
 ——— Rams, by the Season,  
 i. 373.  
**Ley of Six Years**, i. 214.  
**Lightning**, a Prognostic of  
 wanted, i. 131.  
**Lime of Barrow**, i. N. 27.  
 ———, Article of, i. 148.  
 ——— of Breedon, ii. 2.  
 ———, Instance and Expence of  
 Watering, ii. 5.  
 ———; Experiment with that of  
 Breedon, ii. 209.  
 ——— of Breedon, farther Re-  
 marks on, ii. 215.  
 ——— Kilns of Breedon, ii. 2.  
**List of Rates**, ii. 365.  
**Livestock**, Section of, i. 243.  
 ———, Remarks on the Ge-  
 neral Economy of, ii. 233.  
**Lobby of a Farmyard**, ii. 237.  
**Longhorned Breed of Cattle**,  
 History of, i. 266.  
**Loose Corn**, Method of Har-  
 vesting, i. 168.  
**Lotus Corniculatus**; its Value  
 considered, ii. N. 105.

## M.

**MAGGOTS** of Sheep, to de-  
 stroy, i. 403.  
**Male Stock**, on Letting, i. 253.  
**Malting of Barley**, Remarks on,  
 ii. 242.  
**Management of Estates**, Sec-  
 tion of, i. 15.

Management

# I N D E X.

- Management of Farms, Section of, i. 133.
- of Soils, i. 138.
- of Manures, Section of, i. 147.
- of Growing Crops, Section of, i. 160.
- of Harvest, Section of, i. 165.
- of Turf, i. 215.
- of Pasture Grounds i. 219.
- of Dairy Cows, i. 293.
- of the Dairy, i. 314.
- of Swine, i. 329.
- of Rams, i. 374.
- of Ewe Flocks, i. 390.
- of Fatting Sheep, i. 400.
- ; for General Principles of, see Elements of Practice.
- Managers of Cheese, i. 319.
- Mangers of Brick, i. 30.
- Manor Courts, i. 15.
- Manure and Management, Section of, i. 147.
- , Experiment with, on Fallow, ii. 33.
- of Drains, to meliorate, ii. 66.
- , on Collecting, and Digesting, ii. 90.
- , Aquatic, on Growing, ii. 91.
- , a Hint on Collecting, ii. 171.
- , Aquatic, Experiment with, ii. 236.
- Manuring with long Dung, Remarks on, i. 186.
- Grass Lands, in Summer, Observ. on, ii. 137.
- Markets, Section of, i. 179.
- for Fat Sheep, i. 405.
- for Wool, i. 405.
- Markets, a good Regulation of, i. 181.
- Conversation, Remarks on, ii. 36.
- Marl, Article of, i. 152.
- , Grey, of Warwickshire, ii. 186.
- Materials of Building, i. 25.
- Meadows, Article of, i. 222.
- , Definition of, ii. N. 99.
- Merevale Wood, Sale of, ii. 278.
- Method of taking Tithe in Kind, i. 18.
- Forming Sand Roads, i. 58.
- Forming Waggon Paths, i. 44.
- Plashing Hedges, i. 58.
- Stocking Trees, i. 69.
- Hanging Harrows with a Running Bull, i. 109.
- Forming Soda drains, i. 142.
- Spreading Dung, i. 148.
- Turfing, i. 159.
- Harvesting Sheaf Corn, i. 166.
- Harvesting Loose Corn, i. 168.
- Ricking Corn, i. 172.
- Stopping a Slipping Corn Rick, i. 173.
- Covering up Corn Ricks, i. 174.
- Camping Potatoes, i. 201.
- Raising Cabbage Seed, i. 211.
- Fatting Cattle on Grains, i. 300.

Method

# I N D E X.

Method of Making Calf Balls, i. 315.  
 ——— Making Sweet Butter, i. 316.  
 ——— Showing Rams, i. 377.  
 ——— Sending out Letten Rams, i. 388.  
 ——— Using Rams, i. 388.  
 ——— Preventing Maggots on Sheep, i. 403.  
 ——— Destroying Sheep Maggots, i. 403.  
 ——— Making Artificial Wash Pools, i. 404.  
 ——— Laying Barn Floors, with Bricks, ii. 23.  
 ——— Charring Posts, ii. 60.  
 ——— Hanging Gates, ii. 71.  
 ——— Haying, in a Dry Season, ii. 110.  
 ——— Watering Ridges, ii. 135.  
 ——— Hoing Turneps, ii. 176.  
 ——— Harvesting Barley, inferred, ii. 211.  
 ——— Underdraining, practised, ii. 219.  
 ——— Collecting Turneps in Frost, ii. 240.  
 ——— Planting a Hedge described, ii. 253.  
 ——— Planting Acorns, ii. 255.  
 ——— Making Charcoal, ii. 259.  
 ——— Felling Timber, ii. 289.  
 ——— Charring Wood, farther described, ii. 314.  
 ——— Weeding Fallen Hedges, ii. 315.  
 ——— Preparing Posts and Rails, ii. 352.  
 Mice; their Mischiefs, ii. 52.

Middleton Oak descr. ii. 343.  
 Mildew, Remarks on, i. 27.  
 ———, farther Remarks on, ii. 141.  
 Milk, Methods of Preserving sweet, i. 316.  
 ———, its Quality for Cheefe, i. 322.  
 Minutial Managem. of Work-people, ii. 147.  
 Moles; their singular Scarcity, and why, i. N. 221.  
 Morticing Posts, with a Hatchet, ii. 352.  
 Mowing Grounds, Art. of, i. 223.  
 ——— Pastures, the Price for, ii. 91.

## N.

NARCOTIC Balls, for Calves, i. 315.  
 Natural Herbage, i. 218.  
 Neatness, how easily obtained, ii. 147.  
 Necessaries of Life, how Few! ii. 313.  
 Needwood Forest well stocked with Timber, ii. 305.  
 New Leicestershire Breed of Sheep, i. 337.

## O.

OAK, the Effect of hard Winters on, ii. 267.  
 ———; the Chafer one of its greatest Enemies, ii. 267.  
 ———, the Effect of the Chafer on, ii. 268.  
 ———, on the Growth of, in Merevale Wood, ii. 279.  
 ———, Practical Remarks on Planting, ii. 291.  
 ———, Remarkable Length of, ii. 293.

# I N D E X

- Oak, Age of, in Merevale Wood, ii. 293.  
 —; Remarks on its Age and Increase, ii. 307.  
 —, the proper Age of Felling set down, ii. 310.  
 —, of Middleton, described, ii. 343.  
 — Insect; its Mischiefs, ii. 312  
 Oaklings, Natural, abundant in Grass Land, ii. 264.  
 Oak Timber, in Needwood Forest, ii. 305.  
 —————, Bagot Park, ii. 306.  
 —————; on its Decrease, in this District, ii. 319.  
 —————, the Different Wares of, ii. 336.  
 Oats, Section of, i. 193.  
 —, Instance of Sowing them over Thin Wheat, ii. 7.  
 —, Remarks on Harvesting, ii. 155.  
 Objects of the Midland Husbandry, i. 133.  
 Origin of High Ridges, i. 42.  
 — of Crooked Hedges, ii. 332.  
 Ornamental Appearance of the District, i. 9.  
 Oxen, longhorned, their Properties as Beasts of Draft, i. 282.
- P.**
- PASTE Balls, for Calves, i. 315.  
 Pasture Grounds, their Management. i. 219.  
 —————, Instance of Shutting up, for Spring Food, i. 222.  
 —————, on Mowing the Broken Grass of, ii. 91.  
 Pasture Grounds; their Qualities in diff. Seasons, ii. 93.  
 Paths, Waggon, rem. on, i. 44.  
 — of Plantations, on forming, ii. 349.  
 Peeling Bark, i. 70.  
 Pens for Cattle, i. 306.  
 Periodical Register of the Works of Husbandry. ii. 199.  
 Pine Tribe, on pruning, ii. 305.  
 ————— Result of Experiment, in Pruning, ii. 353.  
 Pines, their Natural Habits, ii. 357.  
 Pipe Drains. Article of, i. 141.  
 Pitching Holes, not in Use, i. 174.  
 Places, in the District, i. N. 14.  
 Plan of Man. of Farms, i. 133.  
 ————— Remarks on, ii. 38.  
 Plantation Paths, on forming, ii. 349.  
 Plantations, on choosing proper Sites of, ii. 335.  
 ————— Double Digging, Expende of, calculat. ii. 346.  
 Planting, Section of, i. 76.  
 ————— Minutes on, ii. 2:2.  
 ————— the Oak, a Practical Remark on, ii. 291.  
 ————— Practice in, Spring 1785, ii. 24.  
 ————— Miscar. in, ii. 304.  
 ————— Success in, ii. 318.  
 ————— Steep Surfaces, Remarks on, ii. 325.  
 ————— Rocky Sites, Remarks on, ii. 327.  
 —————, in Autumn 1785 and Spring 1786, ii. 344.  
 —————, on the proper depth of, ii. 348.  
 —————, in Frost, Remarks on, ii. 348.  
 ————— Acorns, Instance of, ii. 350.  
 —————, proper Season of, examined, ii. 354.  
 Planting,

# I N D E X.

- Planting, on the proper Distance of, ii. 359.  
 ———, Expence of, calculated, ii. 363.  
 ———, Caution requisite in, ii. 364.  
 Plants, on their Natural Habits, ii. 356.  
 ———, General Remarks on taking up, ii. 358.  
 Plashing Hedges, Meth. of, i. 58.  
 Plow, Article of, i. 104.  
 ———, Double; its Origin, &c. i. 104.  
 Pointing Rails, with a *Horse*, ii. 352.  
 Polesworth Statute, ii. 17.  
 Political Economy, respecting Cattle, ii. 251.  
 ———, respecting Ship Timber, ii. 309. & 320.  
 Ponds, on Reclaiming, ii. 128.  
 Pools, on Clearing, ii. 128.  
 Poors Rate of Extraparochial Places, ii. 68.  
 Poplar, on the Growth of, ii. 277.  
 ———, the proper Age of felling set down, ii. 310.  
 ———, Sale of, ii. 334.  
 ——— Timber, its Uses, ii. 334.  
 Poits, to Char, ii. 60.  
 ———, Method of Mortising with a Hatchet, ii. 352.  
 Potatoes, Section of, i. 197.  
 ——— planted in Waite Corners, ii. 84.  
 ——— raised by Master and Men, jointly, ii. 126.  
 Practice, Elements of; see Elements of Practice.  
 ——— in Fallowing, ii. 48.  
 ——— in Surface Draining, ii. 63.  
 ——— in Botany, ii. 97.  
 ——— in Haymaking, in a dry Season, ii. 110.  
 Practice in Watering Dung, ii. 112.  
 ——— in the Turnep Culture, ii. 172.  
 ——— in the Barley Culture, ii. 188.  
 ——— in Harvesting Barley, with Gen. Rem. on, ii. 211.  
 ——— in Underdraining; ii. 219.  
 ——— in Watering Ridges, ii. 135.  
 ——— in Hedge Planting, ii. 252.  
 ——— in Training Hedges, ii. 269.  
 ——— in Planting, in the Spring of 1785, ii. 294.  
 ——— in Weeding Fallen Hedges, ii. 315.  
 ——— in Training Hedge Oaklings, ii. 321.  
 ——— in Planting, in Autumn 1785, and Spring 1786; ii. 344.  
 Practices, varying, Remarks on, ii. 35.  
 ——— require to be adapted to present Circumstances; ii. N. 63.  
 Present Productions, i. 9.  
 Prices of Farm Produce, how uncertain, ii. 239.  
 Princep, Mr. his superior Character, i. 14.  
 ——— his Breed of Cattle, i. 270.  
 ——— his fat Cow, ii. 241.  
 Produce of Wheat, i. 188.  
 ——— of Barley, i. 192.  
 ——— of Oats, i. 194.  
 ——— of Potatoes, i. 202.  
 ——— of Fattening Cattle; i. 312.  
 ——— of Cheese, i. 326.  
 ——— of Fattening Sheep, i. 406.  
 ——— of Wool, i. 406.  
 ——— Productions

# I N D E X.

- Productions of the Station, i. 9.  
 Prognostication of the Weather;  
 its great Importance, i. 131.  
 Progress of Spring 1784, i. 112.  
 ————— 1785, i. 117.  
 Propagating Woodlands, i. 67.  
 Professional Men, Definition of,  
 i. N. 85.  
 Professors of Agriculture pro-  
 posed, i. 93.  
 Provender of Horses, on Pre-  
 paring, i. 101.  
 Provincial Registers; one of  
 their Uses, ii. 334.  
 Pruning Timber; its Use, ii. 292.  
 ————— after Planting, Re-  
 marks on, ii. 300.  
 ————— the Pine Tribe, Ex-  
 periment in, ii. 303.  
 ————— Timber, an Instance  
 of its Use, ii. 342.  
 ————— the Pine Tribe, Re-  
 sult of Experiment in, ii. 353.  
 Public Farms proposed, i. 89.  
 ————— Hirings, Remarks on,  
 ii. N. 18.  
 Pulse, Section of, i. 195.  
 Purchase of Lands, Remarks  
 on, i. 16.

## R.

- Rails, Method of Pointing with  
 a *Horje*, ii. 352.  
 Raising Woods, i. 67.  
 Rains, Article of, i. 371.  
 Ranunculus Repens a valuable  
 Herbage, ii. 170.  
 Rates, List of, ii. 365.  
 Raygrass; its Estimation, i. 215.  
 Reapers, Female; their Ad-  
 vantage to a Country, ii. 151.  
 Reaping by the Threave de-  
 scribed, i. 166.  
 ————— ; its  
 Conveniency, ii. 143.  
 Rearing Cattle, Art. of, i. 297.  
 Receiving Rents, i. 20.
- Registers of the Weather, i. 117.  
 ————— of Rural Knowledge  
 enumerated, ii. 46.  
 ————— of Rural Affairs; one  
 of their Uses, ii. 334.  
 Remarks on the Purchase of  
 Lands, i. 16.  
 ————— on Sand Roads, i. 36.  
 —————, Gen. on Roads, i. 38.  
 ————— on Horse Paths, i. 45.  
 ————— on the Danger of  
 generalizing Ideas, i. 46.  
 ————— on the Practice of  
 Hedgeplanting, i. 50.  
 ————— on the Holly, as a  
 Hedgewood, i. N. 52.  
 ————— on Ensuring Plants,  
 by Nurserymen, i. 79.  
 ————— on Farmers, i. 82.  
 ————— on introducing Im-  
 provements, i. 86.  
 ————— on Societies of Agri-  
 culture, i. 86.  
 ————— on Seminaries of  
 Agriculture, i. 94.  
 ————— on the Beverage of  
 Farm Workpeople, i. 98.  
 ————— on the Horse Team  
 of this Country, i. 100.  
 ————— on breaking Horse  
 Corn, i. 101.  
 ————— on Farm Waggon, i.  
 103.  
 ————— on the Double Plow,  
 i. 106.  
 ————— on Hygrometers,  
 i. 114.  
 ————— on the Progress of  
 Spring, i. 119.  
 ————— on the dry Summer  
 of 1785, i. 120.  
 ————— on the Use of the  
 Barometer, i. 128.  
 —————, General, on the  
 Weather, i. 130.  
 ————— on the Progress of  
 Underdraining, i. 139.  
 Remarks

# I N D E X.

- Remarks on the happy Effects of Liberality in Landl. i. 141.
- , General, on Fallowing, i. 145.
- on the Solution of Calcareous Subst. i. N. 152.
- on Clays, as Manure, i. 154.
- on Acids, as Tests of Calcareous Subst. i. 156.
- on Reaping by the Threave, i. 166.
- on Harvesting Loose Corn, in Cocks, i. 170.
- on Hucksters, and weekly Markets, i. 180.
- on Manuring with Long Dung, i. 186.
- on Plowing Beans under whole Furrows, i. 196.
- on the Disease of Curled Tops, i. 198.
- on Turneps as a Crop, on retentive Soils, i. 204.
- on Sowing Turnep Seed, on Stubbles, i. 207.
- on eating Clover in the Spring, i. N. 216.
- on the Origin of Watering Gr. Lands, i. 224.
- on the Principles of Irrigation, i. 228.
- , General, on Breeding Cart Horses, for Sale, i. 262.
- on Long Horns, i. N. 278.
- on Hip Bones, i. N. 279.
- on the Size of the Viscera of Animals, i. N. 280.
- on the Color of Cattle, i. N. 281.
- on the General Economy of Cows, i. 296.
- on the Art of Grazing, i. 303.
- Remarks on Grazing in a wet Season, i. N. 307.
- on the proper State of Fatness of Cattle, i. 308.
- on the Cattle Market of Birmingham, i. N. 309.
- , farther, on the Art of Grazing, i. 311.
- on the Change of Produce of Districts, i. 321.
- on the Intercourse of Districts, i. 333.
- on the Age of Fecundity of Sheep, i. N. 377.
- on the Countenance of Sheep, i. 394.
- on the Improvement of Sheep, i. 339.
- on the Blindness of Prejudice, respecting the new Leicestershire Breed of Sheep, i. 343.
- on the Flesh of Cattle and Sheep, i. 349.
- on the Fattening Quality of Sheep, i. 353.
- , General, on Sheep, as a Species of Domestic Animals, i. 361.
- on the different Breeds of Sheep, requisite in this Island, i. 369.
- on the Letting of Rams, to the *best* Bidder, i. 379.
- on the High Prices of Rams, i. 384.
- on the Lactescent Property of Ewes, i. 393.
- on Mixing Sheep of different Ages, i. 399.
- on Fattening Lambs on Herbage, i. 401. and N. i. 402.
- on the Sale, Price, and Sorting of Wool, i. 405.
- on Grazing when Stock are dear, ii. 1.

# I N D E X.

- Remarks on Sowing Oats over a thin Crop of Wheat, ii. 7.
- on Hoing Turneps, ii. 8.
- on the Causes of Smut, ii. 11.
- , General, on Harvesting Wheat, ii. 13.
- on Public Hirings of Servants, ii. N. 18.
- on Ballad-fingers, ii. 19.
- on Fallowing, ii. 28.
- , farther, on Spreading Dung, ii. 34.
- on Varying Practices, ii. 35.
- on the Conversation of Professional Men, ii. 36.
- on Inclosing Common Fields, ii. 37.
- , General, on the Midland Husbandry, ii. 38.
- on the Origin of High Ridges, ii. 43.
- on Beverage, ii. 44.
- , General, on Agricultural Regulations, ii. 46.
- on the Letting of a Farm, ii. 47.
- on the Mischievousness of Mice, ii. 52.
- on Floating Upward, ii. 53.
- on Carrying out Corn, &c. ii. 61.
- on Adapting Practices to existing Circumstances, ii. N. 63.
- on Extraparochial Places, ii. 68.
- on Plowing in Turneps, as Manure, ii. 69.
- on Hanging Gates, ii. 71.
- on Sowing whole Plots, ii. 80.
- Remarks on the Fertilizing Qualities of Waters, ii. 82.
- on General Rules of Practice, ii. 83.
- on Watering Grass Lands, ii. 86.
- on Smiths' Shops, ii. 88.
- on a Principle of Practice, ii. 89.
- on the Quality of Herbage in diff. Seas, ii. 93.
- , further, on Hanging Gates, ii. 94.
- on the Path of Invention, ii. 97.
- on Pasture Grounds, in a dry Season, ii. 107.
- on the Soil and Herbage, for Cheese, ii. 109.
- , Practical, on Hay-making, in a dry Seas, ii. 110.
- on the Couchy Fescue, as a Weed, and as a Species of Herbage, ii. 114.
- , General, on After-grass, ii. 121.
- on Mildew, ii. 127.
- on reclaiming Drinking Pools, ii. 128.
- on the Profession of Agriculture, ii. N. 134.
- on Geese in Pasture Grounds, ii. 140.
- , farther, on the Mildew of Wheat, ii. 141.
- on the Soft Grass, ii. 141.
- on Slovenliness, ii. 145.
- , General, on Gleaning, ii. 148.
- on Female Reapers, ii. 151.
- on the Season of Sowing, ii. 152.
- on Harvesting Oats and Wheat, ii. 155.

Remarks,



# I N D E X.

- Remarks, Practical, on the Turnep "fly," ii. 162.
- on the Slug as an Enemy of the Turnep Crop, ii. N. 166.
- on the Turnep Aphis, ii. 169.
- on the Use of Hoing Turneps, ii. 176.
- , General, on the Culture of Turneps, ii. 179.
- , farther, on Sowing by the Season, ii. 190.
- on Changing Seed Corn, ii. 193.
- on the Effects of Frost on Vegetables, ii. 196.
- on the Residence of Laborers, ii. 210.
- , Practical, on Harvesting Barley, ii. 211.
- , further, on Breeding Lime, ii. 215.
- on Fattening Young Sheep, ii. 217.
- , General and Practical, on Underdrain, ii. 228.
- on Jobbing, ii. 231.
- on the present Scarcity of Cattle, ii. 235.
- on Checking Wheat, ii. 237.
- on Farmyard Lobbies, ii. 237.
- on the Uncertainty of the Prices of Farm Produce, ii. 239.
- on the Effects of Frost on Turneps, ii. 239.
- on Turneping in Frost, ii. 240.
- on the Price and Malting of Barley, ii. 242.
- on Cattle, at Turneps, ii. 243.
- on Grazing Scotch Bullocks, ii. 248.
- Remarks, Further, on the Scarcity of Cattle, ii. 250.
- on Irish Cattle, and the present State of English Agriculture, ii. 251.
- , Practical, on Thinning Young Woods, ii. 256.
- on the Chafer, ii. 258.
- on the Effects of Charring Wood, ii. 262.
- , Practical, on Young Oak Plants, in Grass Land, ii. 264.
- on the Effect of hard Winters, on the Oak, ii. 267.
- , Further, on the Chafer, ii. 267.
- , Farther, on the Annual Increase of Trees, ii. 269. and 274.
- , General, on Training Hedges, ii. 271.
- on the Felling of Standard Trees, ii. 276.
- on the Rise of Sap, ii. 280.
- on the Proportions of Bark to Timber, ii. 282.
- on the deceitful Appearance of Woods, ii. 283.
- on the Quality and Price of Bark, ii. 286.
- on the Time of Felling the Oak, ii. 286.
- on the Lag in Timber, ii. 287.
- Farther, on the Rise of Sap, ii. 287. and ii. 288.
- , Cautionary, on Felling Timber, ii. 290.
- Practical, on Planting the Oak, ii. 291.
- on Pruning Timber Trees, ii. 292.
- on Watering Pits, before Planting, ii. 297.

- Remarks on Pruning, after Planting, ii. 300.  
 — on Pruning the Pine Tribe, ii. 303.  
 — on the Age and Increase of the Oak, ii. 307.  
 — General, on the proper Age of Felling Oak Timber, ii. 308.  
 — on the Supply of Building and Ship-Timber, ii. 319.  
 —, Further, on the Culture of Woods, ii. 322.  
 — on high Ridges, ii. 324.  
 — on planting steep Surfaces, ii. 325.  
 —, General, on the Management of Hedges, ii. 330.  
 — on the Origin of Crooked Hedges, ii. 332.  
 — on the Natural Economy of Plants, ii. 335.  
 — on filling up the Vacancies of an Oak Wood, with Ashes, ii. 341.  
 — on the Use of Training Young Timber Trees, ii. 342.  
 — on the Nature of Acorns, ii. 345.  
 — on Planting in Frost, ii. 348.  
 — on Double-Digging Plantations, ii. 348.  
 — on the Breeding of Pines and Firs, ii. 354.  
 — on the Season of Removing Plants, ii. 354.  
 — on Taking - Up Plants, ii. 358.  
 — on the proper Distance of Plants, ii. 359.  
 — on Filling-Up Plantations, with dead Plants, ii. 361.  
 Removal of Tenants, i. 19.  
 Renewing old Hedges, by lacerating the Banks, ii. 317.  
 Rent of Lands, i. 17.  
 — of Tithes, i. 18.  
 Rents, Forehand, i. 20.  
 —, Time of Receiving, i. 20.  
 Ricking Corn, Article of, i. 172.  
 Ridges; their proper Direction, ii. 17.  
 —, High, the Rise of, ii. 42.  
 —, on Watering, ii. 135.  
 — High, Rem. on, ii. 324.  
 Rise of Sap, Rem. on, ii. 280.  
 —, Farther Remarks on, ii. 287.  
 —, Further on, ii. 288.  
 Roads, Section of, i. 35.  
 —, on repairing a Sand one, at a small Expence, ii. 139.  
 Rooks partial to Acorns, ii. 345.  
 Rubbing Posts for Cattle, i. 306.  
 — for Swine, ii. 6.  
 Running Bull of Harrows described, i. 109.  
 — Milk for Cheefe, i. 323.  
 Rural Seminaries suggested, i. 88.  
 S.  
 SALE of Merevale Wood, ii. 278.  
 — Weeford Park Timber, ii. 281.  
 — Starfold Wood, ii. 282.  
 — Statfold Poplars, ii. 334.  
 Sand Roads, Remarks on, i. 36.  
 Sap, on the Rise of, ii. 280.  
 —, Rise of, Farther Remarks on, ii. 287.  
 —, Further on, ii. 288.  
 Saw, two-handed, described; ii. N. 338.  
 Scalding Cheefes, i. 324.  
 Scarcity

# I N D E X.

- Scarcity of Cattle, Remarks on, ii. 235.
- , Further Remarks on, ii. 250.
- Scotch Bullocks, on Grazing, ii. 248.
- Season of Sowing, Remarks on, ii. 152.
- of Planting, Remarks on, ii. 354.
- Seed Process, Sect. of, i. 158.
- Selling Timber, i. 68.
- Seminaries of Rural Knowledge suggested, i. 88.
- Semination, Sect. of, i. 158.
- Servants, Section of, i. 97.
- , at Poleworth Statute, ii. 17.
- Setting Sun; its Use in Fore-showing the Weather, i. 130.
- Shakspear Bull, described, i. 272.
- Sheaf Corn, Method of Harvesting, i. 166.
- Sheds of the District, i. 30.
- , on the Fence of, ii. 58.
- Sheep, Section of, i. 331.
- viewed in a National Light, i. 362.
- , different Breeds requisite, i. 369.
- , Breeding, Art. of, i. 371.
- , Fattening, i. 396.
- , at Tamworth Fair, ii. 24.
- , at Fazeley Fair, ii. 22.
- , Instance of the Value of Blood in, ii. 25.
- , a remarkable accidental Variety of, ii. 116.
- ; Remarks on Fattening them at an early Age, ii. 217.
- Shepherding, Art. of, i. 402.
- Ship Timber; its Importance in this Island, ii. 309.
- , Farther Remarks on, ii. 320.
- Showing Rams, i. 377.
- Sir Walter's Walking Staff described, ii. 306.
- Six Years Ley, i. 214.
- Slate of Charnwood, i. N. 25.
- Sledge; its Use in moving Plants, ii. 294. and 349.
- Slovenliness; a clause for preventing it, proposed, ii. 145.
- Slugs, as an Enemy of the Turnep Crop, ii. N. 166.
- Smith's Shops, Rem. on, ii. 88.
- Smithfield Market; its Influence on Country Fairs, ii. 25.
- Smut is incident to the Seed, ii. 11.
- Societies of Agriculture, Remarks on, i. 86.
- Sod Drains; their Introduction here, i. 141.
- Sod Fences, on Raising, with Drain Turf, ii. 89.
- Soft Grass, Meadow; its Merits considered, ii. 141.
- Soils of Leicestershire, i. N. 3.
- of the Station, i. 7.
- and Man. Sect. of, i. 138.
- proper for Cheese, i. 318. and ii. 109.
- Soughing, Article of, i. 139.
- , Practice in, ii. 219.
- Sowing Wheat on Clover Ley, ii. 80.
- Barley under Furrow, ii. 81.
- , Remarks on the Season of, ii. 152.
- , by the Season, farther Remarks on, ii. 190.
- Spreading Dung out of Carriages, i. 148.
- out of Carts, Instance of, ii. 20.
- , General Remarks on, ii. 34.
- Drain Mold, ii. 126.
- , Farther Obs. ii. 137.
- Spring of 1784, Progress of, i. 112.
- , Progress of, 1785, i. 117
- Spring

- Spring Wheat, proper Time of Sowing, i. 183.  
 Stable Mangers of Brick i. 30.  
 Stackguard; a simple one, i. 33.  
 Stagers in Horses, Instances of, ii. 138.  
 ——— in Horses, Further Observations on, ii. 217.  
 ——— in Horses, Further Instances, ii. 241.  
 Staking Plants seldom necessary, ii. 347.  
 Stallions, Article of, i. 260.  
 Stallion Show of Ailby, ii. 75.  
 State of Inclosure, i. 9.  
 Statfold Wood, the Sale of, ii. 282.  
 Statute of Poleworth, ii. 17.  
 Stilton Cheese noticed, i. 320.  
 Stocking Trees, Method of, i. 69.  
 Straw-Yard Man. Art. of, i. 178.  
 Sty, a good Plan of, i. 330.  
 ——— requires Rubbing Posts, ii. 6  
 Subsoils of the Station, i. 8.  
 ———, Further Remarks on, i. 138.  
 Summer Fallowing, Instance of, ii. 28.  
 Surface of the Station, i. 7.  
 ——— Draining, Instance of Practice in, ii. 63.  
 Sutton Fair, ii. 230.  
 Swidland Slates, i. N. 25.  
 Swilcar Oak described, ii. 305.  
 Swine, Section of, i. 327.  
 ——— require Rubbing Posts, ii. 6.

T.

- Taking-up Plants, Directions respecting, ii. 358.  
 Tallow of Sheep, Remarks on, i. N. 353.  
 Tamworth Fair, ii. 24.  
 Team of Horses most extravagant, i. 100.  
 Temporary Leys, i. 214.  
 Tenancy of the District, i. 16.  
 Tenthredo of the Turnep, Experiments with, ii. 167.  
 Tenures of the District, i. 15.  
 Thatching Ricks, i. 175.  
 Thistles, Instance of Drawing, i. N. 164.  
 ——— (Spear); their Nuisance in a Country, ii. 144.  
 Timber, Article of, i. 71.  
 ———, Selling, i. 68.  
 ———, Felling, i. 69.  
 ——— on the Sale of, in Merevale Wood, ii. 278.  
 ——— of Weeford Park, Sale of, ii. 281.  
 ——— of Statfold, Sale of, ii. 282.  
 ———, Method of Felling, ii. 289.  
 ———, Judgment requisite, in converting, ii. 327.  
 ——— Trees, on the Use of Pruning, ii. 292.  
 ———, much, in Needwood Forest, ii. 305.  
 ——— of Bagot Park, ii. 306.  
 ———, the proper Age of Felling, calculated, ii. 307.  
 ———, its Decrease, in this District, ii. 319.  
 ———, Wares of, ii. 336.  
 Time of Sowing, further Remarks on, ii. 190.  
 Tithes, Mode of Collecting, i. 18.  
 Training Woods, Practical Remarks on, ii. 255.  
 ——— Hedge Oaklings, Practice in, ii. 321.  
 ——— Timber, an Instance of its Use, ii. 342.  
 ——— with dead Plants, suggested, ii. 361.

Trenching

# I N D E X.

Trenching Plantations, the  
Expence of, ii. 346.  
Tupman, the Import of, i. 353.  
Turf, Article of, i. 214.  
——, Old, i. 218.  
—— Drains, Article of, i. 141.  
Turving, Method of, i. 159.  
Turnep, Aphid descr. ii. 118.  
——, Further Re-  
marks on, ii. 163.  
—— Beetle descr. ii. 117.  
——, Experi-  
ments with, ii. 160.  
—— Culture, Practice  
in. ii. 172.  
——, Directions  
on, ii. 179.  
—— "Fly," Practical  
Remarks concerning, ii. 162.  
—— Tenthredo, Experi-  
ments with, ii. 167.  
—— s, Section of, i. 203.  
——, on Conveying, by  
Water, i. N. 236.  
——, Hoing, Rem. on, ii. 8.  
——, the Cost of Hand-  
Weeding, ii. 26.  
——, Instance of Plowing  
in as Manure, ii. 69.  
——, on Sowing, in dry  
Weather, ii. 83.  
——, a Hint on thinning  
the Clusters of, ii. 148.  
—— not favourable to  
Barley, ii. 195.  
—— on a Compost Heap,  
ii. 198.  
——, the Effect of Frost  
on, ii. 239.  
——, on Collecting, in  
Frost, ii. 240.

## V.

VARIETIES, Accidental, an  
Instance of, in Cattle, i. 272.

Varieties of Sheep requisite  
in this Island, i. 369.  
—— of Cabbages,  
Rem. on Preserving, i. 211.  
Variety, Accidental, of Sheep,  
ii. 116.  
Vegetable Economy, the Effect  
of Frost in, ii. 196.  
——, with Re-  
spect to Drought and Mois-  
ture, ii. 335.  
——, with Re-  
spect to Counteraction, ii. 356.  
Vegetating Process, i. 160.  
Views of the Station, i. 10.  
—— from Bardon Hill, i. 11.

## U.

UNDERDRAINING, Arti-  
cle of, i. 139.  
——, Prac-  
tice in, ii. 219.  
Utility of Form considered,  
i. 247.  
—— of the New  
Leicestershire Sheep, i. 347.

## W.

WAGGON Paths, Method of  
Forming, i. 44.  
Waggons, Article of, i. 103.  
Wares of Coppice Wood, i. 73.  
—— of Timber, ii. 336.  
Wash Pools, Artificial Method,  
of Forming, i. 404.  
Washway Roads, where useful,  
i. 42.  
—— Exam. i. 47.  
Watering Dung, the Idea of,  
ii. 85.  
—— practised,  
ii. 87.  
Watering

# I N D E X.

- Watering Dung, Further Practice in, ii. 112.  
 ——— Grass Land, its Origin and Principles, i. 224.  
 ———, upwards, ii. 53.  
 ———, by Trenches, ii. 57.  
 ———; Instance of its great Utility, ii. 86.  
 ——— Lime, Inst. of, ii. 5.  
 ——— Ridges, Practice in, ii. 135.  
 Water Meadows, Art. of, i. 223.  
 Waters; their Fertilizing Qualities, i. 232.  
 ——— of Austrey; their Properties, ii. 78.  
 ———; Remarks on their fertilizing Qualities, ii. 82.  
 ———; their Effect on Hedges, ii. 273.  
 Watertight Walls, Method of Forming, i. 26.  
 ———, Instance of, i. 33.  
 Weaning Lambs, a practical Remark on, i. N. 402.  
 Weather, Section of, i. 110.  
 Webster, Mr. his Breed of Cattle, i. N. 263.  
 Weeding Stubbles, an Instance of, ii. 146.  
 ——— Failing Hedges, Practice in, ii. 315.  
 Weeds, List of, i. 161.  
 ——— of Pastures not noxious to Cattle, ii. 107.  
 ———, a shameful Instance of, ii. 144.  
 Weeford Park Timber, Sale of, ii. 281.  
 Welby, ———, his Breed of Cattle, i. N. 263.  
 Wheat, full-bodied, in a dry Summer, i. N. 127.  
 ———, Section of, i. 182.  
 ———; Instance of sowing Oats over a thin Crop, ii. 7.  
 Wheat, on the Smut of, ii. 11.  
 ——— affected by the Berberry, ii. 11.  
 ———, General Remarks on Harvesting, ii. 13.  
 ———, on Sowing on the whole Furrow, ii. 80.  
 ———, in the Common Field Husbandry, ii. 206.  
 ———, a permanent Crop, ii. 208.  
 ———, on Checking, &c. ii. 237  
 Wheelwrights Shops proposed, ii. 88.  
 Whey Butter, Method of improving, i. 316.  
 Wilks, Mr. his Exertions, i. 238  
 Woodlands, Sect. of, i. 66.  
 ———, Instances of the Culture of, ii. 255.  
 ———, Reflection on Natural, ii. 264.  
 ———; a Suggestion on their Culture, ii. 266.  
 ———, Further on the Culture of, ii. 322.  
 Woods, Practical Remarks on Training, ii. 255.  
 ———; Remarks on their deceitful Appearance, ii. 283.  
 Wool, Article of, i. 359.  
 ———; its Uses examined, i. 362.  
 ———, Markets for, i. 405.  
 ———, a Remark on Sorting, i. 406.  
 Work People, Sect. of, i. 97.  
 Workmen's Beverage, Remarks on, ii. 44.

## Y.

- YARD-WOOD, Explanation of, i. 71.  
 Yeomanry of the District, i. 14.  
 Young Cattle, Art. of, i. 293.

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